

An Empirical Exploration of Key Factors and Barriers to Consumer's Adoption of Open Banking Applications

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Abstract

Open banking is a major innovation in financial industry and has been driven by technology developments, as well as legislation for financial data. Payment Systems Directive 2 (PSD2) has been a key initiative for European Union, aiming to increase competition and innovation among financial industry, by allowing the entry of third party licensed providers to the financial market. This is feasible by relaxing the data restrictions and ownership, and passing control over consumers, who may select among a wide set of service providers, and not only the traditional banks. Although, PSD2 and third party applications are in place, there seems that consumers do not adopt them widely. Also, it is not evident, if PSD2 has enabled the desired level of competition and innovation for the benefit of consumers. Due to lack of relevant works, this study, aims to explore the key factors that affect consumer adoption and at the same time examine the PSD2 effectiveness in the creation of a new landscape. A number of experts were interviewed and a qualitative analysis was followed. Results, indicate that key barriers to adoption are lack of awareness, data privacy and value proposition, while PSD2 seems that it has increased competition and innovation. Further studies can shed more light on those findings, in a wider perspective.

Keywords: *Open banking, Payment Systems Directive, PSD2, payment app adoption*

Introduction

Sharing and processing of financial data by third-party suppliers has been generally prohibited in most countries by law. In Europe, and particularly within the European Union (EU) zone, data protection legislation has been one of the tightest for that type of data. According to Ma et al. (2018), this is one of the factors that has prevented the financial sector from embracing trends like "platformization" and other innovations. However, EU's new Payment Services Directive 2 (PSD2), which was initiated in 2018, altered significantly the legal foundation for the exchange of financial data. The purpose of this directive was to increase customer payment security and foster technological innovation through "Open Banking" (Ünsal et al., 2020). So, bank participation in open banking is made possible and encouraged under PSD2. In the open banking ecosystem, banks use open application programming interfaces (APIs) to communicate client data with outside organizations. Software developers outside a bank can utilize these open APIs to build cutting-edge applications that offer clients new capabilities to manage their finances and enhance the customer experience (Premchand and Choudhry, 2018). The implementation of open banking is a major driver for disruption in the financial industry and if implemented successfully, may give specific companies a competitive edge over others, claim Kassab and Laplante (2022a). This makes it possible for fintech companies to compete with conventional banks, that have been the market leader for decades.

Open banking benefits, however, must overcome the formidable obstacle of engaging clients in the novel apps. Because of the digital transformation in other industries, customers expect their banks to provide them with software tools to make their life easier, yet many are hesitant to utilize open banking applications. This could be due to lack of knowledge for new services or lack of confidence in giving away their financial information (Guibaud, 2016). In addition, banks are hesitant to disclose data and information to third parties. Although the new law requires them to do so, open API implementations are frequently improperly implemented and without taking advantage of open banking's innovative potential (Omarini, 2018). Omarini (2018) asserts that this behaviour is mostly brought on by worries about data protection and apprehension about competition for their current business strategies. Despite these difficulties, there are new open banking apps on the market, which have been successful. However, challenges remain and adoption levels are still low.

Furthermore, four years after the introduction of PSD2, there are mixed opinions whether the directive was successful in its aim to increase innovation and competition in the financial sector. While Dratva (2020) argues that it depends on each bank if the changes will threaten them or lead to new business opportunities, Omarini (2018) states that banks will become less important to the customer and should act promptly if they don't want to lose their power on the market. There is also uncertainty if open banking has led to the expected innovation in the sector. Even though there are many new products on the market, consumers don't seem to use them as much as predicted and there must be reasons for this.

Following the above context, this study aims to explore the key factors and barriers for consumer's adoption of open banking apps, and examine the effectiveness of open banking. To

achieve this, we followed a qualitative approach and performed a number of focused interviews with some successful third-party companies, which develop open banking apps. The study fills a gap in relevant literature, as there is lack of similar empirical studies and therefore provides a new insight into the opinions from tech start-ups who develop open banking applications.

The structure is as follows. Initially, an overview of existing research in the field is presented, along with key findings and trends. Next, we introduce the methodology and key elements of data analysis. Finally, we conclude with discussion and summary of results.

Literature survey

Payment Services Directive 2 (PSD2), is a revised version of the original 2007 payment directive, which went into force in the European Union (EU) in January 2018 and all EU member states were required to adopt it. Due to the advent of new electronic payments and consumer desire for technological advancement, the authorities considered that an update was necessary (Petrovic, 2020). The major goals were to raise transaction security standards, improve the efficiency of EU payment systems, and drive business competition and innovation in the financial industry (Radnejad et al., 2021). As banking industry has been always highly regulated, many institutions did not prioritize innovation in the past. Because of this, PSD2 was aiming to increase industry innovation by allowing third-party businesses to enter the market and offer alternative customer applications (Petrovic, 2020). Despite United Kingdom's departure from the EU at the end of 2020, the directive's regulations are still in effect there, because UK government has incorporated PSD2 into UK legislation in order to allow doing business with EU enterprises smoothly (Noctor, 2021). Similar demands for banks and third-party businesses were part of a reform that was developed in the UK by the Competition and Markets Authority (CMA). The goal of these new rules was similar to PSD2, such as promoting innovation in the European financial sector and increasing competition in the market (Premchand and Choudhry, 2018).

A key aspect of PSD2 is open banking, which describes the sharing of client data between financial institutions and third-party companies. PSD2 forces, in a way, banks to provide customer data to authorized third party companies, so that they can build and offer financial services to them. Customer data is expected to be provided via so-called open APIs, that make data available in a secure and on-demand way (Mansfield-Devine, 2016). As a contrast, Kassab and Laplante (2022 a) define open banking as financial software as a service (SaaS), which allows third parties access to client data from banks and permits them to create financial apps for these clients. The authors call it a financial SaaS because of the accessibility of the data which allows open banking platforms to provide various financial services.

Traditionally, banks were the owners of any data they had collected for their clients. Therefore, only the banks themselves were allowed to use this data for their own business models. PSD2 changes the landscape. Now the client is the owner of his own data and can decide how to share and with which companies. With clients' consent, third parties can then access the data of the customer from her bank. This allows new third parties to join the market and offer innovative

technology to consumers (Aytas et al., 2021). Premchand and Choudry (2018) claim that open banking is a trend with the potential to completely change the financial sector that was initiated by recently adopted laws in the EU and UK. In this context, banks are facing disruption because of PSD2 and the resulting implementation of open banking by third party companies. For example, German Solarisbank AG, which advertises itself as a banking-as-a-service (BaaS), is one instance of a bank that has put in place an effective open banking platform for its clients. Because it has more than 70 third-party apps linked into its platform, the bank can provide a wide range of services to its customers. This enables the bank to provide services in addition to digital banking like cryptocurrencies, a marketplace for used vehicles, and various trading platforms. The bank generates revenues by charging fees for pay-to-use APIs and by sharing the profits from loans made through the platform (Nanaeva et al., 2021).

On the customer side, during the past decade, there has been a digital revolution in many aspects of daily life. As a result, customers are accustomed to convenient technical services across all industries (Guibaud, 2016). Customers are also expecting prompt and smooth services from their financial providers as a result of this. Particularly when compared to FinTechs, banks fall short in this regard. In order to satisfy the high standards of today's clients, open banking may be a solution (Aytas et al., 2021). However, even though customers have these requirements, yet the new open banking services appear to be poorly received (Dratva, 2020). In open banking, opinions differ on why newly released open banking products aren't getting as much attention as expected. There seem to be barriers that prevent consumers from using these services. According to Dratva (2020), the opinion of consumers has not yet been sufficiently questioned. Additionally, they lack knowledge about the advantages of open banking and are unlikely to conduct independent study on the subject. Dratva (2020) also notes that open banking may be the answer to consumer wants, but the majority of consumers are unaware of the new services. If PSD2 is at all known to the general public, it is as a directive for banks and not as a possible advantage for clients. Although Guibaud (2016) acknowledges that customer acceptability appears to be poor, he contends that this is just because their demands haven't yet been satisfied. It is insufficient to use open banking to allow the customer to view his bank statements and move money across accounts. Instead, the client anticipates cutting-edge features like reduced offers tailored to their buying patterns or programmes that estimate savings. Ultimately, there seem to be no clear explanation why most consumers are not using open banking services and what factors could determine them to do so. Also, there is limited empirical research on this area.

Regarding PSD2, there have also been mixed opinions about its effectiveness. Radnejad et al. (2017) argue that the directive has increased competition because the opening up of data that was previously reserved for banks, has allowed new players onto the market. However, banks have not really taken up this challenge and continue to operate as before. The authors further state that the directive was a failure because it mainly led to additional cost for banks while they also felt threatened by the new competition of third-party companies. Therefore, many banks did not view the changes of PSD2 as chance for innovation but instead as threat to losing their competitive advantage. The EU government tried to impose innovation on the industry, however, the new requirements did not make economic sense to the affected banks. Because of this reason, PSD2 did not lead to the expected success in terms of innovation. Omarini (2018) agrees with the fact

that PSD2 increased the competition for banks because the bank itself keeps shifting further and further into the background for the consumer. If the clients of a bank do not use the online banking platform of their bank anymore and instead the interface of a third party provider, it becomes less important with which bank the consumer has an account. Because of this reason, banks have to make sure that they develop their own innovative platforms in order to not become irrelevant in the future. Petrovic (2020) has a different hypothesis. While the author agrees that some banks view the changes as increased competition and therefore as a threat, the majority of banks perceive it as a positive opportunity for their business. There is a lot of potential to begin partnerships with third party providers and develop joint platforms. This could even lead to a relief of the banks resources and more capacity to focus on their core business.

In the end, this literature review demonstrates that there is a noticeable gap in the current research regarding open banking. There is no clear explanation which factors would lead to a higher consumer adoption, even though PSD2 went into effect in 2018 and numerous studies and financial service companies are aware of the lack of user engagement. Furthermore, there are divided opinions about the effectiveness of PSD2, especially between the different involved parties, such as banks and third-party providers. The aim of this study is to fill this gap and seek for some insights on user adoption barriers and PSD2 success, that can be used across the financial sector.

Methodology

Following the above context, the main research question is to identify key factors and barriers of consumer's adoption of third party banking applications. In addition, to examine the success level of PSD2 in terms of fostering innovation and increasing competition in the financial sector. Given that the research question allows for a wide range of answers and diverse understandings as well as experiences, and can include opinions not discussed in existing research, we considered that it is better not to predefine answers but follow an open approach instead, that could be adapted if necessary (Saunders et al., 2019). In addition, as open banking is a specialist topic, which most people haven't even heard of, knowledge of experts was needed in order to answer the research questions. For these reasons, a qualitative approach, as a set of interviews with experts, was deemed as the most suitable to uncover opinions and answers that cannot be defined within a scale. This approach, allows a deep discussion of the topic without limiting the interviewees to existing opinions. Furthermore, experts can provide valuable feedback with insights from industry and their experiences. So, in order to meet the research objectives, we interviewed experts from different parties that are related to open banking were interviewed. We defined three categories: banks, third-party providers, and banking consultants. Each of these groups provided a different perspective and enabled a deep and multisided discussion of the research topic.

Sampling was based on purposeful approach. Companies or persons of expertise with potential for this research were contacted through social media or their company mail address on their website. In total, around 80 potential interviewees were contacted, and the final number of interviews were 10 including 2 banks, 2 bank consultants and 6 third-party providers. Therefore,

four participants have the point of view of banks and six have the point of view of third-party companies. The interviews were conducted online because it was more convenient for the interviewees, and some interviewees were found at different locations within the UK or other European countries. The interviews were semi-structured with an open set of questions so that there was a possibility for follow-ups during the process. Each interview was recorded and automatically transcribed with the software Otter. Any mistakes in the transcription were corrected manually later. The average interview time was about 30 to 45 minutes. Because of the three different categories of interview partners, the questionnaire for each category was extended according to their expertise. However, each interview had the following set of main questions. All of their answers were transcribed and analysed with the help of the software NVivo.

An iterative thematic analysis was conducted in order to identify the key themes and patterns (Edlund and McDougall, 2019). The content had to be analysed without bias. The coding was based on theory driven categories, and an open coding approach was followed, with only the first layer of nodes being predefined. The first layer consists of the nodes “consumer adoption” and “PSD2 effectiveness” which represent the basis for answering the two research questions. The approach was exploratory, where the facts were used to build plausible explanations.

Findings

Consumer Adoption

During the interviews, most participants agreed that there seems to be a reluctance from consumers to use open banking apps from third-party providers. One of the main barriers that was mentioned in almost all the interviews is the lack of awareness of consumers about open banking. Most people aren't familiar with new payment directives and what these could change for them:

“I'm pretty sure that most of our clients don't even know what open banking is. Most people don't spend their time with reading about new bank directives, so I'm sure most people don't know what it is.” – (Bank employee 1)

There are different opinions on why most consumers lack awareness about open banking in general. While some say that people just aren't interested in informing themselves about financial sector news, others say consumers should have been actively informed by their banks or the government itself. Open banking app provider 6 thinks that the government is responsible for making open banking more widely known in the public. According to the provider, apps like the one his company is offering can save people hundreds of pounds a year, which can be crucial in times like this with rising living expenses. Open banking app provider 1 agrees with this:

“Essentially what needs to happen over time, obviously, is that the government or the banking industry as a whole are more open about information about open banking and

educating the public about it, you know, and letting them share that kind of trust that they trust the open banking industry, therefore, their users should trust it as well.” - (Open banking app provider 1)

The second barrier for consumer adoption that became apparent during the interviews is data privacy issues. Financial data is very sensitive and prone to being misused for fraud or other criminal activities. Therefore, consumers seem reluctant to give permission to share their financial data with third parties. The open banking app provider 2 says:

“I think the biggest barrier is probably the fear of sharing their data, especially when it's about financial data. There's some kind of bad feeling with giving away your financial data to an unknown small company. I think it doesn't feel good to most people. It doesn't feel safe. Especially because our app is analysing these transactions. And many people don't want their transactions to be analysed, because it's a private matter to them.” – (Open banking app provider 2)

Not all the interviewees agree on this point. Some say there is a lot of talk about data privacy issues with open banking, but the customers themselves don't care as much about it:

“I think consumers say they care a lot more about their data than they actually do. [...] If you look at the general younger consumer segment, and our own customer segments attitude towards open banking, I actually think that that's changed a lot in the last few years. And most people are very willing to share their data now, so long as they feel that they're getting something in exchange.” – (Open banking app provider 5)

Next to the barriers of consumer adoption, there are also some key factors that can increase customer numbers. The participants of the interview were asked what factors are most important in order to improve consumer adoption. The factor that has been emphasised the most is a clear benefit for the customer. Open banking app provider 3 says:

“I think it's a question of trade off and benefit. There has to be a benefit to someone to use a product and people have to understand why their connection is required to their bank and why their data is being used. If they don't, and there's not enough of benefit to them, they're simply not going use the product.” – (Open banking app provider 3)

Therefore, the benefit to the customer has to be very apparent. Otherwise, the chance of them using the app decreases. The user also has to understand the value the app is providing for him in order to give his permission to share his account data. Open banking app provider 5 agrees with this statement and explains that, in the end, it all comes down to the value an app offers. This is the main factor in being willing to share financial data and use an app.

“And I think it goes back to if you're providing a service that delivers customers concrete value, they're very willing to connect.” - (Open banking app provider 5)

PSD2 effectiveness

PSD2 enabled open banking, which includes the use of open APIs in the financial industry so that third-party companies can join the market and use existing account data of their customers. Therefore, the introduction of open banking has forced the big banks to open their data and give some of their accumulated power away. Accordingly, many new financial start-ups were enabled to enter the market and increase the competition. This competition did not only increase because of new start-ups but also because it is now easier for consumers to open a second or third account at a different bank and still see all their account balances in one app (open banking app provider 1). Open banking app provider 5 has made a similar experience:

“I think we've seen a lot of success around open banking when it comes to really, especially in our sector, like helping customers get access to better credit, cheaper products, etc. In that sense, it's definitely shown an impact.” – (Open banking app provider 5)

Through the increased competition and lower dependency on their banks, consumers have access to other products. This is often cheaper than before, because of the price war this competition has started (Open banking app provider 5). According to open banking app provider 2, in addition to the new competition for banks, the changes also led to strong competition between the new open banking app developers. The app provider says:

“I think that there is definitely more competition now that there are more players on the market, especially competition between those new startups because I also noticed there is some overlapping in services. Like the business idea for our app. By now there are already other providers who also provide a similar service.” – (Open banking app provider 2)

In addition to the increase in competition, there are also different opinions about the increase in innovation through open banking. Most interviewees agree that open banking enables innovation. Bank employee 1 states:

“And if you look at innovation, I think the new directive opened the door for innovation. There's a lot of potential. But again, I haven't seen it so far, but in the future, I'm sure that there will be more innovation in the financial sector.” – (Bank employee 1)

Therefore, bank employee 1 argues that even though there is potential for innovation, there is no new company that has really used the new possibilities and developed something that could

disrupt the industry. Instead, the current apps are not worth sharing data with yet (bank employee 1). Open banking app provider 2 states:

“In terms of innovation, I think it enabled big innovations and disruptive innovations, clearly, and I'm really interested myself in seeing where this market is going with this, what ideas are coming up and how far you can go with open banking, and what that is going to mean for the financial industry.” – (Open banking app provider 2)

Discussion

In the previous section, we presented some key findings derived from interviews conducted with industry experts from banks and third-party companies. The aim was to explore and identify open banking app adoption barriers from a customer perspective and at the same time examine the PSD2 effectiveness, as perceived by industry experts. As we can see from the findings, the reluctance of consumers to use open banking apps is due to a number of barriers and the biggest one seems to be the lack of awareness of open banking in the public, while data privacy concern is also significant.

What becomes apparent when reading the statements of the different parties of the open banking environment is that there is a consensus that consumers don't know what open banking is. Banks themselves don't feel responsible for making clients more aware, because they are not connected to the products, and it is not in their interest that their clients start using services from other companies. However, most third-party providers wish for their support. Data privacy concerns of consumers is the second major barrier for consumer adoption. There is a big discussion about sharing data with third parties and that customers are reluctant to do that. Lee et al. (2015) argue that consumers still have a high level of concern when sharing sensitive information online, especially if they are supposed to share it with lesser-known companies. However, the success of the open banking apps which were interviewed for this dissertation demonstrates the opposite. Even though these companies admitted that there was reluctance in the beginning, they found ways to increase their user numbers. The key factor seems to be communicating the benefits of the app to the customer. If benefits outweigh the concerns of the customer, they will share their bank details with the app. This matches the technology acceptance model of Fred Davis (1989) which says that the presumed usefulness is one of the two most important factors for user adoption.

Regarding the effectiveness of open banking for innovation and competition in the financial sector, most interviewees agreed that it enabled innovation and competition, but there is disagreement on whether the increase in each category has taken place yet. One of the most important changes brought about by PSD2 is the shift in thinking in terms of data. Client data is finally considered client data and not bank data. The client is at the centre of the business models and has gotten their right back to decide what to do with their data and whom to give it to. This allows them to become independent from their bank and able to choose any additional services, such as mortgage deals or loans, from any other company. This change in data ownership is an

important step in the advancing datafication of the world and increases innovation in the sector. It allows young start-ups to enter the market with new ideas for customers. With open banking, the user can provide direct access to their bank account to make credit checks more accurate. Therefore, the changes through PSD2 can improve existing products as well as open the market to completely new ideas. This finding matches the research of Bär and Mortimer-Schutts (2020). They also concluded that open banking leads to a market that gives more opportunities to consumers and control about their financial data.

However, these developments have also led to the founding of many new start-ups with open banking products that overlap in their services. Currently, there are multiple apps on the market for money management and money saving. Therefore, there is high competition between the third-party providers. Many of these apps benefit from network effects in which users have a better app experience the more other users join. Accordingly, it is in their interest to win the majority of the market with their service quickly through heavy marketing (Pike, 2018).

During the interviews, both sides, banks and third-parties, state that there is a lot of potential in partnerships between the two of them. The third-party providers would benefit from bank clients and existing trust, and they could probably also provide ideas on what kinds of products are needed by their clients. In return, the third-party provider would have the resources and modern technical skills to bring the innovative products to the market quickly. However, in the end it depends on the future regulation of the new tech companies by the government. If the regulation is going to be like the one of banks today, then they won't be able to bring much innovation to the market (Vives, 2019).

Conclusion

This work focuses on examining key factors and barriers for consumer adoption of open banking applications. Furthermore, it assesses how effective open banking has been in increasing innovation and competition in the financial sector. We performed a qualitative study, performing a number of interviews with experts from banks and third-party app developers. The results show that the reluctance of consumers comes from lack of awareness, data privacy concerns and the current offering of products on the market. In comparison, a clear benefit, communication, and trust are key factors for the adoption. In terms of effectiveness, open banking has increased innovation as well as competition, but is still at the beginning of long-term change. The study is however limited to the specific sample and is not representative of the entire EU domain, and as such should be considered as an exploration that can be used as input for further studies.

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