VILNIUS TECH
Vilnius Gediminas Technical University

24-osios Lietuvos jaunųjų mokslininkų konferencijos „Mokslas – Lietuvos ateitis“ teminė konferencija
Proceedings of the 24th Conference for Junior Researchers “Science – Future of Lithuania“

EKONOMIKA IR VADYBA / ECONOMICS AND MANAGEMENT

2021 m. spalio 21 d., Vilnius, Lietuva
21 October 2021, Vilnius Lithuania

eISSN 2029-7149
eISBN 978-609-476-279-6
Article Number: vvf.2021.057

Finansų valdymas / Financial Management

http://jmk.vvf.vilniustech.lt

THE RESEARCH OF OPEN BANKING IMPLEMENTATION IN LITHUANIAN MARKET

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Abstract. In the growing interest of financial technologies, the research of its environment, market, and needs are important. The scientific problem of this article is: how the service of open banking could be implemented into the Lithuanian market? The purpose of this article – after literature review and theoretical analysis of existing financial technologies services in the segment of payments, to create a methodical framework for new service of open banking implementation into the Lithuanian market. In the literature analysis, the concept and ecosystem of fintech is presented, as well as existing services in the area of payments and their market. In the methodological part of this article – stages of the research are presented, including analysis of use cases of open banking, Ansoff Matrix and SWOT analysis. In the empirical part - analysis of use cases of open banking is done, diversification strategy, according to Ansoff Matrix presented, and SWOT analysis for OB implementation into Lithuanian market introduced.

Keywords: Fintech, payments, Open banking (OB), Payments Service Directive (PSD2), Application Programming Interface (API).

Introduction

Nowadays, in the world, which is changing at a rapid pace, people, including consumers and producers, create markets that need to adjust to high speed of change and digitalization. In the past decade, one of the innovations that arose due to the faster movement of finance in the markets, is financial technology or fintech. The combination of finance and technology enables a new approach to finance, where the services and products are based on technology. Technologies, used to improve financial services are not always new, but by combining two areas, new products can be offered to society. According to Schindler (2017), younger generation “that have come of age with mobile technology” is keen to demand innovations, consequently, one of the demand factors for fintech can be considered, demographics. While technology, itself – in the words of the same researcher, is considered as a supply factor for fintech. The demographic environment and fast rhythm of life create conditions that are necessary for financial technology formation.

The relevance of financial technology products and services is high, due to the increasing interest in financial innovations, that are driven by technology, especially among younger generations, that grew up surrounded by emerging technologies. As the innovations, themselves, are developing at a fast pace, it is important to analyse the latest and most relevant products and services of fintech, as well as changing the market for these products to be integrated. Moreover, to understand, what should be further improvement in the fintech market, it is important to analyse, what was already created, and how market accepted these innovations. Even though fintech industry is growing rapidly, there is still a lack of scientific articles, that are based on the theories of fintech. Therefore, there is a necessity for the research of existing fintech products and services in the market, to be able to understand, how the market works, and what further products could be introduced to society.

In the past decade, financial technology arose as a cluster of innovations that is developed by combining financial sectors and technologies. Research of phenomenon was conducted by a number of scientists, however, the results

and ideas vary. To analyze the phenomenon of financial technology, and to introduce new products or services to the market, concept and ecosystem needs to be analyzed, based on previously done literature researches. Moreover, existing fintech products and services analysis should be done, from the perspective of systemized literature analysis of previously done research.

Nowadays, fintech is rapidly developing, introducing new products and services, as well as platforms and business ventures, that are being efficiently used in the market. There are a variety of tendencies in the market, including Peer–to-Peer lending (P2P), Crowdfunding, Blockchain technology, E-wallets, etc. Despite the fact, that fintech market looks like a good opportunity to create startups, promote new technological ideas and innovations, related to the financial sector, it is also threatening traditional financial institutions, as customers interest is becoming low, once it comes to financial institutions, that cannot offer innovations based on technology (Kalmykova & Ryabova, 2016). From one perspective it could be seen as a threat to traditional financial institutions, while on the other hand it can be considered as technology based improvement, that could let financial institutions generate more revenue.

The problem of this article is formulated by the question: how the service of open banking could be implemented into the Lithuanian market?

Research object – fintech market.

Purpose – to create methodical a framework for new fintech service integration into the Lithuanian market.

Tasks:

- To analyse the concept of fintech, its ecosystem, services in the payments area and existing market of fintech, where open banking could be implemented from the theoretical point of view.
- To present the framework of methodology of the research, where the stages of the research are provided, as well as the methods to perform the research.
- To perform the potential open banking use cases analysis in Lithuania, select strategy for open banking, according to Ansoff Matrix method, and provide SWOT analysis of open banking implementation into Lithuanian market.

1. Literature review

1.1. The concept of finteh and its ecosystem

To begin with, financial technology or fintech, in the Oxford dictionary of English (2010) refers to "computer programs and other technology used to provide banking and financial services". Meanwhile, Financial Stability Board (2021), that is monitoring global financial stability, provides such definition, as: "technologically enabled innovation in financial services 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."

Moreover, in previous studies, fintech is explained as the technology-based products and services, designed to improve the quality of traditional financial products, and help keep pace with current trends (Vyšniauskaitė & Miečinskienė, 2020). Meanwhile, Anugerah and Indriani (2018) present the concept, as "an industry composed of companies using new technology and innovation with available resources in order to compete in the marketplace of traditional financial institutions and intermediaries in the delivery of financial services". Leong et al. (2017) refers to fintech, as „disruptive technologies in the financial services sector". As the phenomenon is still considered new, there is no exact definition, which would be used in all scientific material. According to Lapinskaitė and Kvedaryte (2020), the concept could be divided into the group of authors, that refer to the providers of financial service, that is based on technology, that are using innovations, in order to provide better financial services and products, while another one refers to the providers of financial services, based on technology, that are developing technological innovations, in order to provide better quality financial products or services. In general, technologies used to provide better and faster services, are not always new. But the phenomenon, itself, is considered new, as the financial products and services, that are based on technology, were not used before. In this article, the definition, that is used to explain fintech, refers to the one provided by FSB, and it is explained as "technologically enabled innovation in financial services". To sum up, financial technology is not defined in one single way, yet, as it is considered as a new phenomenon, and new area of finance and technology, this is visible as the enabler of financial institutions to adapt to current trends and fast pace of the society in the market.

Another important part of fintech formation, is its ecosystem, or in other words, all elements, that are important in the environment of financial technology. Without one of the elements of the ecosystem of fintech, it could not exist and improve rapidly. Diemers, Lamaa et al. (2015) suggested that the main elements of fintech ecosystem include governments, entrepreneurs and financial institutions. Each of the elements is an equally important part of the ecosystem, and fintech could not exist without one of them, as the government is responsible for regulations, entrepreneurs for innovations and financial institutions in the market for innovations of financial technology. However, according to Lee and Shin (2017), there are five main elements of fintech ecosystem, including fintech startups, technology developers, government, financial customers and traditional financial institutions.

- Fintech startups are important, as they are the center of fintech ecosystem. These companies are either integrating innovations into existing financial institutions, and creating efficiency and work at a rapid pace, or creating alternative products and services for these traditional financial institutions, in order to ease the way of their work. Financial technology startups are either Business to Business (B2B) or Business to Customer (B2C) type of institutions. Such companies offer a variety of products and services, including payments, lending, investment, insurance, crowdfunding, wealth management.
- Technology developers, on the other hand, are as important in the ecosystem of fintech, as startups, since startups could not exist without the environment that is provided by technology developers. This part of ecosystem provides digital platforms, that can be used by fintech startups in order to provide innovative financial products and services for consumers.
- Government should be considered a particularly important part of fintech ecosystem, as well, since it is responsible for the regulatory environment for companies to start their business. Government regulations can be differentiated according to countries, and regulations are different, as well.
- Financial customers are individuals or companies, that use fintech products and services, that are based on innovations. An important fact, that was analysed by Schindler (2017) and Lee and Shin (2017), is that financial customers are usually from the younger generation, so-called "millennials". Authors highlight that demographics is especially important factor of demand for fintech, as the younger generation is used to technologies, since they grew up with it. Fintech can offer fast and innovative products and services for these financial customers to satisfy their demand.
- Traditional financial institutions – an important part of fintech ecosystem, as it is the base for fintech innovations. Fintech companies either adapt their innovations to traditional financial institutions, to provide better service or offer an alternative service, that could change the traditional financial institutions.
- To sum up, these five elements of fintech ecosystem are equally important, and fintech could not exist without one of them. They can be treated as a chain, as fintech startups could not exist if technology developers did not provide a favorable environment for them, as well if the government did not provide regulatory platforms. Moreover, if there were no financial customers, fintech did not have revenue, and would not be able to create new innovations without funding, as well, as without the basis of the innovations.

1.2. Theoretical analysis of existing services in payments segment of fintech and open banking concept

As already discussed in the previous researches, fintech can be seen from different perspectives. From one side, it can improve traditional financial institutions, as their services and products can become technology based, and adapted to the fast pace of society. On the other hand, it can be seen as a threat, as new financial institutions are evolving, and threaten to diminish the impact and usage of traditional financial institutions, as customers interest becomes lower, if these institutions cannot offer technology based products and services. To better understand the segment of payments in fintech, the literature review of it is presented.

One of the biggest segments of fintech market is the segment of payments. Lee and Shin (2018) distinguish payments industry as a separate fintech business model that could be divided into two markets: "consumer and retail payment and wholesale and corporate payment". These categories also include banking area, where fintech recently is having huge impact. To begin with, one of the consumers and retail payment sub-categories is mobile wallets, or electronic wallets. This product, according to Gomber et al. (2017), is the equivalent of a physical wallet, as a digital

storage. Such product "holding identification information, facilitating cash and credit payments, and storing temporary tokens". Peer to peer payments, on the other hand, are payments between private individuals (Gomber et al., 2017). Meanwhile, Bradford and Keeton (2012), suggested, that there are three models of P2P transfers, including non-bank centric model, bank-centric model, and card centric model. Non-bank centric model of P2P payment is based on non-bank intermediary intervention between two individuals for a payment transaction. This is the example of fintech product, such as PayPal. Bank-centric model includes bank transfer from account of sender to account of recipient via bank. Card-centric model is processed without any intermediaries and is based on transaction over credit or debit card. Digital currencies, as explained by Ali et al. (2014), theoretically could serve as money in a digital way, to anybody, who has availability to internet. There are few alternative names, such as digital money, electronic money, or cyber cash. Although name shows that it can be considered as money in digital form, the same author suggests, that it can be used as money only partially. As it is stated from his perspective, there are three following purposes of money:

- A store of value, where the main idea of this purpose of money is to be able to to buy goods and services. It means, money must have purchasing power. In the case of digital currency, as author suggested the worth of cyber cash is decided on people believes of future supply and demand.
- A medium of exchange. The purpose of it is to make payments. In case of digital currency, author suggested, that, since this measure shows, how many retailers would accept money as a payment, digital currency is not the perfect example of money, as it has only several thousand retailers for this purpose. On the other hand, this currency could be considered as money of the future, where the number of retailers can be much greater, and cyber cash would have status of money, then.
- A unit of account. The purpose of it is to measure the value of an item that is for sale. Author suggests that digital currency is seldom used for this purpose, as there is no evidence for it. In general, digital currency is not regulated by central bank, which might be the reason for this purpose not to be valid for cyber cash.

Moreover, there is a huge impact of fintech either on the banking sector because banks are considered as traditional financial institutions, and as mentioned before, they accept fintech as enabler of technology-based approach, or as a threat, which could reduce the interest of consumers in traditional banking. According to Vives (2017), fintech sector is fairly small in Europe, compared with United States and China. However, there is a huge fintech hub in United Kingom, especially in banking area. The same author suggests – "With the generation of new business models based on the use of big data, fintech has the potential to disrupt established financial intermediaries and banks in particular". Different researchers have different opinions on banking and fintech cooperation, and most of them argue, if this is a good combination, that originates revenue, or the opposite. Romanova and Kudinska (2016), suggest, "The rapid rise of fintech has changed the business landscape in banking asking for more innovative solutions. These tendencies require the banks to increase investment in fintech, rethink service distribution channels, especially the business-to-consumers models, increase further standardization of back-office functions".

Moreover, as mentioned before, United Kingdom is one of the biggest fintech hubs in the world, and has implemented different products and services related to the traditional financial institutions. Another country that is boosting fintech implementation is Lithuania, where different fintech startups are being created, as well, as the companies, that are related to financial institutions. Thus, one of the emerging business field in the financial system, which was pioneered in UK, is open banking. As Liou et al. (2021) explains, "Open banking (OB) is an emerging business field in the financial sector, which relies on intensive collaboration between banks and non-banking service providers". From this perspective, fintech is an enabler of the technologies on traditional financial institutions and is thriving in more and more European countries. According to Brodsky and Oakes (2017), "While open banking stands to benefit end users as well as to foster innovations and new areas of competition between banks and nonbanks, it is also likely to usher in entirely new financial service ecosystem, in which banks' roles may shift markedly. It also raises issues around regulation and data privacy, which helps to explain why global markets have taken varying approaches to governance, contributing to disparate levels of progress". Open banking has the potential to reshape the competitive landscape and consumer experience of the banking industry and this system could be implemented into Lithuanian market. Bank of Lithuania (2021), that is the main organiser and regulator of fintech expansion in the country, explained open banking as "a system, based on application programming interface (API) and intended for sharing financial information necessary for the development of financial products and services." This phenomenon, relies on a technological network of different financial institutions, enabling

them to exchange information more efficiently, as an opposite to the centralized management of financial data. In other sources, open banking is defined, as the system of allowing access and control of consumer banking and financial accounts through third-party applications. Omarini (2018) defines, that open banking in practice would mean, that instead of using different banking firms for different services, "customers could have their current account with one provider and then bolt on other financial services such as an insurance, mortgage and investments through other providers, all under the user interface of their choosing". This innovation is beneficial not only for customers, but also for businesses. For customers, open banking gives a choice to freely select multiple service providers, as well as to manage their finance safely. For businesses, open banking gives the field for competition between different financial institutions.

1.3. Theoretical analysis of market research of open banking

As mentioned before, open banking platform, is already implemented in different countries of the world that are the hubs of fintech. However, before implementing the same platform to other countries, it is important to analyze market of open banking platform.

To begin with, the global market of open banking can be segmented, based on different areas, such as financial services, distribution channel and region (Table 1).

Table 1. Segmentation of open banking in the global market (source: Based on Camerinelli (2020))

Global market of open banking segmentation	
Financial services	Bank and capital market, payments, digital currencies
Distribution channel	Bank channels, app market, distributors, aggregators
Region	North America (U.S., Canada, Mexico), Europe (UK, Germany, Netherlands, Spain and Rest of Europe), Asia – Pacific and LATAM (China, Singapore, Australia, Hong Kong and Rest of Asia-Pacific and LATAM)

Moreover, there are three main participants in the market that are mandatory in the open banking ecosystem, including regulators, banks and Third Party Providers (TPPs). As previously mentioned, open banking is based on the idea, that "consumers and businesses can now easily share their data with banks and third parties to manage personal accounts and compare banking services" (Gozman et al., 2018)

First participant of open banking ecosystem is regulator. While some countries were already preparing open banking strategy, European Parliament, in 2018 presented revised payment services directive (PSD2), which requires banks to share customer's financial data with third parties via Application Programming Interface (API). This revised directive made payments for customers, easier, faster, and more innovative. The PSD2 directive is beneficial not only to customers, but also to fintechs, that are focusing in the payments field, which now have a possibility to provide the competitive applications, where consumers, can easily find the best offers from different banks in different services, that bank can offer. The main principle of PSD2 revised directive is to promote innovations in the area of payments, where access of customer data to third party providers, in this case, fintech companies, while ensuring enhanced security and strong customer protection. Based on European Commission issued directive, PSD2 requires all payment account providers across the EU to provide third-party access. PSD2 does provide the legal framework within which the OB future efforts at creating other national OB standards in Europe will have to operate.

Second participant in open banking market is bank. Banks could be differentiated as market players into such groups as large banks that are treating OB as an important programme, both for regulatory compliance and strategic reasons. In addition, mid-sized banks that do not have enough funds to invest into high-level propositions of open banking, and digital banks that have the main threat that incumbent banks develop equivalent digital platforms and customer mistrust hinders adoption. For traditional banking, open banking models are more of a challenge, then a benefit. The main threat for the banks is to fall behind more technologically advanced competitors, while the opportunity example is to develop greater customer understanding and increase market share. However, after the PSD2 directive, was revised and presented, banks should prepare to integrate, one of the open banking business models that could be separated into four different archetypes: aggregator, distributor, platform enabler and data provider.

Third participant in open banking ecosystem is third – party provider. This is the main participant that enables easier access to different bank services to consumers, via APIs, which allow customer data sharing, such as transactions, bank statements, history of payments, etc. The third – party provider usually is the private fintech company, which offers applications to the customers, where they can compare different bank platforms, and choose the best option, given. These TPPs are visible as challenge to bank institutions, as they need to compete among other bank institution to become better service providers to their consumers. Although the initial objectives of the Open Banking standards were to increase competition in banking and increase current account switching, the intent is continuingly evolving with a broader focus on areas including reduced overdraft fees, improved customer service, greater control of data and increased financial inclusion. However, there are also main threat for fintech, that there will be increased competition due to the emergence of more third – party providers, while the main opportunity is to increase customer base through access to integrated platforms and market places.

Table 2. Key threats and opportunities for open banking main participants (source: created by author)

	Key threats	Example opportunities
Banks	Falling behind more technologically advanced competitors (new and existing)	Develop greater customer understanding and increase market share
Payment providers	Reduced use of debit and credit	Become part of the core payments infrastructure for Open Banking participants
Digital banks	Incumbent banks develop equivalent digital platforms and customer mistrust hinders adoption	Become the platform of choice due to first mover advantage and superior customer engagement
Fintechs	Increased competition due to the emergence of more 3rd party providers	Significantly increase customer base through access to integrated platforms and market places

To sum up, market for open banking include three main participants – regulators, that set the legal rules for the service, banks, that are obliged to share access to customers data, according to PSD2 directive, they also include digital banks, and additional payment providers could be separated. Moreover, fintech companies, or third party providers (TTPs), that are the intermediary between banks and customers via help of APIs. There are various threats and opportunities for these market participants (Table 2), For banks, payment providers and digital banks the main threats consist of the new competitors, that appears with the help of open banking, these institutions need to become more technologically advanced, in order to remain competitive. However, all of them falls into huge new platform of open banking. For fintech companies, the competition also increases, as with open banking, more third-party providers emerge, but as the same time, the customer's base increase, as the new service is implemented.

2. Methodology

In order to create a framework for open banking service entry to Lithuanian market, the analysis of open banking applications will be done. To evaluate risks and analyze strategies for growth, the Ansoff Matrix tool will be used. Finally SWOT analysis is presented for open banking integration into Lithuanian market. The separate phases of methodology are presented in Figure 1.

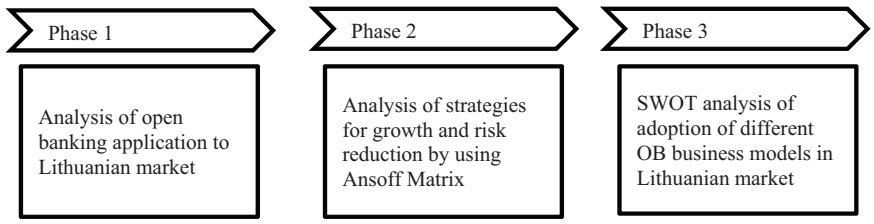

Figure 1. Phases of methodology (source: created by author)

For phase 1 as the Bank of Lithuania (2021), the main fintech regulator in Lithuania, proposed, Payments Council, as on the level of EU, in terms of OB development, should examine the integration and development of open banking

in Lithuania, the initiative was taken to Euro Retail Payments Board (ERPB). Payments council in 2019 set an objective for OB development in Lithuania, to identify the practical cases of OB implementations into the market, which are not covered by PSD2 directive, and to analyze them in context of the regulations and law, as well as the context of other EU countries environment for OB implementation. As the development of OB was postponed, analysis of OB applications is presented in this research.

For phase 2, Ansoff Matrix is used for fintech companies' integration of open banking as a new service in Lithuania, as this is the tool used for strategic planning for businesses and risk reduction. As explained in Oxford dictionary, Ansoff Matrix is "a tool that helps a publishing business visualize its current product/service offering and market, and consider strategy for future growth". In case of open banking, the current service is banking system, while the implementation of open banking in Lithuania is new service offering to the market. Ansoff Matrix principle includes four strategies that are analyzed in terms of new service. These four strategies include market penetration strategy, when there is a need to get more from an existing product in an existing market. Also service development strategy, when there is aneed to develop a service for an existing market, market development strategy refers to new market with existing products, and diversification strategy, which has the highest risk, refers to developing a new product for a new market. (Figure 2).

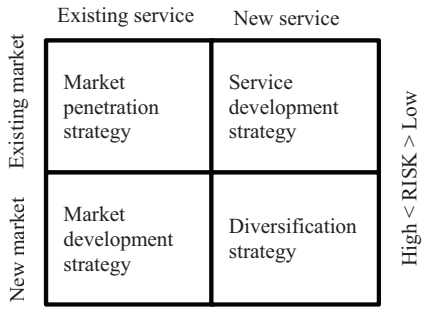

Figure 2. Ansoff Matrix (source: Ansoff Matrix. Strategy Skills, 2013)

For phase 3, SWOT analysis of open banking in Lithuania is performed, which purpose is to evaluate strengths, weaknesses, opportunities and threats of the new service entrance into the Lithuanian market. As explained by Phadermrod et al. (2019), "SWOT analysis is a qualitative method of analysis of market processes that allows to identify the strengths and weaknesses of the analyzed object and to reveal the opportunities and threats arising from the environment."

At the end of the analysis done after three phases, conclusions are derived for open banking entrance into the Lithuanian market. The Research of Open Banking Implementation into Lithuanian Market

In this part of the research, different cases, where open banking would have impact in Lithuanian market are analyzed (Table 3). These cases are divided into two parts, including open banking as a service for information exchange and usage, and open banking as a service provider for specific services. As well, they are divided into three groups, as if the information is publicly available, covered by PSD2 revised directive, or not covered by PSD2 revised directive.

From the analysis, it is visible, that Services of open banking that could be used for information exchange between banks and third party providers via APIs could be differentiated into:

- Comparison services, where there is such publicly available information, as service fees and interest fees. From the perspective of third-party providers, such applications could be created, where individualas coul see the different bank service fees and different interest rates that are applied to loans, that can be compared with other banks in one platform. For non-confidential information usage, there should be created a framework, of what exact information could be included in comparison services, that would be beneficial to compare between different banks and other payment providers.
- For analytical tools, TTPs could develop the platform, where publicly provided information could be found for analytical purposes. Non-confidential information and financial services used, that is controlled by the institutions in Lithuania, should be specified, according to the use into small groups.

Table 3. Potential open banking use cases in Lithuania (source: The Bank of Lithuania, 2021)

	Publicly available information	Covered by PSD2	Not covered by PSD2
Services for information usage			
Comparison services	Service fees, information on interest fees	N/A	Non-confidencial information on services
Analytical tools	Public information provided by the customer	Information of account	Non-confidencial information; financial services used
Reporting tools	Service fees, interest rates		N/A
Information exchange	N/A		Data of accounts used for fraud and confirmed cases of money laundering and terrorist financing; provision of user information
Creditworthiness assessment	Access to public sector databases	Credit risk assessment based on account information for its holder	Credit risk assessment using non-confidential information;
Services provided by Open Banking			
Payment service	N/A	Electronic and mobile commerce	Making deposits
Customer identification		N/A	Customer identification for third parties
Asset management		N/A	Asset management through a third party provider

– For reporting tools, as well as for comparison services, there is publicly available information, such as service fees and interest fees, that could be implemented in the applications for reporting by TTPs, as all account information, that is covered by PSD2.
– Moreover, there is some data of individual usage of account, where any fraudulent activity was done, which is not covered by PSD2, which is one of the initiatives of Bank of Lithuania in the field of Regtech for better compliance of such accounts and transactions.
– For creditworthiness of individual, there is publicly available information in the databases, as well PSD2 covers creditworthiness risk assessment based on individuals account data. This information, when open banking is implemented, could be used for insurance or leasing services, if other financial sectors would be included into this field together with banks with the help of TTPs. For the information exchange, in terms of creditworthiness risk assessment of individual, as well as in previous cases, the non-confidential information. However, to evaluate, the forecast the behavior of a person, account there is a need to have available more non confidential information, which is now not accessible due to Lithuanian payment law.

From the analysis, it is visible, that a big part of the information for the exchange is either publicly available or covered by PSD2, howerer there are some Lithuanian payments law issues, and undergoing initiatives done by regulators of fintech in Lithuania, which could also be implemented under the open banking initiative. Moreover, there are different services that could be provided by open banking, as well, including payment initiation service, customer authentication, information exchange for KYC purposes, and asset management.

– For payment service, electronic and mobile commerce is covered by PSD2, as they are already existing in the market when payment is initiated via a third-party provider. As well, possible use of open banking, which is not covered by PSD2 would be making deposits. In this case, the problem arises, if a person, that makes a deposit is not the customer of the credit institution, and in an open banking case, there should be implemented remote access to such service.
– For Customer identification for third parties, there is already an implementation of Smart-ID, which lets to do the authorisation of customers. However, the same technology, in the case of OB, could be implemented also for foreign institution's customers.
– For asset management, there is a possibility, that due to low population and low interest in asset management, this OB use case would not be implemented fast.

To sum up, open banking implementation into the Lithuanian market would require the digitalization of some services and IT tools. If the cost of IT tools does not exceed the benefits of open banking services. The benefits of OB do not necessarily need to be monetized, for example, the service can be beneficial to the society of Lithuania for financial education, as well as for saving costs. However, in order to understand the scope of future open banking service usage, it is important to conduct a survey, as if there are not enough users of the services, the IT tools costs would exceed the benefits of open banking services.

For the second stage of the research, Ansoff Matrix tool is used, for strategic planning of OB service implementation in Lithuanian market. As already presented in the analysis of case use of open banking, not all services, that could be provided by open banking are covered by PSD2 directive, and open banking is not only regulatory perspective and innovation, where banks must provide customer data to third party providers, but also different business models could be created by fintech companies, that would digitalize banking industry in the future. In Lithuania, fintech companies are thriving, and, according to the Bank of Lithuania (2021) annual reports, the biggest part of fintech companies, around 30% are working in the business of payments, 30% in the business of financial software, as well 6% in compliance management and cybersecurity market (Figure 3). This is also one of the most important fintech market areas for implementation of open banking, as the principle of OB is for banks to share customer financial data with third – party providers, according to PSD2 directive. As financial data is very sensitive, companies need to assure, that all the activity is compliant to the regulation.

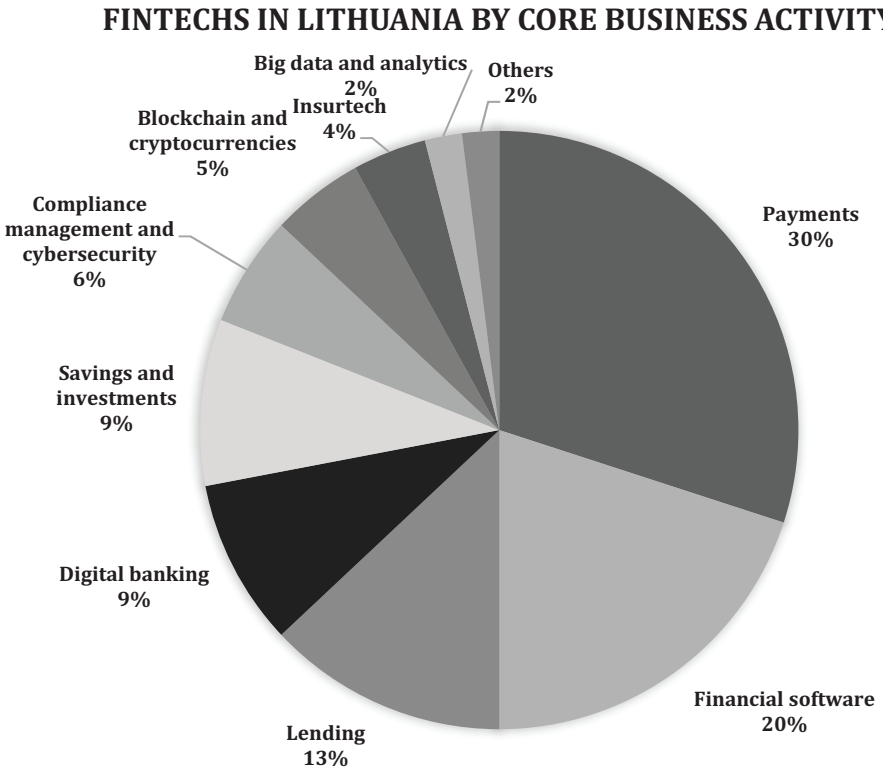

Figure 3. Fintechs in Lithuania by core business activity, in % (source: The Bank of Lithuania, 2021)

Since the number fintech companies is highest in payments and financial software, Ansoff Matrix is used, to plan the theoretical business strategy for the implementation of open banking into the Lithuanian market from the perspective of third-party providers, fintech companies. In this part diversification strategy is provided in terms of open banking. Diversification strategy refers to a new service implementation into new market. In Lithuania such service was not implemented, yet, even though worldwide it is already becoming popular. For Lithuanian fintech companies, the service of open banking is new, as well as the market of individual customers, that would be using fintech companies created services. As open banking is basically the service for customer's financial information distributors, fintech

companies are enabled to create various services in terms of open banking. Open banking is already implemented in the markets of different countries, where fintech companies provide services and use cases of open banking. Based on the company "Tink", that provides open banking services in the United Kingdom, potential implementation of the platform could be done in the Lithuanian market. According to Ansoff (1957), diversification strategy could be separated into two main types, including concentric diversification, when a new product is introduced to a new market, however, the product is technologically improved but it is similar to the existing one. The second type is conglomerate diversification when there is presented entirely new product or service, and a new customers segment in the market is targeted. Open banking implementation into the Lithuanian market would be an entirely new service, and the fintech company, that specifies in payments or financial software, would be able to create the cloud-based platform for open banking, including such services as the up-to-date data for transactions analysis from different banks, account check in real time data, payment initiation service or financial management application builder. The possible strategy for the fintech is to keep working on providing financial software to businesses, while entering new market of individual participants with the new product of cloud-based platform, including separate services, according to the needs of clients, which are based on the open banking policy and PSD2 directive, letting third-party providers to access bank customers financial data and to share it on the newly created platform. Such diversification of the strategy would bring more revenue and sale, as the market of the company extends, as well as the number of services, offered.

Open banking, as any other service has advantages and disadvantages. For this reason, before implementing the service to the Lithuanian market, it is important to analyze, what are the strengths, weaknesses, opportunities and threats, by doing SWOT analysis (Figure 4).

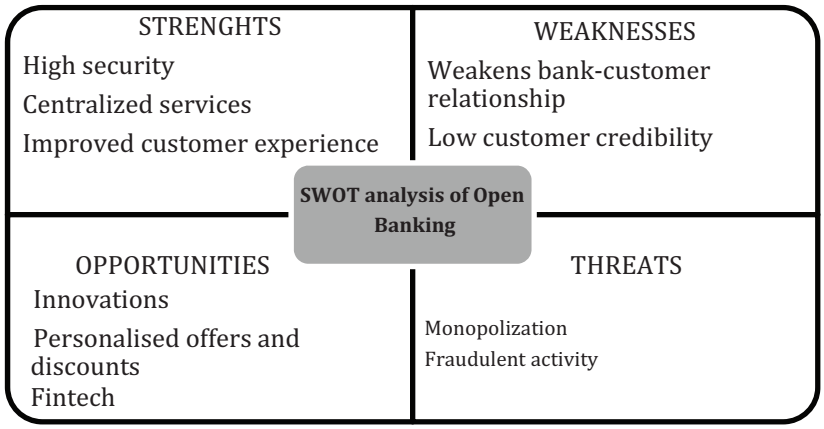

Figure 4. SWOT analysis of open banking in Lithuania
(source: created by author, based on JEC Toronto, 2020 global SWOT analysis)

From the analysis it is visible, that the strengths of open banking include high security, as all the customer data, that would be shared by banks with third-party providers are either public or covered by PSD2 directive. For any other data, that could be used to create new products or services of open banking, the law of the country and the compliance of the regulators need to be followed. As well, services would be centralized, meaning, that customers could find all the needed information in one application with help of fintech companies, that would centralize data from different banks and payment providers. Moreover, customer's experience would be improved, as with the help of APIs, that fintech companies provide, information would be easily accessible for everyone, compared and could be used for reporting, analysis, as well.

On the other hand, weaknesses of the implementation of open banking into the Lithuanian market include the weak relationship between bank and customer, meaning, that before open banking implementation, customers know their banks, and they trust, that the services and products provided by the bank are the best in the market. Open banking shared data principle would let customers to have information comparison, which could be considered as an advantage for the customer, but as a threat to the bank, that customer would choose a better option, provided from a different bank. As well, low customer credibility is a threat for the banks, which is highly connected to the threat of

the weak relationship between banks and customers. As customers reduce their trust in banks, as they will access the data, where there is clear visibility of better options, provided.

Open banking suggests such opportunities, that would be brought to the market, as innovations, where banks could get the opportunity to become a more technology-based financial institution, fintech companies could develop new products and services and customers would be able to easier access data, that they need. Also, different personalised offers to customers could be provided, as algorithms of the applications, created by fintech companies could be set to find, what is the best offer for individuals. The opportunities for fintech include a variety of new projects, that could be offered to the clients, as well as a competitive field for the innovations.

Finally, the threats of open banking could lead to monopolization and fraudulent activity, as customer data is very sensitive, and could be used in an inappropriate way. However, the high security of the open banking service should help to avoid such cases in the future.

To sum up, in this part of the research, analysis of potential use cases of open banking services in Lithuania was done, and it showed, that a lot of information exchange services are covered by PSD2 directive, while services, that are not covered by PSD2 directive, could be implemented by using IT tools, according to payments law and compliance in Lithuania. It is important to calculate in further analysis if the benefits of implementation of OB services would be lower, than the costs for IT tools required. As well Ansoff Matrix was adapted to a potential fintech company, that would offer open banking service as a third party provider. The diversification strategy was proposed for fintech that specifies in financial software, to create a cloud-based platform, which target market would be individual customers, and to provide up to date information that generates a possibility for users to manage their finance better. Finally, SWOT analysis of open banking implementation into the Lithuanian market was done, which showed, that some of the strengths are relevant for fintech companies, while weaknesses are referring to the banks. From SWOT analysis, it is visible, that if banks and fintech companies collaborate in the open banking implementation into the Lithuanian market, banks could become more technology-based, and gain more advantages with the help of fintech.

Conclusions

In the age of technologies and digitalization, it is important for financial institutions to adapt to all technological improvements and services, in order to remain competitive. One of the most emerging fields of finance is financial technologies companies, or in other words fintech. This article consists of three parts, including literature analysis, methodology, and the results of the research.

- In the literature analysis, the fintech concept was explained from two different perspectives. From one perspective, it is based on technology, that is using innovations, in order to provide better financial services and products, from another perspective, it is based on technology, that are developing technological innovations, in order to provide better quality.
- The ecosystem of fintech includes five participants of the market: fintech startups, technology developers, government, financial customers, and traditional financial institutions, which are equally important, and fintech could not exist if one of the ecosystem participants would be eliminated.
- Moreover, the existing services in the fintech market, in the area of payments were introduced, as well as the banking sector, where the service of open banking is emerging worldwide. For this reason, in this scientific article, there were provided insights for possible OB implementation into the Lithuanian market. The concept of OB was presented, as well as the segmentation of OB, already created and systemized in previously done researches. Theoretical market research was done for open banking, main market participants, including regulators, banks, and third-party providers or fintech analysed.
- The methodological part of the article is separated into three stages, including analysis of use cases, which are covered and not covered by PSD2 revised directive, Ansoff Matrix for business strategies and risk reduction for open banking, and SWOT analysis for OB implementation in Lithuania.
- In the analytical part of the research, analysis of possible use cases of OB in Lithuania showed, that the implementation could be done, if the costs for IT tools do not exceed the benefits of OB, which can be not only monetized but also beneficial for the financial education of society. As well, it was suggested, that in further research,

the number of OB service users should be analyzed, as due to the small population of the country, the costs of implementation could possibly exceed the potential benefits of the service.

– For Ansoff Matrix, the diversification strategy was chosen for a potential fintech company, that specifies in financial software. The conglomerate diversification strategy includes the service of the cloud-based platform, which target market would be individual customers, and the services provided include up-to-date financial data for comparison of different banks, financial management application builder, and payment initiation. The benefits for the fintech company include increased revenue and sales, as the market expands, as well as new product enters the market.
– Finally, SWOT analysis for OB implementation into the Lithuanian market was presented, which showed, that looking from the bank perspective and fintech companies perspective, the strengths, weaknesses, opportunities, and threats vary, as some implementation of OB could be beneficial for fintech, in terms of new sales and revenue, but considered as a disadvantage for the bank, as customers trust for banks could decrease.

To sum up, open banking is one of the services, that is emerging in the world, and includes a competitive environment for banks, opportunities for fintech startups, and better service for bank customers. The phenomenon of open banking still is considered as new, the implementation of it into the Lithuanian market is relevant and recommendations for further analysis include the research of the Lithuanian market and its needs, as well, as the national survey of potential users of the services, to find, if the costs for the implementation would not exceed the benefits

Contribution

Author of this article MM collected information for literature review, implemented methodology and analyzed the results. Author GŽ consulted, provided suggestions and improvements of the article.

Disclosure statement

Author declares, that there are no competing financial, professional or personal interests from other parties.

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ATVIROSIOS BANKININKYSTĖS DIEGIMAS LIETUVOS RINKOJE

Monika MEČIONYTĖ, Grigorij ŽILINSKIJ

Santrauka. Didėjant susidomėjimui finansinėmis technologijomis, svarbūs tampa jų aplinkos, rinkos ir poreikių tyrimai. Šio straipsnio mokslinė problema yra: kaip atviros bankininkystės paslauga galėtų būti įdiegta Lietuvos rinkoje? Šio straipsnio tikslas – išnagrinėjus literatūrą ir teoriškai išanalizavus esamas finansinių technologijų paslaugas mokėjimų segmente, sukurti metodinį pagrindą naujos atviros bankininkystės paslaugos diegimui į Lietuvos rinką. Literatūros analizėje pristatoma *fintech* samprata, jos ekosistema bei esamos paslaugos mokėjimų srityje ir rinkoje. Metodinėje šio straipsnio dalyje pateikiami tyrimo etapai, įskaitant atvirosios bankininkystės naudojimo atvejų analizę, Ansoff Matrix ir SSGG analizę. Empirinėje dalyje atlikta atvirosios bankininkystės panaudojimo atvejų analizė, pristatoma diversifikavimo strategija pagal Ansoff Matrix ir SSGG analizė atvirajai bankininkystei diegti Lietuvos rinkoje.

Reikšminiai žodžiai: *fintech*, mokėjimai, atviroji bankininkystė, mokėjimų paslaugų direktyva (PSD2), taikomųjų programų sąsaja.