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Development of innovation in the Polish banking sector

Zofia Polkowska[1]

Abstract

The rapidly developing market for new technologies is driving the introduction of innovative solutions in the banking sector. As a public trust sector, they are subject to numerous regulations. Supervisors and central banks are trying to support the development of new technologies in the sector by reducing regulatory uncertainty and support programs aimed at FinTech (Financial Technologies) companies. The purpose of the study is to analyse existing regulations and regulators' initiatives on new technologies in the banking sector. The author seeks to answer the research question of whether the introduced regulations support or limit the digital transformation of the banking sector in Poland. An important aspect in the sector is customer security, so regulations should focus on protecting the banking customer and ensuring the stability of the sector. They are analysed by regulators so that the relevant regulations enable the introduction of innovative yet safe solutions. The author points out possible synergies resulting from cooperation between banks and FinTech companies. In conclusion, dialogue between banking sector institutions, regulators, central banks and banks leads to the creation of an environment that allows the introduction of innovative solutions while maintaining customer protection and banking sector stability.

Keywords

- innovation
- banking sector
- new technology
- regulations
- FinTech

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[1] Warsaw School of Economics, al. Niepodległości 162, 02-554 Warszawa, Poland, zpolko@sgh.waw.pl

Introduction

As a public trust sector, the banking sector is subject to numerous regulations. The definition of supervisory regulation indicates legal norms that aim to ensure the safety of banks at an appropriate level by limiting the risks that banks can take (Koleśnik, 2017). The purpose of regulation is therefore to protect the stability of the sector, but also to avoid the negative effects of possible crises. The scope of regulation covers areas ranging from risk management to capital protection to information obligations and banking products. The market for new technologies is developing rapidly, also within the financial sector. Emerging solutions using artificial intelligence, machine learning, robotization or biometrics allow the introduction of less costly and more efficient and attractive solutions for customers. The concept of innovation includes, among other things, introduction of new products (or new types of a particular product), opening of a new market, as well as introduction of a new organisation (Marcinkowska*,* 2012). The definition encompasses the entire process of activities related to the stages of idea generation, technology development and introduction to the market (Ślązak, 2023). Financial innovation can also be defined, especially in the finance sector, as "he act of creating and then popularizing new financial instruments, as well as new financial technologies, institutions, and markets" (Lerner & Tufano, 2011). Innovation can also be interpreted as a process in which new products primarily result from changes in the previous products (Hammad Naem et al., 2023).

With the rapid development of new technologies, banks are providing their customers with innovative solutions to meet their payment, financial management and banking interaction requirements. The development of banking is now linked to the use of artificial intelligence, robotisation, machine learning, bots, big data and new forms of payments (including biometrics). The rising share of innovative solutions is also increasing the emphasis placed on protecting customer data. The FinTech (Financial Technologies) community points to the need to support financial innovation through oversight, regulatory stabilisation and a friendly legal environment for testing innovations. Adequate regulation of solutions provides security but can also generate additional barriers and costs when implementing innovations.

Banking products, through strong regulation, are characterised by high security from the customer's perspective. Innovative solutions are sometimes considered to be exposed to higher risks. However, the cooperation of regulators and financial institutions that introduce such solutions can lead to increased security, both on the part of the customer and the financial system. Lack of regulation can negatively affect the stability of the banking sector, as well as the risks within it. It should be noted that greater regulatory requirements may result in higher costs of implementing solutions using new technologies. Hence, it becomes extremely important to develop a compromise that will allow to meet the regulators' goals of preserving the stability of the system, but also allow banks to implement innovations without generating high costs, including the regulatory ones.

1. Literature review

Banks are carrying out digital transformation in the areas of customer service, big data processing, security and digitisation of processes. The main methods of implementing digital strategies include:

- launching a digital brand,
- digitisation of processes,
- streamlining digital customer service,
- release of new digital functions (Ostrowski, 2019).

Banks' activities are responding to the rapid changes taking place in the financial sector. In building their competitive advantage, they must respond to changing customer expectations, among other things. However, as highly regulated institutions implementing new solutions, they must meet supervisory requirements. Advances in digital technology are the changing factors of the very nature of banking (Broby, 2021). One of the fundamental issues in the strategic decisions of banking sector will be the attitude toward new technologies, as well as competition or cooperation with FinTech players (Miklaszewska & Folwarski, 2020). In addition, this poses a challenge for regulators to focus on bank profitability as a critical consideration (Klein & Weill, 2022).

In the Act on Financial Market Supervision of July 21, 2006 (Ustawa, 2006), one of the tasks of the Financial Supervision Commission is to "take measures to support the development of financial market innovation". Innovative solutions in the sector are supported through the establishment of entities aimed at supporting regulatory processes in the area of new technologies and supervision of institutions, i.e. FinTech. Countries where such organisations are being established include: Australia (Australian Securities and Investments Commission and Innovation Hub), Canada (OSC LaunchPad), China (National Internet Finance Association (NIFA)), Luxembourg (Commission de Surveillance du Secteur Financier (CSSF) Innovation Hub), Germany (BaFin Federal Financial Supervisory Authority), Japan (FinTech Support Desk) and France (Autorité de Contrôle Prudentiel et de Résolution (ACPR) Fintech Innovation Field and Autorité des Marchés Financiers).

In Poland, on December 9, 2016, a Special Task Force for the development of financial innovation (FinTech) was established. The initiators of the establishment were the Office of the Polish Financial Supervision Authority (UKNF), the Ministry of Finance and the Ministry of Development, while the role of coordinator of the team is played by the UKNF. The broad composition of the Task Force includes, among others, representatives of the National Bank of Poland, the Office of Competition and Consumer Protection, the Polish Bank Association, the Stock Exchange, the National Clearing House and the FinTech Poland Foundation. The perspective of representatives of both banks, regulators and customers or FinTech companies can result in the development of solutions that favour the entire market. The team is tasked with identifying legal, regulatory and supervisory barriers that affect the opportunities for the development of financial innovation. The team's work results in proposals for legal or systemic solutions to enable the elimination of barriers. The positions promulgated by the Task Force are binding – it should be noted that this is an exception compared to the solutions introduced in other countries.

As a result of the Task Force's work, the following barriers were identified:

- availability of records,
- time of proceedings,
- issues of AML (anti-money laundering),
- paper forms,
- excessive regulation,
- digital identities,
- variable guidelines,
- unclear regulations,
- lack of capital,
- lack of barriers,
- other (UKNF, 2021).

The barriers can be divided into such areas as payment services, banking law, lending sector, payment sector as well as general. Figure 1 presents the distribution of the number of barriers by area.

One of the barriers is legal uncertainty, which limits development in the area of new technologies. Responding to the market need, the Polish Financial Supervision Authority has launched the Innovation Hub program to facilitate communication between institutions operating in the financial market and representatives of the UKNF. The subjects of meetings under the program are mainly issues related to payment services, mobile applications, crowdfunding, as well as video verification (UKNF, 2021).

Regulatory concerns raised by the banking sector included technical requirements in the area of cloud computing use or mechanisms to secure identity when providing services, i.e. disclosure of personal data in case of attacks. In response, the UKNF has the opportunity to, among other things, hold meetings to reduce

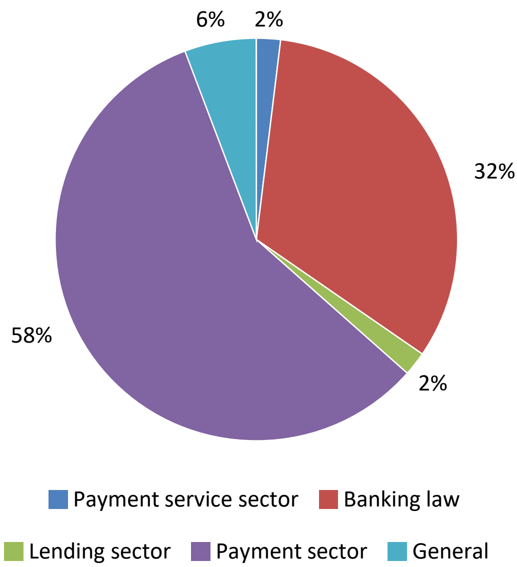

Figure 1. The distribution of the number of barriers by areas

Source: (UKNF, 2017).

legal uncertainty, publish standards that define the security of both supervised entities and customers. In order to reduce legal uncertainty, the Polish Financial Supervision Authority may issue interpretations in accordance with Article 11b of the Act on Financial Market Supervision of July 21, 2006 (Ustawa, 2006), regarding the scope and manner of application of regulations at the request of supervised entities and entities intending to perform activities in the financial market. The purpose of issuing interpretations is to raise the level of understanding in the legal area when new innovative products are introduced, which is expected to lead to increased innovation in both the banking sector and the financial market as a whole. However, the interpretations are not binding.

An important solution, from the point of view of ovality for new technologies in the sector, is the creation of regulatory sandboxes. In Poland, the Polish Financial Supervision Authority has introduced the Regulatory Sandbox project, which aims to support entities implementing innovative solutions. It is worth noting that access to the sandbox is available not only to supervised entities but also to those planning to enter the financial market. The regulatory sandbox can therefore accommodate both the testing of new services and the evaluation of existing innovative products or services. Entities using the testing environment and their solutions are monitored by the Authority. The progressive interaction between banks, FinTech entities and regulators has brought to light the need for effective testing of new solutions and their subsequent regulation (Gębski, 2021). The sandbox is also designed to assist in the licensing of supervised activities. By monitoring sandbox activities, obtaining a license is supported by the UKNF, and the duration of the licensing process can be shortened. Entities can withdraw from sandbox testing without applying for a license. Requirements imposed by the UKNF to gain access to the sandbox include the following:

- solutions should be innovative in nature and have an impact on the development of the local financial innovation sector,
- solutions are related to the development and support of the activities of supervised entities,
- participation in the sandbox should be justified (high costs of traditional market implementation),
- the current legal framework does not clearly define the solution to be tested
- entities must demonstrate readiness for testing.

Only entities based within the territory of the Republic of Poland may participate in the Regulatory Sandbox.

The technology solution that banks are implementing as part of their digital strategies is cloud computing. In this area, requirements have been developed as part of the cooperation between the Financial Supervisory Authority, banks and technology companies. By meeting the requirements, the entities ensure safe operation in the area of cloud use. The UKNF published Communication dated October 23, 2017, regarding cloud computing services used by supervised entities. In order to use the services, according to the Communication, supervised institutions should develop a detailed analysis including risk assessment, the impact of implementation on operations, costs and benefits, as well as an exit plan.

IT infrastructure adjustments also remain a challenge for institutions. For cloud services, the issue of service providers, which is regulated by the Communication, should also be analysed. Supervised entities face the challenge of ensuring that the data required by the Authority is adequate and that they are aligned with the providers' offerings. The UKNF's proposal in the area of regulating cloud services was one of the first in Europe, but the requirements of supervision result in a long process of actual implementations of the service in banking sector institutions.

In the author's opinion, the development of UKNF initiatives in the area of innovation deserves a positive assessment. Based on European Banking Authority (EBA) data, regulatory sandboxes exist in only 8% of the European Union member states; additionally, it shall be noted that 17% of the EU member states have established innovation hubs, while 46% have made no attempts at dialogue between regulators and FinTech players (European Banking Authority, 2017).

Digital Development Agenda is the activities of the Office of the Financial Supervisory Authority in four designated areas:

- new phenomena in the financial market (including robo-advice),
- support for FinTech,
- cyber security,
- electronic office.

The Authority plans to issue supervisory positions to clarify legal aspects, as well as to initiate legislative work in this area. It will be necessary to introduce EU regulations into the Polish legal environment. Adequate control over implemented solutions, including the area of customer services, is particularly important because of the protection of customer interests. Raising the level of information security, especially information processed in the cloud, as well as IT risk management are UKNF's efforts to align regulations with market needs in the area of cyber security.

When analysing the impact of new technologies in the banking sector, it is essential to consider FinTech companies. In Europe, FinTech companies operate under fragmented regulations, which can facilitate easier market entry. According to EBA data, 31% of companies operating in the European Union are not subject to any regulation, PSD2 – 20%, MiFID – 11%, CRD – 9%, national authorisation requirements – 8% (European Banking Authority, 2017).

According to research, they also have lower regulatory costs than banks (Jourdan et al., 2023). They are becoming, especially in highly developed countries, competitors to supervised institutions in the banking sector. Products previously offered by licensed credit institutions (e.g. payment services) have become part of the portfolio of services offered by FinTech companies (European Banking Authority, 2017). The actions of regulators are also directed toward regulating this sector. Innovative FinTech products are emerging on the market, challenging as well as competing with traditional products offered by banks (Lee & Shin, 2018). On the one hand, the development of FinTech services modernises services and the financial architecture, while on the other hand, it disrupts the current business model and regulatory structures (Nicoletti, 2017).

Banks are working to promote innovation through accelerator activities, for example:

- Alior Bank S.A. created the RBL_START innovation laboratory,
- Bank Zachodni WBK supports innovation through startMEup,
- ING Bank Śląski created Akcelerator ING,
- mBank S.A. invests in technology start-ups through its mAccelerator company,
- Pekao S.A. drives innovation through its Innovation Laboratory,
- PKO BP S.A. has launched the Let's Fintech programme.

Creating such programmes is a part of cooperation strategy with FinTech companies (Folwarski, 2020). Banks can increase their profitability by collaborating with FinTech companies (Basdekis et al., 2022).

2. Methodology

To determine whether current regulations support the introduction of innovative solutions by banks in the Polish banking sector, this study utilises a review of relevant literature and an analysis of existing initiatives within the sector. The aim is to evaluate how current regulations and regulatory actions impact the adoption of new technologies in banking. The author examines whether the regulatory environment fosters innovation and highlights the role of FinTech companies in driving this innovation. Additionally, the study identifies desirable areas for regulatory improvement and proposes potential developments to enhance the innovation landscape in banking.

The main barriers and challenges for banks in the use of new technologies are identified. The statistics clearly indicate the large financial investment in the development of innovation in the sector, which helps to determine the direction of the banking sector and its focus on digital transformation. Key to formulating conclusions was the analysis of the evolving landscape of collaboration with the FinTech sector and the role of financial safety nets in supporting new technologies.

3. Results and discussion

The author claims that banks introduce innovative solutions based on functioning regulations, while regulators are late to adjust records and introduce new regulations. Banking sector players face barriers when implementing solutions, but supervisors try to identify and eliminate them. In addition, financial safety net institutions are creating space for new companies in the financial market that use new technologies in their operations. Laws and regulations do not always keep up with technological changes, which can result in slower development in the area of technology (Nowakowski, 2020). Collaboration between large banking sector players and small FinTech companies can lead to accelerating the digital transformation of the entire sector. Unsupervised institutions are able to innovate faster due to fewer regulatory hurdles. In contrast, banks benefit from an established customer base and the trust associated with their services, which can be a significant advantage in implementing new innovations (Zaleska, 2018). For regulators and lawmakers, the rapidly occurring digital transformation of the banking sector is a challenge. It is important that the regulations and requirements introduced meet the objectives of supervision, i.e. maintaining the stability of the sector, but also protecting the banking customer. However, these barriers should not be so high that they impede the introduction of innovative solutions, which would hinder further development or lead to a situation where the innovations introduced would operate without adequate regulation. It should be noted that due to rapid changes in the environment of new technologies, new solutions are in fact often the first to appear on the market, and then the regulator issues appropriate recommendations, positions and laws. However, it should be highlighted that this approach is acceptable as long as the financial sector is stable (Arthur, 2017). A similar cycle occurred in other areas as well; for example, the multitude of regulations issued after the 2007+ crisis related to credit risk. Between 2008 and 2015, the number of supervisory regulations increased by 492% as a result of the 2007+ global crisis (in global terms) (FinTech Poland, 2023).

It is important to point out that banks in the Polish sector invest in innovative solutions. The National Bank of Poland conducted the 2019 survey to examine the scale of innovation, the resources allocated to innovative solutions and the impact of these solutions (NBP, 2020). The survey covered the years 2016–2019 and included 26 banks, accounting for approximately 79% of the sector's assets. According to the survey, banks are developing innovations to reduce costs, increase revenues and improve client experience. Digitisation of processes and operational support are also mentioned among the goals.

In response to the rapidly developing area of new technologies, it is their use that plays a large role in gaining a competitive advantage. In particular, developments in the area of customer service through mobile channels may affect competitiveness with the FinTech industry. It is worth noting that the goals of larger banks will focus on increasing the attractiveness of products and services to customers, while smaller banks will aim to reduce costs using modern technologies. The sources of acquiring innovative solutions include, among others: in-house development, acquisitions of FinTech companies, participation in accelerators (e.g. mAccelerator), purchasing external solutions and acquiring technologies from group companies. New technologies (including biometrics, Big Data, artificial intelligence and machine learning) have found their way into products and services, i.e. customer contact, remote customer identification. They are also used to implement the PSD2 directive or to mitigate fraud risks.

Figure 2 presents the distribution of the use of each technology indicated by the banks in the survey. Sources of innovative solutions in banks, according to the survey, include purchasing from external suppliers or building in-house solutions within the bank's structure. Implementing group solutions was identified as the third main source of acquiring innovations.

When analysing the development of innovation in the banking sector, attention should be paid to the development of the FinTech sector. FinTechs are often quicker to respond to customer needs, thus introducing attractive solutions earlier than regulated banking sector players. However, issues of trust in the bank-

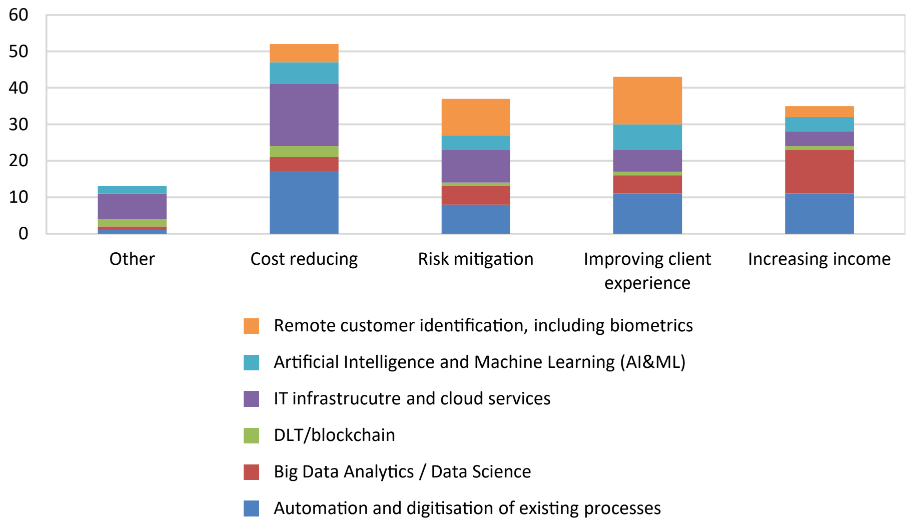

Figure 2. The distribution of the use of each technology indicated by banks in the survey (number of implementations)

Source: (NBP, 2020).

ing sector may cause customers to be reluctant to use these services. It is worth noting that security is one of the most important issues that customers pay attention to when using financial services offered by FinTech companies (Basdekis et al., 2022). However, it can be predicted that FinTech companies will force traditional banks to change both in the area of their strategies, business models and banking services (Miklaszewska & Folwarski, 2020).

FinTechs usually offer a service or product in a narrow area. Therefore, it can be concluded that the "gap" of entry for FinTech companies is so narrow in the Polish market that the functioning of innovative companies does not threaten the position of banks. This is confirmed by the ranking of The Financial Brand, which indicates the most popular digital banks in countries around the world (Reich, 2021). While in countries such as Norway, Sweden, Portugal and Hungary the most popular digital bank is Revolut (FinTech, which received a European banking license in 2018), in Poland mBank S.A. is preferred choice (as well as in Slovakia and the Czech Republic). It should be noted that innovative market entrants that do not have an established reputation and credibility will not threaten the functioning of banking in the traditional area (Zaleska, 2018). Banks that invest in innovation and develop paths for its implementation not only strengthen their position in the market but also build their competitive advantage (Zaleska & Kondraciuk, 2019).

With the rapid digital transformation in the sector, there may be an accumulation of regulations, so it is worth paying attention to the digitisation aspect of regulatory and reporting processes. The dynamics of regulatory change is a challenge for both leading banks and smaller institutions. The application of new technologies for regulatory purposes introduces the concept of RegTech. A broad definition of RegTech indicates the use of modern technology to meet supervisory requirements, but also the use of innovative solutions by the supervisor and as part of communication between supervisors and supervised entities.

They support the collection, reporting and interpretation of data for supervisory purposes, using big data, machine learning and process automation. An analysis in the RegTech report on the importance of regulatory innovation for the financial sector and the state showed that the share of regulatory and supervisory costs in technology implementation budgets ranges from 7% to 23% (FinTech Poland, 2023). The use of new technologies could lead to a reduction in regulatory implementation costs. The author claims that this would ensure the safety of the sector through adequate regulation, yet it would not burden banks with excessive regulatory costs. Banks have a positive view of cooperation with the supervision authority in the area of new technologies, but they expect a reduction in regulatory costs as well as greater consistency and synergy in the activities of the supervisors (FinTech Poland, 2023). Banks also request the possibility to apply solutions using new technologies to fulfil supervisory requirements. Business digitisation should be implemented with an accompanying digitisation of regulatory and reporting processes (Nowakowski, 2020).

A characteristic feature of banks is having a broad customer base, often maintaining long-term relationships with the bank and using a wide range of products. Banks must therefore take into account the changing needs of their customers in the process of creating innovations. Customer expectations in the area of new products and services that provide speed, convenience, low costs and user-friendliness are driving the development of technology, big data and mobile applications on the one hand, but also changes in regulations and supervisory requirements on the other hand. The increase in the number of mobile app users has led to developments in the area of payment services, among others. This is a segment where the FinTech sector is introducing solutions, responding to customer needs. Services deployed in this area may pose the greatest threat to banks. The sector's response to the growing payment services included the introduction of the BLIK mobile payment system, created in cooperation with 6 banks operating in Poland. The innovations being implemented enable democratisation of access to financial services, but they also create challenges in terms of privacy, regulation and law enforcement (Carbó-Valverde, 2017).

The author claims that banks should make greater use of technological solutions offered by FinTech companies. These companies are flexible and agile, and their products can boost innovation and competition (Barroso & Laborda, 2022). Positive aspects can be seen in such a solution from two perspectives. From the banks' side, it will allow them to support digital transformation. Banks use FinTech activities as part of a provider of specialised services or software, among other things. FinTech companies specialise in particular solutions, which banks would be able to deploy in relevant areas of their product portfolio or infrastructure solutions. From the perspective of the stability of the financial sector, such cooperation would be subject to relevant regulations that banks must fulfil when introducing new solutions. This would ensure that the products offered by FinTechs would be correspondingly safer and aligned with existing regulations. It is also beneficial for FinTechs to cooperate with banks, which have a broad customer base (Zaleska, 2018).

Conclusions

With rapid digital development, regulations for innovative products are emerging ex post. Thus, regulatory uncertainty is cited as one of the main barriers in the area of digital transformation. Banks currently incur high regulatory costs, which may result in slowing down the implementation of new solutions at the prospect of additional costs. Adequate regulation of banks' cooperation with FinTech companies, according to the author, would allow earlier indication of the development directions of the introduced solutions, and thus regulatory needs.

The author states that in Polish conditions banks are so innovative that FinTech companies do not threaten their position. However, FinTech can be a "driving force" for banks, showing the direction of customer needs. In addition, it should be noted that banks offer a range of products in their portfolio to meet customer needs in different areas. For the FinTech sector, cooperation with banks will benefit due to access to a broad customer base, but also payment infrastructure. It also allows for increased credibility, or the ability to finance further development (Leżoń, 2019). However, it is important to properly regulate the operation of FinTech companies. In their documents, the European Commission emphasises the need for national market supervisors to constantly monitor the activities of these innovative companies (Folwarski, 2020).

The fact that customers' preferences are changing, including their attitudes toward participating in innovative solutions in the financial sector, prompts discussions on the safety of the innovations being implemented. Thus, appropriate regulation is essential to maintain confidence in the banking sector. However, it is necessary to develop a level of control that does not slow down the sector's digital transformation. Regulating cooperation with the FinTech sector, and thus the ability to implement solutions developed by FinTechs, will allow the sector to further develop, ensuring its stability.

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