

Impact of Technology and Regulation on Financial Services: Opportunities and Challenges for the Banking Sector

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<p>The aim of this thesis is to understand both the opportunities as well as the challenges that the financial industry, specifically banks are facing due to technological and regulatory changes and to provide recommendations on future strategies. Banks are often hesitant to be the early adopters of technology, but with the world becoming more digital day by day, they need to embrace the change which Fintechs and challenger banks have so far been good at. This study focuses on how banks can do more than just fulfill compliance requirements and instead utilize technology and also partner with Fintechs to offer a broader range of services to their customers.</p> <p>The thesis begins by exploring whether Fintechs and banks currently consider each other as partners or competitors. Second, the thesis outlines the major regulatory changes and analyzes their impact on the banking sector. Generally, when regulation and compliance changes are linked with banks, they are usually looked at from the point of view of cost. The thesis looks into how regulation changes can also be looked at from the point of view of opportunity by using the available technology and being faster to market. The thesis applies the inductive method where primary qualitative data is collected via interviews. A list of questions regarding technology and regulation were discussed with experts from the banking and Fintech domain.</p> <p>The study can be useful for both traditional banks and other players planning to provide new services. In conclusion, the study suggests that banks need to look beyond regulation and imagine how data can be utilized and expand their service scope by acquiring or funding Fintechs to bring agility in solution and service delivery. As banks already have the needed infrastructure, one of the options is to focus on becoming a PaaS or IaaS on which others can provide the services. One of the challenges banks need to face is the entry of the technological giants who have the potential to expand, and to compete banks need to collaborate with partners, look at other source of revenue by utilizing their infrastructure and data assets and finally provide services which customers desire and enhance their experience.</p>	
Keywords Regulation impact, Fintech, challenger banks, PSD2, open banking, premium services, GDPR, consent, digitalization	

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Abbreviations

AI	Artificial Intelligence
AIS	Account Information Service
AISP	Account Information Service Provider
AML	Anti-money Laundering
API	Application Programming Interface
EBA	European Banking Authority
EC	European Commission
EU	European Union
FCA	Financial Conduct Authority
Fintech	Financial Technology
GDPR	General Data Protection Regulation
IaaS	Infrastructure as a Service
IoT	Internet of Things
KYC	Know Your Customer
PaaS	Platform as a Service
PSD	Payment Services Directive
PSD2	Revised Payment Services Directive
PIS	Payment Initiation Service
PISP	Payment Initiation Services Provider
PSP	Payment Services Provider
PSU	Payment Services User
RTS	Regulatory Technical Standards
SCA	Strong Customer Authentication
TPP	Third Party Provider

1 Introduction

Lately, the financial sector has witnessed digital disruption in the form of mobile payments, white label banking and regulation changes such as PSD2 and GDPR. These have provided opportunities for both Financial Technology (Fintech) startups and traditional banks to offer new services to customers. But unlike before, third parties could now request the banks for access to the account and transactional data of a customer and offer services that banks are either unable to or are poor at executing. This means that banks either create the needed services or collaborate or compete with Fintechs, resulting in compromising a part of the market share.

Due to the organizational structure banks operate in or due to their culture, it follows that they are not as agile at delivering services when compared to Fintech. As an employee working in the banking sector and experiencing the change that both regulations and new technology bring along with them, the objective is to study the impact of both of these forces and to be able to make strategic recommendations for financial businesses within the Nordic market to cope with the change. This includes the strategic options of collaborating with Fintechs.

The digitalization of banking services slowly began with the introduction of the Internet. The trend continued with the popular Consumer-to-Consumer (C2C) model of electronic commerce (Gonzalez 2004) where one creates an account using a credit card to make payments, whereas today online payments link directly to our bank accounts. This has become the focus of services offered by both Fintechs and banks to gain customers. Their success depends on the ease of use of the service.

Technological innovations and developments have enabled the financial world to move towards the digital era. Gone are the days where consumers preferred personal contact while taking care of their day-to-day finances. Today's customers are inclined towards digital services and want to use the services with minimal physical instants and financial technology companies are transforming it. (Skan, Dickerson & Masood 2015.) With this a customer can perform their day to day transactions without visiting any branch office with more freedom and ease. This will inevitably have an impact on the employees working in the branches, and by

2020 it is expected that more than 20 % of the branch office will be closed. (Sullivan, Garvey, Alcocer & Eldridge 2014, 11.) As anticipated, technological disruptions impact traditional banks and to tackle these, banks now need to take drastic measures in terms of layoffs and restructuring along with improvements required to fulfil customer demands.

Internet banking is on the rise: in Nordic countries, over 80 percent of individuals between the age of 16 to 74 years use online banking. (Eurostat 2019.) In Denmark, the figure is nearly 90 percent (Figure 1). Due to the changing customer preferences the need for physical interaction with banks employees is in low demand. In October 2017, the largest bank in the Nordic region, Nordea, announced 6 000 jobs cuts to increase its competitiveness and minimize costs. (Yle 2017.) Other banks within European Union (EU) have also felt the impact from technological change. Handelsbanken announced in October 2018 that it was planning to let go 1 600 employees to focus on greater digitalization (Bloomberg 2018), and Barclays is again going through a round of restructuring after layoffs. (Nytimes 2019.)

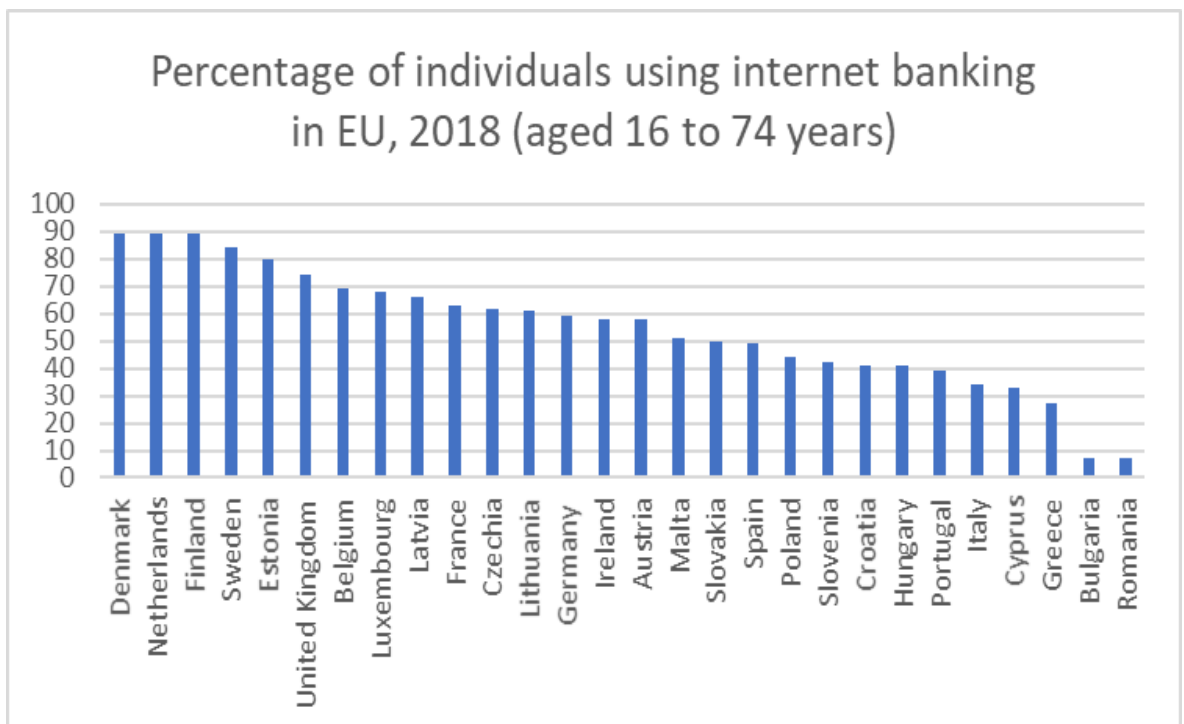


Figure 1. Percentage of individuals using internet banking in EU, 2018. (Eurostat 2019)

With time, banks must catch up with Fintech and work on new customer needs in terms of payment services and financial regulations. (Salmony 2014.) Figure 2 displays a clear decline in the number of bank branches in certain European coun-

tries from 2014 to 2018. It is likely that new technologies have played a role in decreasing the necessity for physical infrastructure. By adopting flexible working practices to minimize the floor space needed and by moving non-customer facing roles to nearshore or offshore locations, banks wanted to decrease head office costs. (S&P Global Ratings 2019.)

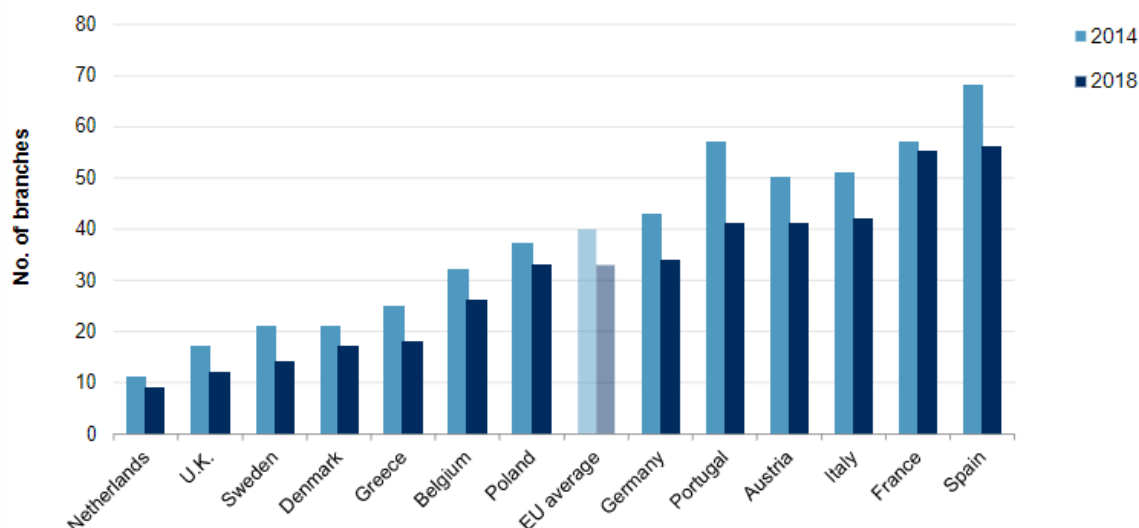


Figure 2. Number of bank branches per 100,000 inhabitants in selected EU countries. (European Central Bank, S&P Global Ratings 2019).

Online banking usage has doubled over the decade, with 25 percent of EU residents using it in year 2007 to 54 percent in year 2018 (Eurostat 2019) (Figure 3). This is consistent with the trend of digitalization as more and more individuals move towards digital services. This has also given the opportunity for both Fintechs and the so-called challenger banks who operate digitally without physical locations. They are able to provide additional services on top of already existing ones as the demand for digital banking increases.

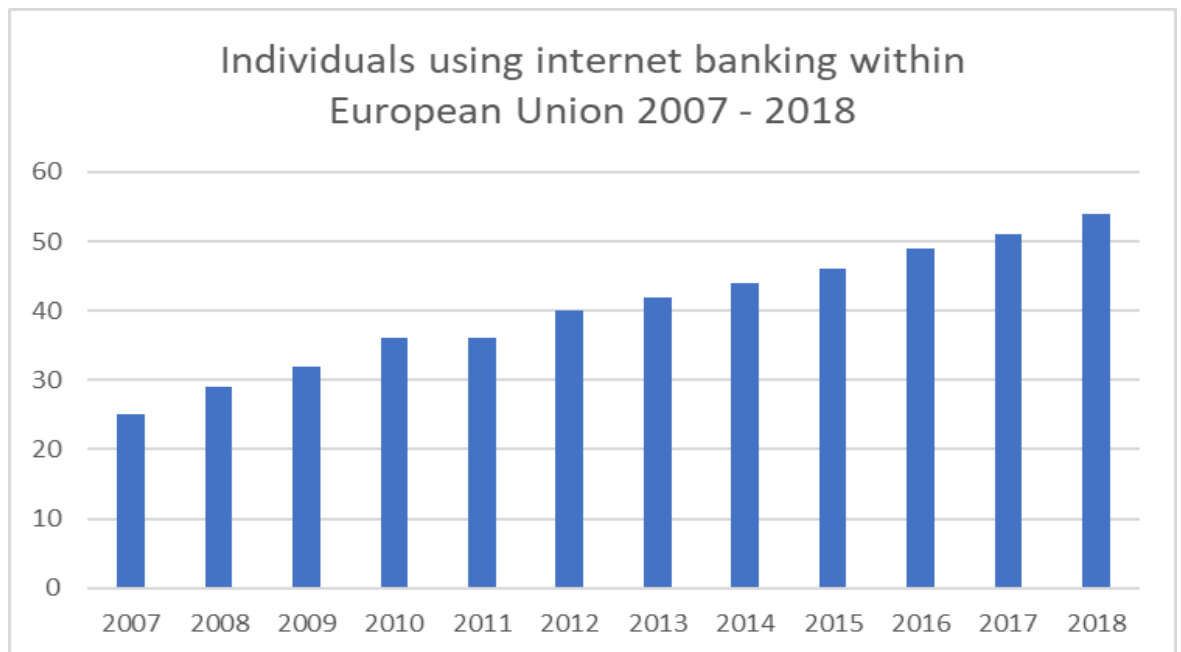


Figure 3. Increase in individuals using internet banking in EU from 2007 to 2018. (Eurostat 2019)

With the introduction of new technologies, the way people use banking services has changed dramatically. Along with Fintechs, major technology companies such as the GAFAMs (Google, Apple, Facebook, Amazon, Microsoft) and the BATs (Baidu, Alipay, Tencent) will challenge the traditional banking systems as the world becomes more and more digital. (Birch 2018.) The ones who do not catch up with the change will lose the competitive advantage. (Krishnan 2014, 30.)

On the other hand, banks can also use digital technologies and offer tailored services to the customers based on their needs and at the same time become efficient in doing so. With changes in regulation such as PSD2 and GDPR and financial technologies coming in, customers have more services to choose from in form of internet or direct banking. This brings both opportunities and challenges for the banks to provide better services as they need to compete with services being provided within the market.

In this study, I will explore the impact of the changes in both the technical and regulatory spheres from the point of view of Nordic customers. The Nordic region is especially interesting as it already has the highest share of online banking customers. Therefore, the Nordics can provide a useful viewpoint into what is likely to occur in other European countries where customers are currently not as inclined

towards digital banking services. Historical data will be gathered from across the EU to understand and anticipate the outcome of changes in regulation and technology advancements. For this study, the primary data will be collected by conducting interviews with a group of experts working in the regulation and Fintech domains within a large Nordic bank and in Nordic Fintechs. Secondary data will be collected through analysing information previously gathered by established institutions such as the European Banking Authority (EBA), the European Commission and consulting firms like Accenture and McKinsey.

The people interviewed are individuals working with the implementation projects related to regulation, including PSD2 that enables the bank to leverage the opportunities related to open banking. The Fintech representatives interviewed have already been working in the field for several years in companies that have crossed the startup phase and are leading service providers in the market. To gather the data, interviews will be conducted with product owners, subject matter experts, payment analysts, strategic advisors, risk managers, project managers as well as some technology experts.

1.1 Objective and research questions

The main objective of this thesis will be to identify how the banking industry can enhance services by leveraging the existing data and technology and therefore provide enriched services that go beyond traditional banking. In other words, the thesis will identify ways in which the banks can provide additional value to the customers. The other goal will be to explore how banks could better collaborate and partner with Fintechs resulting in a win-win situation. The analysis will be used to provide recommendations on how banks can capitalize on this opportunity, provide custom-based services and provide an improved customer experience.

The research questions of this study are as follows:

1. What are the opportunities and challenges for banks and gains for customer due to new technology and regulation introduced? (RQ1.)
2. What potential for collaboration is there between banks and Fintechs? (RQ2.)

3. What should banks do to remain competitive? (RQ3.)

The aim for this thesis is therefore to discover what financial institutions should do to leverage technology and existing data in the changing market. The study will also look at the impact regulations bring on the banking sector and how banks can look beyond the current market, provide additional value to customers and in the process avoid becoming just an infrastructure provider. The research will not deep dive into the topics of regulation and technology, but will provide an overview as to what impact regulation and technology bring and how banks could tackle the situation. The study will look across global markets and provide a generalized view on what potential impact regulation and technology could bring on the Nordic market.

1.2 Structure of the thesis

The thesis will be divided into six sections where the first chapter deals with the introduction of the topic and defining the research question. The second and third chapters outline technological changes, regulation and the concept of Fintech. The fourth chapter will introduce the research approach, data collection and analysis approaches. I will rely on the information collected from experts in the banking and technology domain. The data was collected using interviews and gathering data regarding current and previous projects related to technology and regulation in Fintech and banking area. Together, this will form the data set for the study. Subsequently, chapter five defines the analysis drawn from secondary research and interview data. Finally, the last chapter presents the research findings and conclusions.

1.3 Scope

The research will be conducted from both a technology and business perspective. However, since my personal area of expertise is in the banking technology domain, the focus of the work will be geared towards it. The scope of the work will be limited to the impact of technology and regulation in the financial sector within the European Union and the Nordics more specifically. I will approach the topic from the point of view of dots connecting it, i.e. regulation, transformation and digital disruptions. As such, the themes of PSD2, GDPR and Fintech will not be covered

individually in detail. With regards to GDPR, I will only be covering the topic of lawful basis and consent more specifically.

2 Technology innovations

In this and the next chapter, I will introduce the theoretical background of the research topic and define the core concepts. First, I will briefly go through the technologies impacting financial services. I will discuss the concepts of Fintech and challenger banks in more detail and the impact they have on traditional banks. In chapter 3, I will look into the key regulatory changes in the European market.

2.1 Key technological developments

Technology innovations have helped Fintechs and challenger banks to gain customer base as well as offer innovative services. Using innovative technologies such as machine learning, artificial intelligence, cloud solutions and advanced analytics, tasks are now carried out completely through digital interfaces that were once performed using cash, large computers and human interactions. Fintech companies are making a substantial impact by digitalizing processes and in structuring the financial ecosystem using the technology developments. (European Commission, Deloitte 2018.)

Financial services are gaining using technologies such as advanced analytics to achieve better risk management and product developments. Predictive, sentiment, behaviour analytics and data visualization are some of the techniques used within advanced analytics. Advanced analytics and blockchain can be utilized in all the areas from capital markets, payments and lending to investment management and insurance. Apart from advanced analytics, there are transversal technologies such as Application Programming Interfaces (APIs), Regtech, cloud solutions, electronic authentication and cybersecurity. These will have a cross-cutting impact on all financial services. Out of the above mentioned technologies cloud solutions and cybersecurity already support multiple business processes and improve the security and used in various areas. (European Commission, Deloitte 2018.)

Blockchain and Regtech are both expected to enhance the efficiency for all the financial services, with blockchain also bringing trust, security and transparency for customer whereas Regtech will assist the financial services in fulfilling their regulatory requirements. Similarly, Internet of Things (IoT) will have an impact on insur-

ance platforms on payments and lending and High-frequency trading on capital markets as shown in Figure 4. (European Commission, Deloitte 2018.)

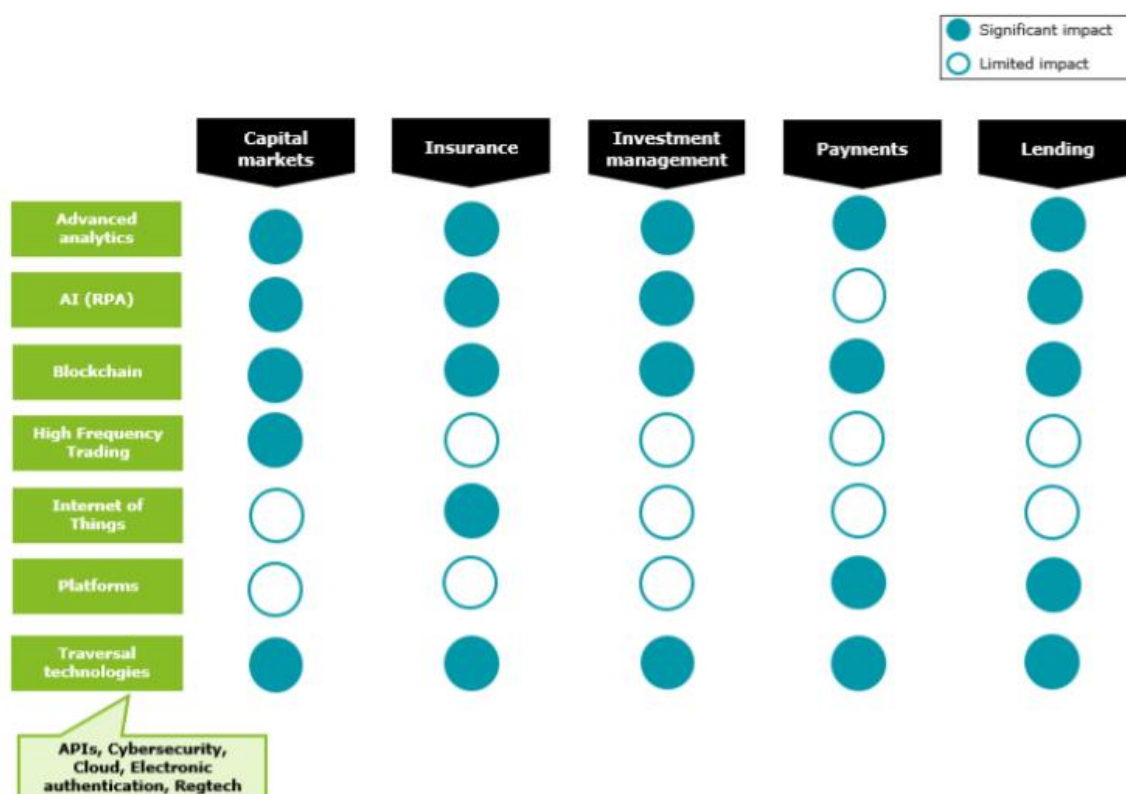


Figure 4. Impact of technologies on financial services. (European Commission, Deloitte 2018).

The challenge that incumbents need to tackle is to understand the technologies could reform their future and find ways in which they can utilize and benefit from these technologies. Player who will utilize these technologies will have a competitive advantage and upper hand in providing enhanced customer experience, improving the operation productivity and creating tailored products. Each one of the technologies shown above in the figure will impact selected activities of the value chain of each of the financial services. (European Commission, Deloitte 2018.)

2.2 Fintech

Fintech is a multi-billion-dollar industry that a customer becomes a part of the moment they do a money transfer using an app, check their account or transaction details on their mobile device or pay for a service using their mobile. In simple terms, Fintech is the “innovative use of technology in the design and delivery of financial services”. (World Economic Forum 2016.) Fintechs leverage some of the

technology revolutions occurring in the recent decade, including the emergence of artificial intelligence, big data, blockchain, digital payments, crowdfunding, peer-to-peer lending and robo advisors. In less than ten years there have been around 140 billion dollars of invested in Fintech companies. This trend looks to continue in the near future, with the number capping at around 55 billion dollars in year 2018 (Accenture 2019.) as shown in Figure 5.

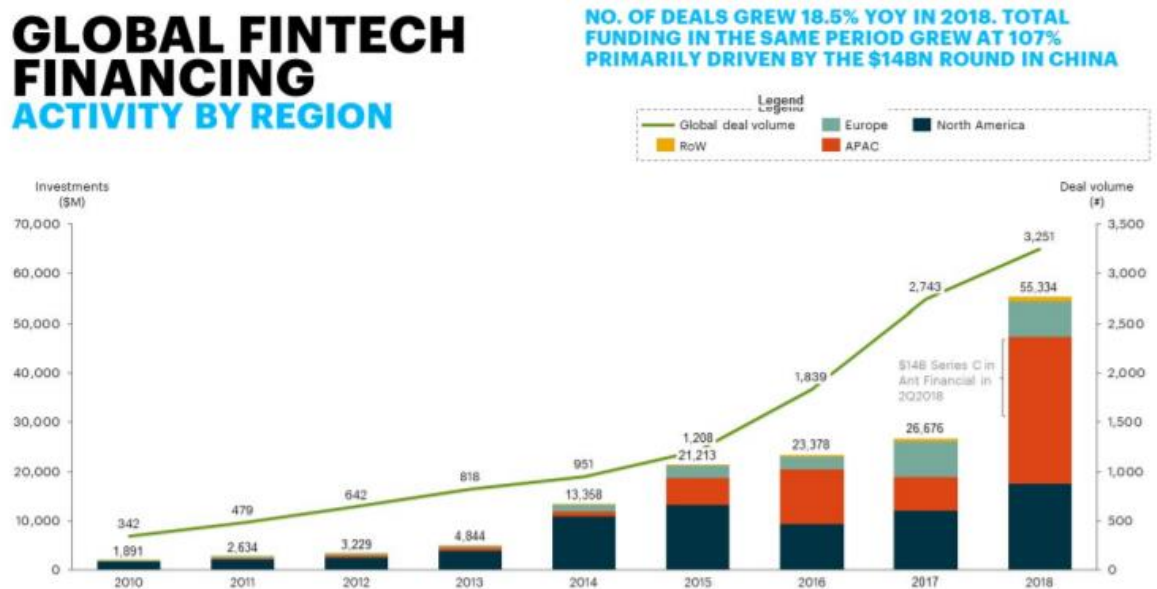


Figure 5. Global Fintech Investments Surged in 2018. (Accenture 2019)

The reason for the occurrence of the Fintech revolution at this particular point in time can also be attributed to the developments in the regulatory arena and the administrative strain on banks caused by increasing compliance demands. Before the financial crisis, the banking industry was good at adopting new technologies where the prime objective was to better serve the customers. But after the financial crisis, banks became busy with regulatory requirements, new rules and the penalties forced on them. (George 2017.) With the primary focus on fulfilling regulatory requirements, service development could not be prioritized. As a result, innovation become less of a priority for the banks. (Arslanian and Fischer 2019.)

During this time period, some critical innovation occurred that transformed the way we live and use the services. These innovations also became a part of our day-to-day life. Some of them are the iPhone, WhatsApp, Facebook, mobile banking and Airbnb. The user experience and ease offered by these innovations created a gap between what banks were providing and the expectations of their customers. The

Fintech industry is right now dealing with this gap, and this is probably one of the reasons why Fintechs have been successful in capturing a part of the market share as well as revenue from the banks. (Arslanian and Fischer 2019.)

Fintech not only allows the customer to do payment transfers, purchase insurance products or invest in funds directly from their mobile devices, but also allow users to perform other activities, such as booking an appointment or taxi without needing to leave the application that is they are placing the customer at the centre of their business model. This allows them to bond with the customer and adds to the customer experience (Manoj and Weber 2016) which traditional banks are unable to achieve, as they interact with the customer only when the customer needs financial services. In comparison, Fintechs are already involved in the day-to-day activities of their customers, whether they are related to payments or not. (Arslanian and Fischer 2019.)

2.2.1 Fintech globally

The gap between traditional banking services and customer expectations is so wide that non-traditional banking players have also decided to jump in and leverage this opportunity all around the world, mainly technology firms such as Facebook that own regulatory licences in the US that enable them to allow their users to transfer money by the messenger application (Facebook 2019). Alibaba's ANT Financial Services Group arm launched a money market fund that has now become the largest money market fund in the world (Zhang and Woo 2018).

The effect is perhaps most clearly visible in China where the messaging app WeChat and Alipay have become some of the most common tools to transfer money, with 900 million people using WeChat Pay compared to around 127 million users for Apple Pay. Together, Alipay and WeChat have a market share of 94 percent according to iResearch Consulting Group (Iqbal 2019). Figure 6 displays, by Q2/2019, there were over 1.1 billion active WeChat users. In a span of seven years the user count increased from 150 million to 1.1 billion. (Statista 2019.)

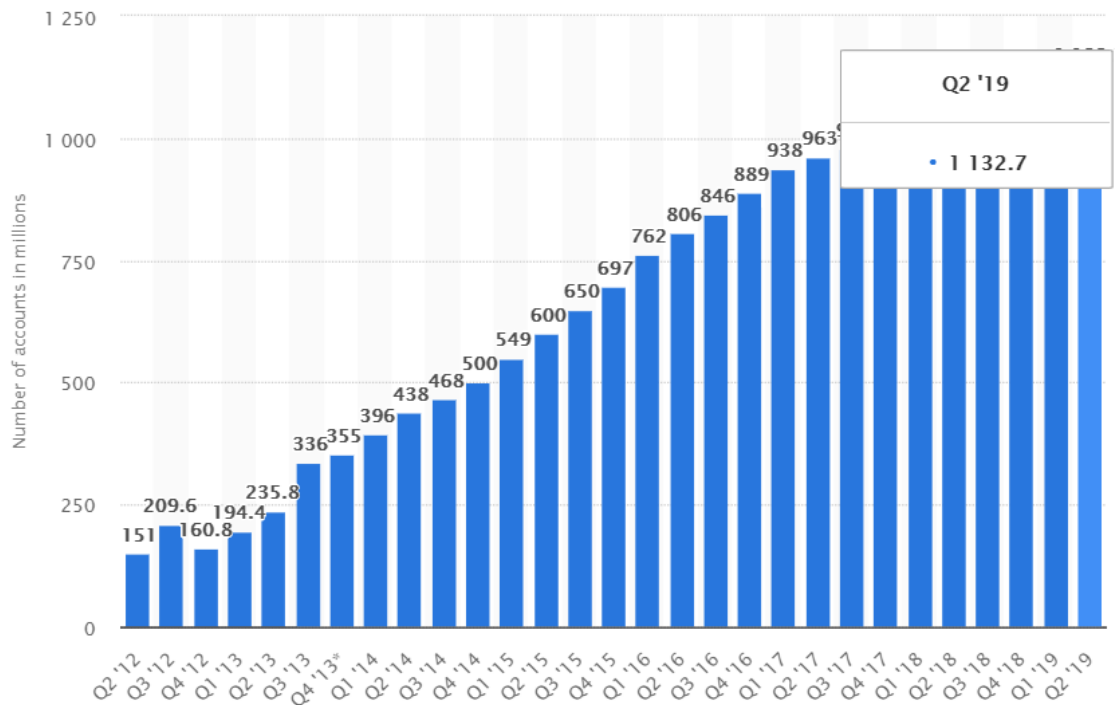


Figure 6. Number of monthly active WeChat users from 2nd quarter 2012 to 2nd quarter 2019 (in millions). (Statista 2019.)

2.2.2 Fintech in the EU

Figure 7 shows the investments made in Fintech companies in selected European countries. The UK is currently leading as they were the early adopters of Open APIs. They realized that to stay competitive in the market they either have to partner, invest or provide above par services to that Fintechs are offering. Most of the Nordic countries are also investing in Fintech as they realize that not everything can be built in-house.

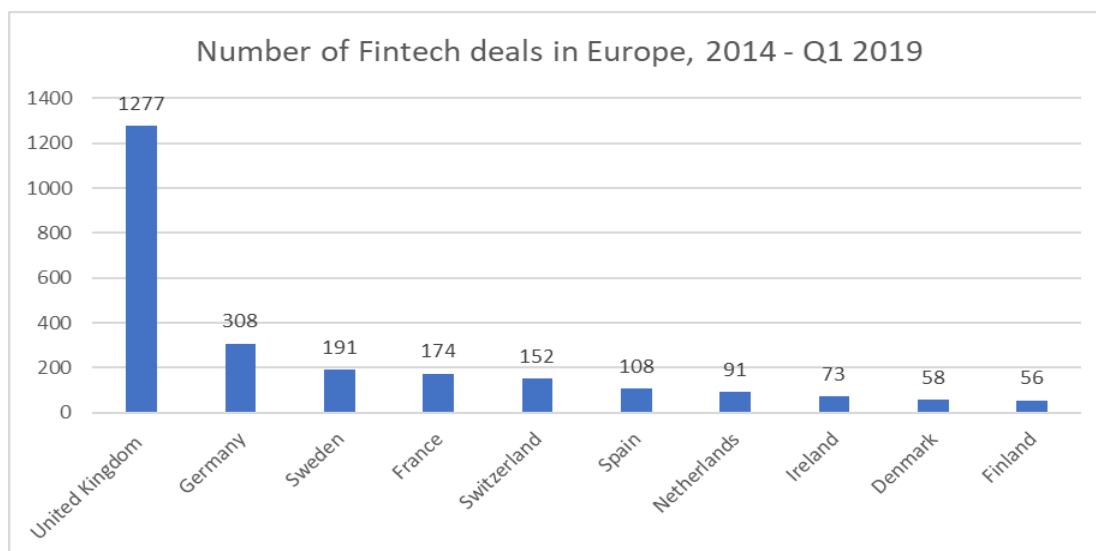


Figure 7. Top 10 countries for Fintech Investments, 2014 – Q1 2019. (Fintech Global 2019)

As banks face competition from Fintech, to remain competitive in the market they are both making strategic investments with Fintech startups and collaborating with Fintech. Nordea Ventures is one such initiation which will focus on mutual strategic advantage. As Ewan MacLeod, the Chief Digital Officer at Nordea explains, venture investments are flexible and will not be based on the size of the business. They realize that Nordea does not own the monopoly on good ideas and would happily partner with Fintech who are agile. Together, they can achieve a common goal with the right investments in place. (Farmbrough 2017.) This is a good initiative from one of the largest banks in the Nordics, as it does realize that collaboration is key and it is beneficial to partner with providers owning the services rather than creating your own if the goal is to be faster to the market and available technologies can support involved players in this journey.

2.2.3 Effects on traditional banking

The more we use technology firms in our everyday life, the more likely it is that the financial platforms of the future are going to move away from traditional banks. A millennial is more likely to open a bank account with Apple, Facebook or Google than use a traditional bank. As these technology firms will become a part of how we interact every day, consumers are likely to become more connected to their digital services and less likely to visit a traditional bank or use a separate service provided by the banks (Kerley 2018).

Traditional banks are concerned about the competition from these technology firms, since they are aware that many of these companies have an existing daily touchpoint with their customers and up to some degree, they also have the customers' trust and confidence along with it. If you are comfortable enough to share your personal details on Facebook or Google, you might be more inclined to use them also to initiate payment transactions to friends and family. Looking at the use of Fintech in more detail, if we buy our daily supplies on Amazon, wouldn't we in this case also be likely to use them to purchase insurance products? The other concern banks have is that there are now plenty of new and dynamic Fintech startups that are offering services that used to be previously provided exclusively by traditional banks. (Arslanian and Fischer 2019.)

Peer-to-peer lending platforms now provide customers a substitute to loans that in the past used to be available mainly at banks. (Lenz 2016.) Robo-advisors are digital solutions that are born at the intersection between finance and technology. These solutions are agile compared to that of traditional wealth managers. And they learn about their potential customers not just on the basis of their disposable wealth but also by analysing their social media interaction and investment behaviour. (Sironi 2016.) Also, robotic advisory platforms offer customers asset management services that are not only clear in what they cost, but also a lot cheaper. (Jung, Glaser and Köpplin 2019.) What banks fear the most is that these newcomers can cherry-pick the portions of banking that they want to get associated with, obviously the most beneficial ones. It is very unlikely that you will see a Fintech startup wanting to become a deposit taking institution due to all the background processing it would need to deal with. But they are very happy to control the frontend, i.e. the consumer centric part and leave the tedious backend work to the traditional banks such as regulatory reporting and post-rate settlement. This may result in a new banking model in the future where traditional banks are taking care of the backend and, in the process, becoming utility provider to these technology companies and Fintechs who control both the frontend and the consumer experience. To prevent this, the banks need to do something dramatic to regain their customer base. (Arslanian and Fischer 2019.)

The Fintech revolution is also bringing along other positive developments, such as financial inclusions. Across the world there are currently around 1,7 billion people

who do not have a bank account (McCarthy 2018). This also means that they have no easy way to borrow money for higher education and in many cases the only way to save money is to stash it under their pillow. This perpetuates a vicious cycle of poverty. The new financial services offered could be making a positive difference. According to World Bank, over the last five to seven years around 700 million people went from not having a bank account to having one (Hodgson 2017). The Fintech industry is regularly working on transforming how financial services are being carried out, and consumers will be the biggest beneficiaries. Others are connecting Fintech to the Internet of Things (IoT) and wearable technologies. By doing so, they are incorporating banking into our day-to-day lives, so that in the future we will not even need to worry about it. This would mean providing financial services to millennials in manner that they might really enjoy. (Arslanian and Fischer 2019.)

Technologies can optimize and disrupt portions of the financial services activities and value chains, such as improving the productivity and effectiveness of the financial actors as well as impact the incumbents' business model or support in creating new ones. Currently technologies impacting the financial services are either in early development or not completely matured yet, but some of these technologies will impact some area more than others. Areas such as insurance, capital markets, lending and fund management will be impacted by technologies such as AI and robotic process automation that could result in cost savings and improved customer experience. (European Commision, Deloitte 2018.)

Banks have understood that the scenario is changing and in order to sustain they need to evolve; some banks will prosper in this evolution and be able to implant this culture of innovation and entrepreneurship throughout the organization. However, many will not, and this has consequences. (Arslanian and Fischer 2019.)

2.3 Challenger banks

Challenger banks can be defined as “small to a medium-sized enterprises that are offering bank services without the heavy infrastructure, legacy systems and slow innovation rate of traditional bank technologies” (Thibodeau 2019). They specialize in areas where larger banks under-serve, and they achieve this by capitalizing technology to digitize and streamline retail banking. We have seen transportation

disrupted by Uber and Airbnb doing the same for accommodation. The same has not yet occurred in banking and finance, but it could happen. The so-called challenger banks are now handing the control back to the customers. By using categorized services, customers can now see what they were spending every single month in areas such as restaurants, groceries and transport. When consumers know these things, they also have more control on where the money is being spent on. The increasing competition is bringing in plenty of new entrants and a lot of challenger banks are coming into the market for service. They provide opportunity and choice for both businesses and consumers. In other words, challenger banks are evolving customer experiences using technology innovations such as AI, Big data, Cloud, APIs, Analytics. (Accenture 2018.)

2.3.1 Competitive advantages of challenger banks

The world of banking is changing, and challenger banks are the companies that are empowering the change with the use of technology whereas traditional banks' systems do not connect and post data in the way they should, creating a negative experience for the user. This likely pushes the users towards the challenger banks. Brand and trust are the other factors where traditional banks play well, as they have been in the market for a long time and have built the customer relationship over the years. But millennials are more confident and trusting of the new technology players. This acts as an advantage for the challenger banks. This new vibe and feel provided allows the challenger banks to build and act as drivers. (Kerley 2018.)

Prices are the other factor that influence people's decision on where they want to bank, and the majority of the challenger banks provide free accounts with no hidden fees. This draws customer adoption from the pricing perspective (Kobie 2019a). Not only is the opening of account done without charge, but the challenger banks offer customers significant savings if the transactions are carried out through them (Eccles 2018). Services such as these challenge the traditional banks and make the customers move towards the services provided by challenger banks.

Challenger banks are also working on improving the security aspects by allowing the customer to freeze their card over an application in case it is lost or reinstate it

in case it is found hours or days later. This eliminates the need to completely block the card and wait for the new one to arrive which customers often have to do in case the scenario occurs with traditional banks. They also provide location-based security. That is, in case the customer's location is in Europe and the card is being used in US, the transaction is blocked, and a notification is sent to the user about the suspicious activity. The features listed above have changed the customer experience and expectations. (Kobie 2019b.)

2.3.2 Comparison with traditional banks

Traditional banks are also trying to catch up on the features mentioned above, but the difference is that the challenger banks are proactive in their approach whereas traditional banks are reactive, i.e. the viewpoint is more on being forced to provide the features due to the market situation rather than wanting to and improving customer experience. With the ease of use for services provided, challenger banks are trying to make the customer aware of the finance world, make them understand the process and have them more involved with the use of technology and the services provided. The entire banking sector is seeing a fundamental transformation at the moment. For traditional banks, conduct and culture are the foremost risk factors, whereas for challenger banks the lack of legacy systems and more reliable systems supported by technology means they are in a better position to incorporate risk into the strategy. (KPMG 2017.)

Customers are struggling with the relationship that they have with the traditional bank and the products provided, and challenger banks provide a suite of tools to cater to the need. Customers have a high demand for instant payments and instant notifications, i.e. the demand for more features and products. Customers want to move the money promptly no matter what product they are using, and challenger banks deliver a great user experience that is consistent across the products they offer. An example could be a check-in account that does not rely on fee income and provides a suite of tools that help people get into the rhythm of saving money. Everything is instantaneous and one can move money real time, which is expected from modern banking solutions. This is commonly used in UK but not in the Eurozone, but it will sooner or later come to the Eurozone (InstaPay 2018).

The important thing is to collect the feedback, react fast and develop products on the basis of that. The diverse product range that is coming to market with these new entrants is going to serve customers in a different way. Amid this, some of the challenger banks will thrive when their proposition is absolutely focused and subjective. On the other hand, some of the bigger banks are having to react. It is not like banks have not tried to be innovative: for example, Goldman Sachs launched the digital bank Marcus in 2016 in US that now has around 4 million customers. The service launched in UK in the year 2018 and now has 250 000 customers (Robinson 2019).

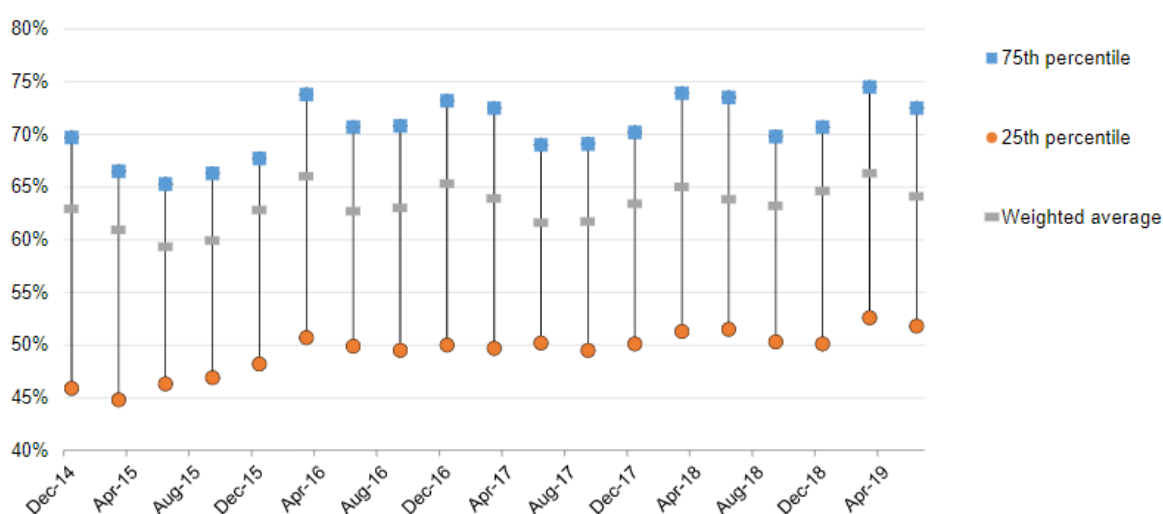


Figure 8. Quarterly cost to income ratio for European Banks. (S&P Global Ratings 2019).

Figure 8 displays one of the challenges related to cost to income ratio both in absolute terms and as a proportion of revenue. It is a challenge that the traditional banks need to face if they want to compete in the market where challenger banks are riding on technology, no branch running costs and are able to select a part of the banking and build on that. Traditional banks need to work on efficiency initiatives as they are currently facing reorganisation costs linked with efficiency programs, technology investments and increased spending on regulatory compliance, including data management and Anti-money Laundering (AML) controls. (S&P Global Ratings 2019.)

Revolut is one of the challenger banks that as of March 2019 had around 4,5 million customers base, out of which 1,6 million are located in UK (Russon 2019). Customer base for Revolut further increased to 6 million in July 2019 and 8 million

customers in September 2019 (Robinson 2018; White 2019). Compared to that of other challenger banks, Revolut managed to have millions of customers based without have a banking charter and later received banking licence in December 2018 (Pymnts 2018). Figure 9 shows the other competitors in this space with NU bank at 8 million customers, Chime at 4 million customers, N26 at 3.5 million customer and Monzo at 2 million customers as of July 2019. (Robinson 2019.)

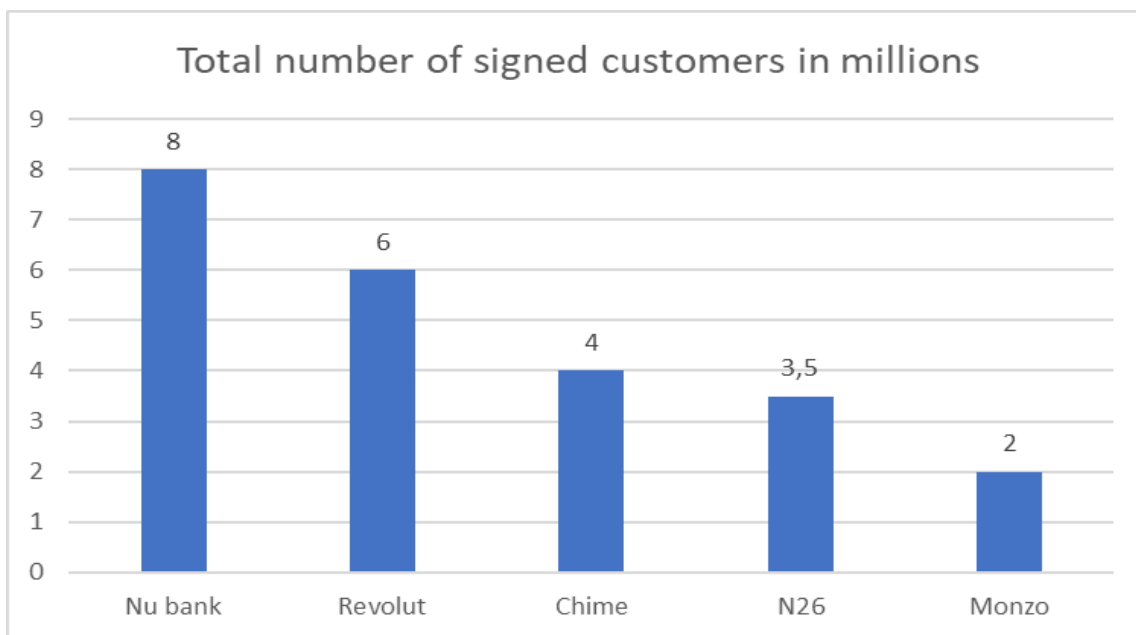


Figure 9. Total number of signed customers as of July 2019. (Robinson 2019)

As of March 2019, Revolut is valued at 1.7 billion dollars and marked as a unicorn within the Fintech industry (Russon 2019). Figure 10 displays the other Fintech unicorns with Europe and UK which include the BGL Group, Klarna, TransferWise, OakNorth, Funding Circle and Avaloq Group, all valued over 1 billion dollars as of the year 2018. Topping the global list for the most valued Fintech unicorn is ANT Financial valued at 150 billion dollars. (Fintechnews 2019). Challenger banks such as Revolut are still in red and reported a loss of 33 million pounds in year 2018 (Finextra 2019). It will be interesting to see how these challenger banks will generate and sustain profits.

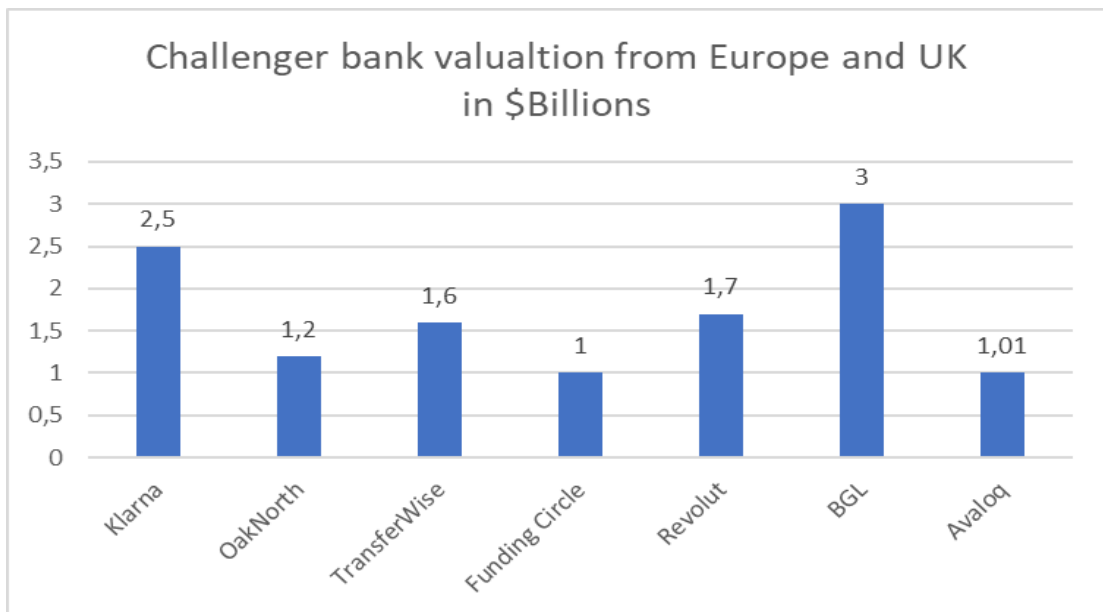


Figure 10. Challenger bank valuation from Europe and UK. (Fintechnews 2019.)

3 Banks and regulation

In the previous chapter I have discussed the recent technological developments and key concepts of Fintechs and challenger banks. The other force impacting banks and Fintechs and their competitive landscape is regulation. Regulatory changes come with high cost for the banks, whether it is implementing EU's data protection requirements or a change in regulatory plans imposed by an individual country. A prime example was when Sweden planned to make banks pay larger fees in order to safeguard taxpayers. If Nordea was to remain headquartered in Sweden and agree to accept the regulatory plans, it would have cost them over 1 billion dollars in the long run (FnLondon 2017).

But regulation also brings opportunities depending on how the banks plan to implement them. The EU's new Payment Services Directive PSD2 is one such opportunity that enables banks and Fintechs to offer additional services on the top of the regular ones that could lure customers. One such application is Tink, where Nordea advised the direction of its development, involved itself in capital investment and also integrated some of Tink's features to its own digital products. Tink allows customer to consolidate their financial transactions in one location. Other applications include Klarna that provides its clients account aggregation and payment capability. (Farmbrough 2017).

As displayed in Figure 11, without the disruption the revenue growth of UK banks should have been up by 20 percent, but with the introduction of a cap on interchange fees, digital disruptors and Payment Initiation Service Providers (PISPs) the revenue of the banks in the UK is expected to go down by 43 percent within the payments area. This is the cost of regulation that the existing market should endure. On the other hand, regulation does provide opportunities as well. As banks now can act as PISP and could gain some ground but this will depend on how banks capitalized their first movers' advantage (Accenture 2017).

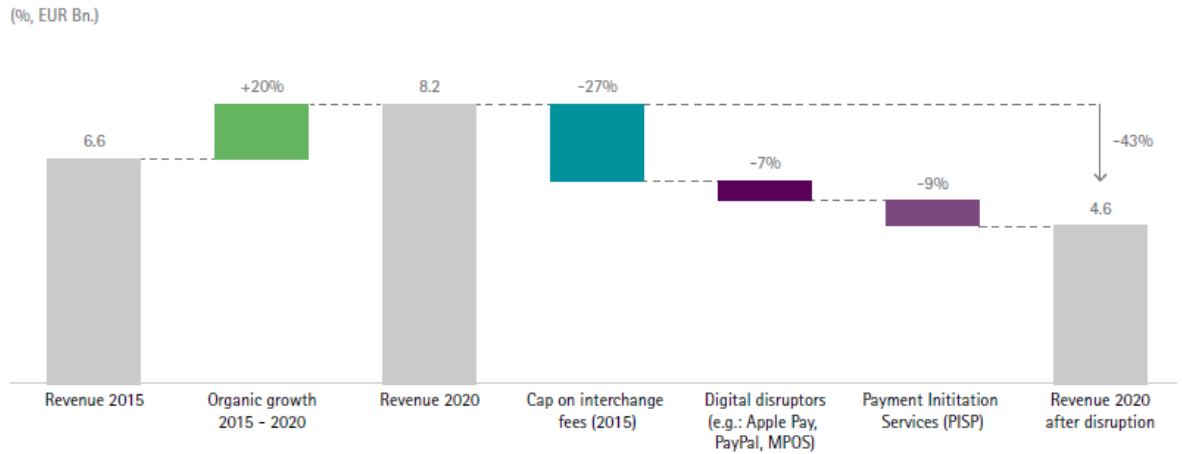


Figure 11. Retail payment revenue evaluation in the United Kingdom 2015 – 2020. (Accenture 2017.)

3.1 Revised Payment Services Directive (PSD2)

Regulations are put in place to transform the banking experience for customers. In the beginning, banks were in control of all the aspects of the value chain. But in order to improve customer experience, regulation changes were put in place to allow technology enabled financial services. With the latest changes in the EU Payment Services Directive introduced by PSD2 in 2016, to be competitive the banks should achieve marketplace openness in the form of open banking (Innopay 2018).

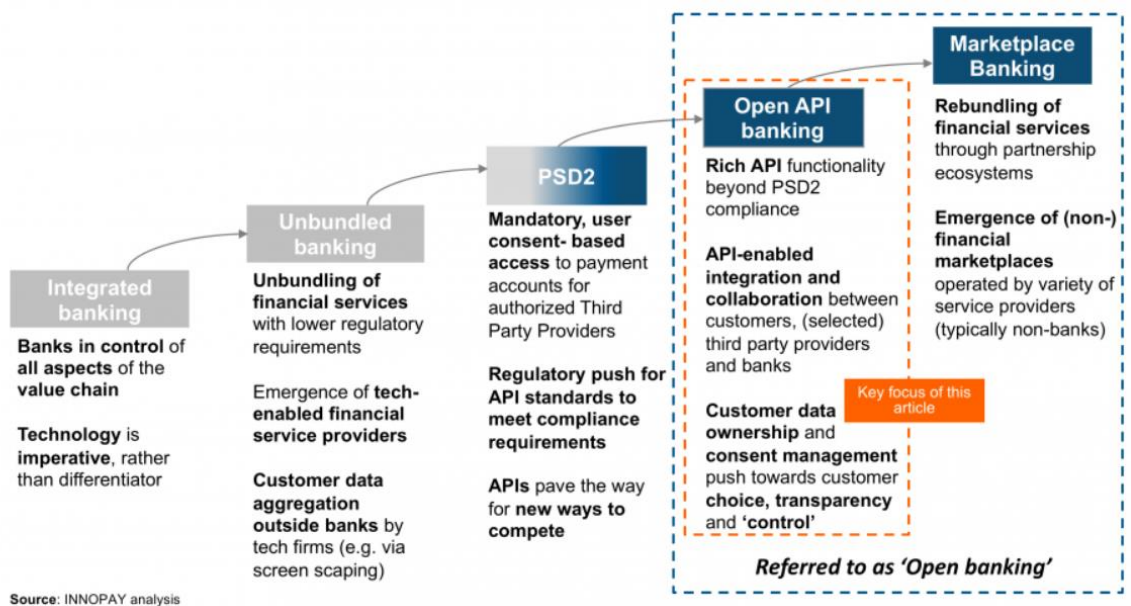


Figure 12. Evolutionary journey towards Open Banking. (Innopay 2018.)

The first EU Payment Services Directive (PSD) came into force in 2007 and was implemented in year 2009. The main aim was to harmonize pricing and improve payment processing security across EU. A review was conducted in 2013 to modernize PSD and to allow payment initiation services. The focus of PSD2 was on improving innovation, the security of internet payments, account access and strengthening consumer protection. It bans surcharging and is applicable to all payments and accounts regardless of the currency. PSD2 was adopted in 2015 and entered into force on January 1, 2016. EU member states had two years to implement it into national law as presented in Figure 13. The EBA was given the responsibility of creating the Regulatory Technical Standards (RTS) for making electronic payments safe and secure.

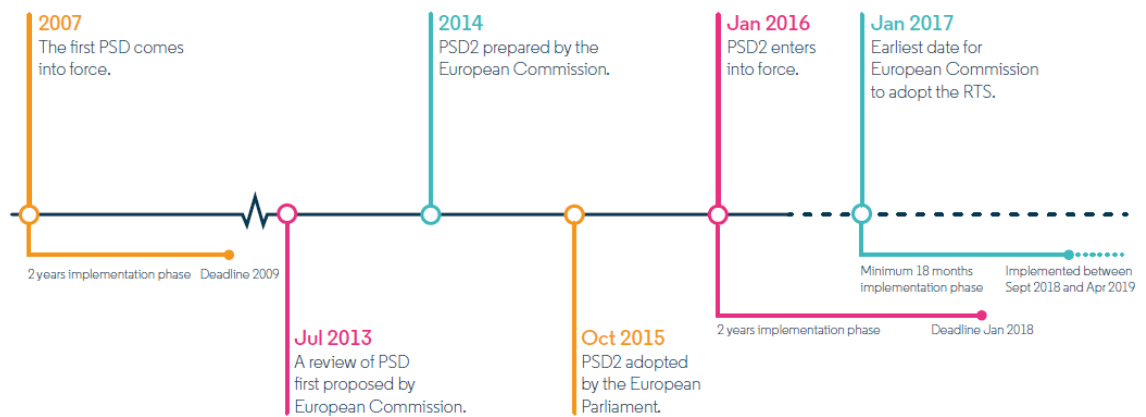


Figure 13. Timeframe and key implementation stages of PSD2. (Evry 2018.)

Once RTS was adopted, the member states in Europe had 18 months to make it a national law. Access to account principal and TPPs getting right to access the Payment Services User (PSU) account are the most substantial change of the directive. (Evry 2018.) The RTS has been effective since September 14, 2019. A transitional period has been agreed on for Payment Services Provider (PSP) that will end in December 2020.

3.1.1 Enabling open banking

As PSD2 is implemented across the EU, banks will lose their monopoly on payment services and customer transaction data. Access to the customers' accounts can be provided using open APIs which enable third parties to access and develop services. Open Banking defines APIs as “a set of routines, protocols, and tools for

building software applications. An API specifies how software components should interact.” (Open Banking 2019a). PSD2 mandates banks to open up their APIs. Both household and business customers can use third party providers to manage their finances. This brings competition within the financial sector as not only the existing banks, but everyone who will have license to provide financial services could become competitors of traditional banks. This could change both customer expectations as well as the payment value chain, bring innovation in the payments area and enhance customer protection.

PSD	PSD2
Credit transfers	Consumer protection
Card payments	Technical standards
Mobile and online payments	Make payments safer and more secure, reduce customer costs
Direct debits	Innovation in mobile and internet services

Table 1. Changes PSD2 brings over PSD (European Commission, 2018.)

PSD2 regulation introduces two new players into the market: the AISP (Account Information Service Provider) and the PISP (Payment Initiation Service Provider). An AISP can use transaction information to analyze the user’s spending patterns and display a combined overview of the user’s accounts from multiple banks using access to account information as shown in Figure 15. This will have a significant impact on corporations but will be beneficial to the consumers (Accenture 2015).

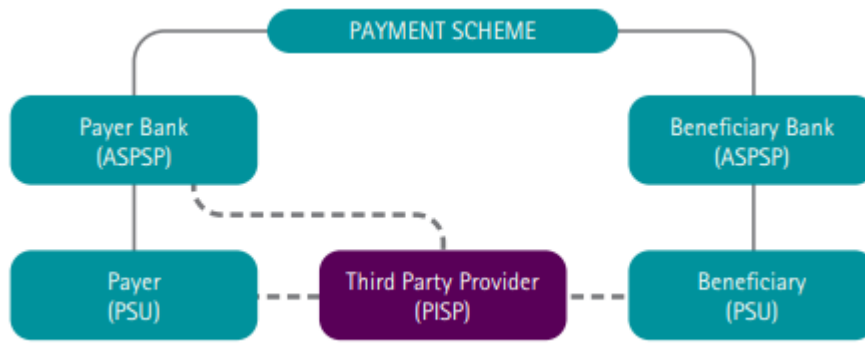


Figure 14. An updated payment model including PISP. (Accenture 2015.)

PISP removes additional layers and involves fewer parties while making a transaction. This is achieved by creating a software bridge where the required data is exchanged between the retailer and consumer (Accenture 2015).

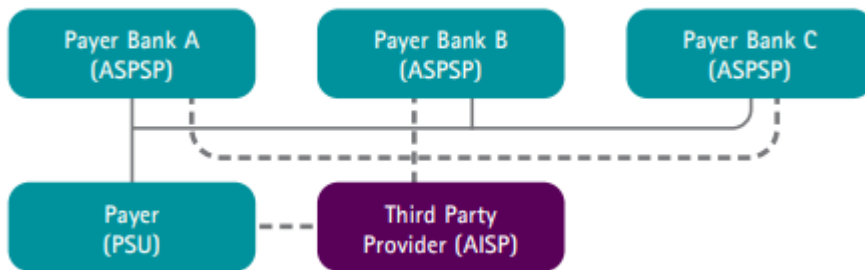


Figure 15. An updated payment model including AISP. (Accenture 2015.)

IT cost for banks will increase with security requirements to be fulfilled and development and opening of APIs. It is estimated that by 2020 around 9 percent of total retail payments revenue will be lost to PISP services (Accenture 2017). Non-banks coming into the picture will complicate matters further, as they are likely to take over the customer interaction and could potentially result in banks becoming low interest loan providers.

Will all the regulation changes, increased customer expectations and digitalization, banks are looking at ways to be competitive by opening APIs, collaborating with Fintech and establishing innovation labs. Changes in regulation also allow banks to become AISPs and PISPs, and this can help to develop new business opportunities. They can work on designing new services and business models to control the market position. Banks already have an upper hand as they could already

work on developing new services when the PSD2 entered into force in 2016, whereas Third Party Providers (TPPs) needs to wait till the implementation phase is completed and APIs are opened. However, banks should work on building capabilities that could give them a competitive advantage in the financial landscape.

Fulfilling regulations such as counterterrorism financing and anti-money laundering, capital requirements, privacy and personal data protection and PSD2 have created overhead on banks. Along with this, they had to deal with severe penalties in case they do not comply. This has shifted the focus of banks from innovation to just meeting the regulatory and compliance requirements. As described by David Gyori (2015), this has led the banks to an “innovation paradox” where on one side they have to take less risk as suggested by regulators, but on the other hand in order to compete with Fintech and provide digital services they need to be innovative which always carries some risk with it. In terms of regulation, there are certain things even Fintech businesses needs to take care of. That is taking steps to avoid AML and other financial crime, keeping customer data safe and ensuring adequate level of customer protection. (Loesch 2018.)

Banks are hesitant to take immediate action and want to do the minimum to comply with the regulation. But there are opportunities to grab if they full comply with the regulation and also move towards the openness dimension. There are some factors that affect the motivation of banks to fully comply with PSD2, i.e. regulatory overhead and the innovation paradox that banks are facing.

3.1.2 Financial services and the common market

PSD2 is a EU directive designed to enable a common European market and the free movement of services in the financial services sector. As PSD2 is implemented and the market evolves, there will be service providers not only from the domestic market but also from international markets. Whether they choose the local providers they know or have been using or to try something new will depend on the consumers. The choice of selection of service provider will most likely depend on the ease of use and the customer experience they provide. But it will not be just third party providers who will compete with banks. It will also be the Fintechs and non-banks, and it will be up to the consumer on whom to trust with their money.

Prior to the implementation of PSD2, according to a the survey conducted by the European Commission (EC) around 80 percent of consumers were not considering buying financial products from other EU member states as they could get similar services in their own country. Out of the respondents 94 percent had never purchased any products from other EU countries. This shows that people have not been very aware of some of the benefits of cross-border products. This could be due lack of communication or onboarding processes and the fact that there is no effective mechanism in place that could tackle these issues and reveal some of these benefits to the consumers. One might think this will not be beneficial as prices are not standardized, but the EC found that prices do differ country by country by large margins. Consumers could therefore gain by having a cross-border finance product relationship. (European Commission 2012.)

On the positive side, with a reduction in compliance costs and harmonized legal frameworks in place it will be cheaper for banks to operate across multiple countries and aggregated profits could be much higher. This will also bring about transparency in the financial services offered and can encourage customers to try services offered from abroad. This is already being seen in e-commerce where people buy products and services from international companies. This behavior could in return affect whether they use or want to use the financial services. With the open market in place, it will not only be other European banks competing against each other but also the international banks, challenger banks and non-banks as they would like a share of the market available. (Evry 2018.)

3.1.3 Entry to market

Banks have traditionally been the main providers of financial services. This was due to the fact that a banking license was required to offer services. Acquiring the license was difficult and getting a hold of it was painful for the new entrant. Another factor was the low trust by consumers in third-party providers. But the equation has changed with regulation changes, and non-banks and challenger banks can now enter the financial market. When looking at the investments made in Fintech globally, it is clear than Fintech will play a big role in the financial sector in the near future. Investment in this area has increase tenfold from 1.8 billion dollars in year 2010 to 19 billion in year 2015, and it is expected to reach 150 billion dollars by year 2021. This development will be further fueled by open banking, technology

innovation and consumer preferences. Open banking is giving providers access to financial information in a secure way. (Open Banking 2019c.) Consumers can choose multiple services provides instead of a specific bank to fulfill their financial needed. (Evry 2018.)

As mentioned above, PSD2 enables banking for non-banks through APIs. Using APIs, non-banks such as Fintechs can omit compliance and infrastructure traditionally required from banks to provide financial services. Most of the banks have already started opening up the APIs to third parties and are planning to develop or have already developed many financial services over it. The Danish bank Saxo and UK-based Monzo opened their APIs back in 2015. Other early adopters are ODBC Bank, SolarisBank, Citi, Deutsche and HSBC who opened their portals in 2016. Some of the early adopters for the Nordic region are Nordea, OP, Swedbank and Danske Bank which opened there portals back in 2017. (Innopay 2019.) The UK government also opened up banking through a standard and secure API initiative similar to PSD2. It has been implemented across 90 percent of the UK payment market and is open to all account providers. (Open Banking 2019b.)

The pre-PSD2 model had been working well for the banks and given them full control so far, and they have generally been hesitant to change. But regulation is not the only reason some banks are opening up. With banking becoming faster, cheaper and easier with improved services offered by new entrants using APIs or cloud solutions, it is now forcing banks to keep up with the speed of change also from a business perspective. Non-banks are good with providing the digital and mobile services as they are more human-centric and innovative compared to traditional banks. Consumers have already been using providers such as PayPal for a decade for financial tasks, and others are gaining market share. Consumers are becoming more and more tech savvy and want to use digital and mobile services for day-to-day financial tasks. (Evry 2018.)

Consumers are open to digital services and are willing to give consent to use their data to gain access to a wide range of services. Some consumers are even considering changing banks if up-to-date technology is not offered to them. According to a study by Fujitsu, three in five would like banks or insurers to use their data for lowering their mortgage premium, and more than two in five want banks to inform

them on spending habits and offer needed advice. One in three would like their data to be used for amending their credit rating. This shows that consumers within Europe are willing to use financial services which could provide them in-depth details and advice and help them keeping their finances on a healthy track. (Fujitsu 2016.) This gives banks an opportunity to provide services to fulfill the demand.

3.2 General Data Protection Regulation (GDPR)

In early 1980s, the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data was signed by the Council of Europe and came into effect in late 1985. In 1995, the EU privacy and human rights law was created as an essential element in the European Data Protection Directive. In 2010, a strategy was set out by the EU Commission on how to protect the individuals' data. In 2012, the European Commission published the legislative proposal, and separate negotiations within the Council and the European Parliament were conducted. In spring 2014, the European Parliament reached an agreement, and in 2015 negotiations and approvals among the institutions were reached. The regulation was published in the official journal in April 2016. The implementation phase lasted for the next two years, and the regulation came into effect on May 2018. (Wilhelm 2019.)

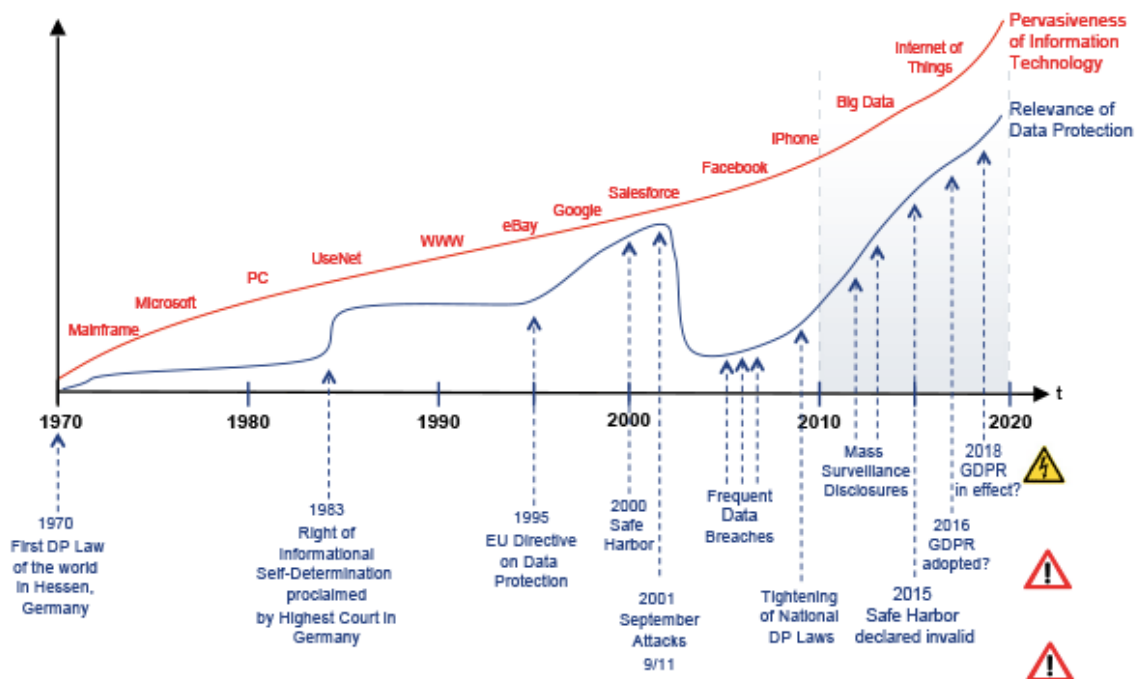


Figure 16. A brief history of the General Data Protection Regulation (Wilhelm 2019).

Banks need to comply with regulation, and certain costs are associated with its implementation. One thing bank cannot lose is the trust of the customers, as they are responsible for their assets and information. The implementation of regulation is expensive. Figure 17 describes the cost per sector. As banks are often large organizations, they need to spend much more than the Fintechs or challenger banks, which further complicates the growth and dents the revenue of the traditional banks. Based on Figure 17, banks need to spend the most out of any sectors when it comes to implementing GDPR (Coolegem 2018). With increase in importance of data there have been a influx of data driven Fintechs which banks can collaborate with to provide additional services to its customers. (Euro Banking Association 2017.)

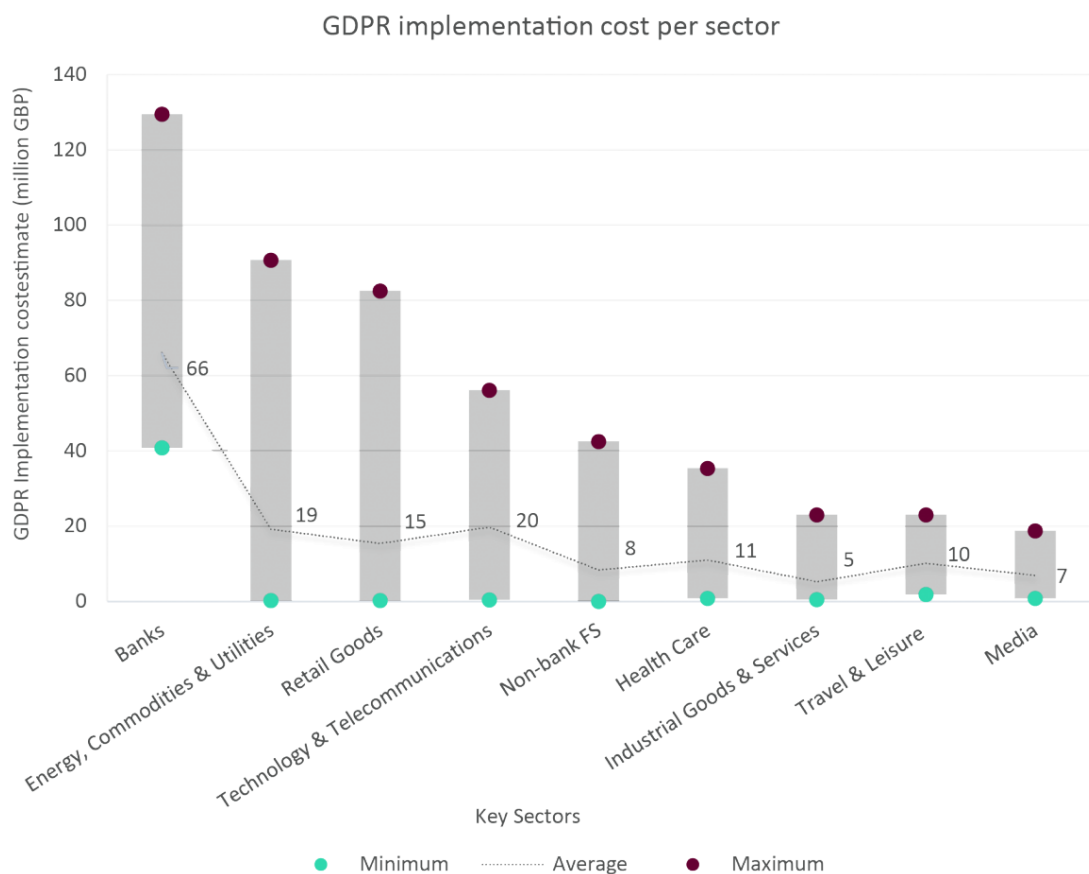


Figure 17. GDPR implementation cost per sector. (Coolegem 2018.)

The topic of GDPR revolves around data. It is important to be clear of different types of data and their level of accessibility. Data types in the banking sector include open data, aggregated data, customer transaction data, customer reference data and sensitive commercial data. Anyone can use, share or access open data.

The next type is aggregated data where data such as transactions, accounts, balances and open or customer data sources are aggregated and anonymised. The data type through which payments can be initiated and displayed to customers in their financial statements is customer transaction data. Data that is not directly related to the use of an account is referred to as customer reference data. Examples here include data from onboarding processes or the Know Your Customer (KYC) process. KYC is a means by which business can identify and verify online customers and banks requires to apply needed KYC measures to their customers (Basul 2018). It also enables banks to have foundation by ensuring that the people registered as customers are the legal entities or the individuals that banks have registered are correct. So, banks have the credentials and security who that customer is and have knowledge about those persons. Sensitive commercial data is data provided under license and consists of internal information including price setting, strategy and documents. (Euro Banking Association 2017.)

Apart from the data types, there are two types of access rights, i.e. read access where third parties are given the permission to read the data and cannot modify it and write access where third parties are given the permission to modify or execute the file for example payment initiation. (Euro Banking Association 2017.)

It is crucial to fulfil regulation as requirements are strict and not meeting them could result in fines. (Safetica 2018.). As stipulated in GDPR fine of 20 million euros or 4% of annual revenue of the organization is defined depending on which is greater. In this case it is useful to fulfil the requirement rather than paying fines as numbers generated will be substantial and beneficial to spend on data protection. Until January 2019 there have been around 41,000 notifications of data breaches, but only 91 fines have been imposed this shows that either data protection authorities are understaffed or are not certain of using their legal teams except in most clear-cut cases of negligence. One example being with Google receiving the fine of 44 million pounds by French data protection authorities. With maximum breaches occurring in Netherlands around 90 breaches per 100,000 people and least in Italy with around one breach per 100,000 customers. These large differences is disturbing as it points that many organisations and customers are not being made fully aware of their rights related to reporting personal data misuse, something which underpins the entire concept of GDPR. (Broughton 2019.) And as per Os-

terman research organizations will spend 48 % more on Data Loss Prevention Software to address GDPR. (Safetica 2018.)

Article 6 of GDPR covers the lawful bases for processing. Whenever personal data is processed, one of the six lawful bases must be applied. All lawful bases hold the same value and one does not gain importance over another. The purpose and relationship with an individual define the appropriate lawful basis, and most lawful bases require that processing is necessary for a specific purpose. Lawful bases must be determined before processing can begin and it needs to be documented. When special category data is processed, it is required to identify both a lawful basis for general processing and an additional condition for processing this type of data. Lawful basis for processing, as well as the purposes of the processing, should be included in a privacy notice. (ICO 2019.)

Right \ Bases	Informed	Access	Rectification	Erasure	Restriction	Portability	Objection	Automated Decision Making
Consent	✓	✓	✓	✓	✓	✓	✗	✓
Contract	✓	✓	✓	✓	✓	✓	✗	✓
Legal Obligation	✓	✓	✓	✗	✓	✗	✗	✓
Vital Interests	✓	✓	✓	✓	✓	✗	✗	✓
Public Interest	✓	✓	✓	✗	✓	✗	✓	✓
Legitimate Interest	✓	✓	✓	✓	✓	✗	✓	✓

Figure 18. How does the lawful basis impact individual rights? (Mapsterling 2018.)

Consent refers to an explicit permission given by the individual for the use of the data for a certain purpose. Processing may also be necessary for the fulfilment of a contract with the individual (or the steps leading to it) and is the second legal basis. Legal obligation is applicable as a lawful basis when the processing is required in order to act in accordance with the law. It does not include obligations derived from contracts. Vital interest refers to processing being necessary in order to protect life. The final two bases are public task where processing is necessitated by a task carried out in the public interest, and legitimate interest where the need for processing arises from either your own or a third party's interest and there is no overriding interest to the contrary. (ICO 2019.)

4 Methodology

This chapter will describe the research methodology used in this study, including the research approach and the process of collecting and analyzing the data. For a point of reference, a “research onion” can be used for constructing different layers of the research approach (Saunders, Lewis and Thornhill 2009, 108). A graphical depiction of this model can be seen in Figure 19 below.

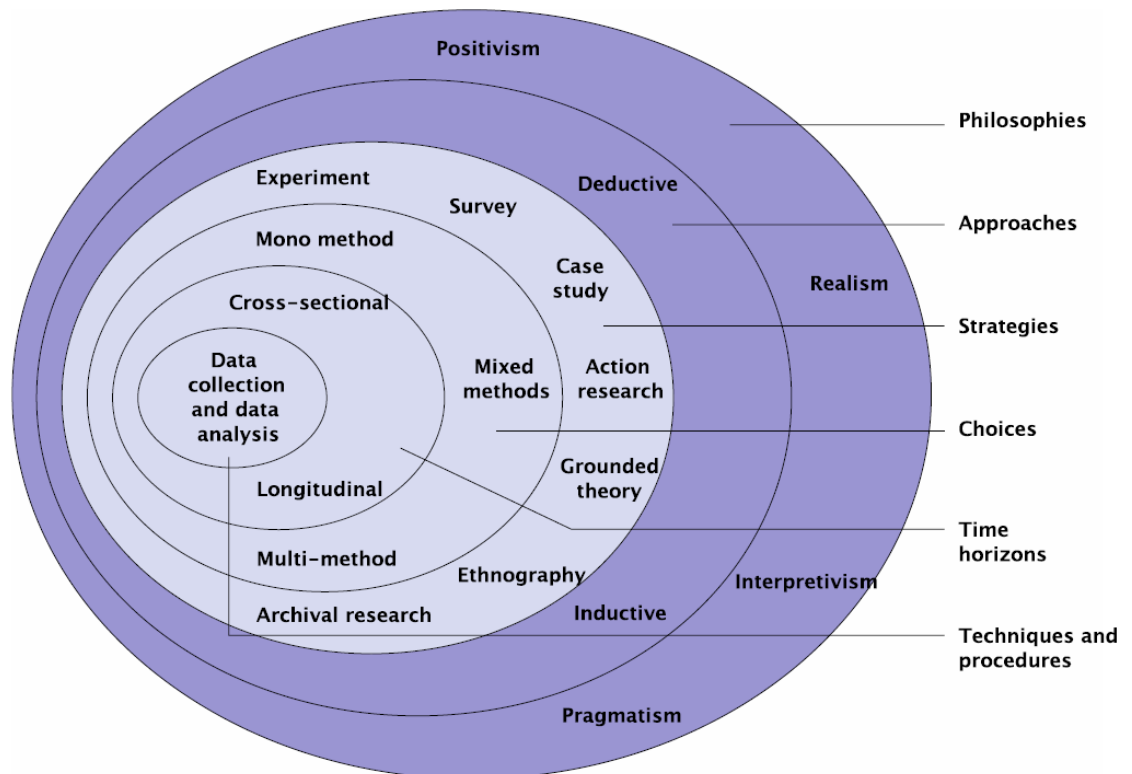


Figure 19. The research onion (Saunders, Lewis and Thomhill 2009).

On the outer edge of the onion are the ontological and epistemological views that shape the research approach. The outmost layer of the research onion is associated with the ontological perspective and whether or not one believes there is an objective reality. Epistemology then explains how knowledge can be derived given our ontology. Those that believe in the likelihood of the existence of an objective reality tend to adopt a positivistic objective or interpretative perspective. Those arguing that there is no objective reality will adopt more of an epistemological position with a subjective approach. (Saunders, Lewis and Thomhill 2009.) For the purposes of this study, the approach is mostly interpretative in nature.

4.1 Inductive approach

Coming back to the next layer of the research onion in Figure 19, the choice concerns the adoption of either a deductive or inductive approach. The deductive approach is based on the positivist perspective that since there is objective reality that can be measured, one can predict an outcome from an intervention by establishing one's hypothesis to be tested. That is then how one would approach gaining knowledge about the phenomenon under investigation. On the other hand, an inductive approach proceeds from an ontological position that we cannot know whether there is an objective reality. Therefore, we need to observe the phenomenon in order to gain knowledge about that which we are studying. (Saunders, Lewis and Thomhill 2009.)

When it comes to business research, the use of inductive reasoning is not common (Eriksson and Kovalainen 2015, 23). However, this study can be described as inductive due to the nature of the study where theory is being drawn based on the observations instead of the other way around. When solving problems, both approaches can jointly act as a pair where induction can be utilized for drawing on theory, and determining whether it is actually true can be done using a deductive approach. (Miessler 2018.) This study can therefore be described as coming from an objective view and combined with an interpretive research philosophy (Saunders, Lewis and Thomhill 2009, 115–119.). Both deductive and inductive research approaches are utilized but with a focus on the inductive approach. This means that theory will form a basis for observations. The observations will then be organized into patterns through the analysis.

The third layer from the outside of the research onion relates to the strategies a researcher adopts given a philosophical position and the choice of deductive or inductive approaches. (Saunders, Lewis and Thomhill 2009, 124–129.). In deduction reasoning, theory moves from experiment to validation and it is more precise and quantitative, i.e. the researcher predicts the outcome and then tests it by experiments. Deductive reasoning is difficult to use outside laboratory settings or in everyday life as it is not easy to gather a set of completely agreed upon facts to base the argument on that are known to be true. (Miessler 2018.) As we move more towards an inductive approach, we are more likely to adopt research designs

that involve action research, grounded approaches or even ethnographic research where we observe and become part of the community that we wish to study. (Saunders, Lewis and Thomhill 2009.)

The thesis utilizes mostly qualitative methods and it also borrows from action research. Action research involves a self-reflective and critical approach to enquiry by a researcher who is also member of the community. Action research is carried out with the idea to bring change to an organization or community and to increase understanding where action informs understanding and understanding assist action. With action research, the problem is first identified to be worthy of investigation, then an examination of other research is undertaken and the researcher's own work is carried out. Based on the evidence collected, action is performed and reflection is made as to what worked and what still needs to be done. (Burns 2015). My own position in this thesis is the position of a researcher as well as of an employee in the organization (bank) that I study. The purpose is also to use the reflections gathered in the study so that action could then be taken based on the time and resources available.

Action research is an iterative process. For some of the questions raised in this thesis, there is already action being taken as a part of bank's strategy and compliance requirements, but the study is not done strictly in an iterative manner. The reason is that in a large organization action cannot immediately be taken on all the evidence found. It is also a time consuming process, while the duration for this study is limited (will not suffice such tracking). (Hinkelman 2013.) The issue is that the time horizon for carrying out the changes and analysing their impact can be several years.

4.2 Research design

The fourth layer from the outside of the research onion deals with the research choices. A mono-method research involves only one research method, whereas mixed methods or multi-methods combine both qualitative and quantitative methods. The fifth layer from the outside of the research onion has to do with time horizons, i.e. the conduction of the research either at only one point in time (cross-sectional) or for over a long period of time to observe changes over time (longitu-

dinal research). The inner layer of the research onion is determined by those outer layers and by the choice of how to collect and analyze the data. (Saunders, Lewis and Thomhill 2009.)

Undertaking research in a positivist approach is more likely to lead to experimental designs which would require statistical analysis to demonstrate the significance of an intervention. On the other hand, an objectivist stance will result in the application of more qualitative approaches which may or may not involve mixed or multiple methods. In these cases, when quantitative data is used, it would generally be accompanied by qualitative data designed to answer the questions of how and why which quantitative data cannot answer. In a mono-method qualitative approach the analysis will involve qualitative techniques such as content analysis, thematic analysis or discourse analysis. With a mixed or multi-methods approach some statistical analysis may be incorporated, but it would always be accompanied by qualitative analysis. (Saunders, Lewis and Thomhill 2009.)

In this study, the objective is to understand the phenomena under research rather than test pre-set hypotheses. For this reason, a qualitative approach was determined to be more suited to the thesis. The nature of this study is both theoretical and empirical. The conclusions will be based on the research and analysis of written material including books, articles and internet resources but with a focus on interviews with software professional and managers who have worked in the banking and Fintech areas. The aim is to link theory with practice by using examples of the possible functioning of principles and technologies involved. This thesis utilizes both literature study and qualitative research techniques with some statistical viewpoints and could therefore be classified as mixed-method. The literature study focuses on technology and regulation documents, industry white papers and data sources, such as financial reports and expert analysis. The qualitative research was conducted in the form of interviews with industry experts that are condensed into statistical highlights.

4.3 Research method

The main method used for this study is qualitative analysis, i.e. results are drawn from primary and secondary data and their analysis. The reason for the selection

of the underlying methodology was that the regulation implementation has not come to full effect or it is at the early stages of being adopted. It is not yet certain how the changes will impact banks, and there is also not enough quantitative data available at this particular time. Lastly, the approach was driven by the research questions that leave the results open-ended and seek to understand and not only explain the phenomena under research.

Applying the above approach, I would seek to analyze how the banking sector coordinates with Fintech and how they react to changes introduced by regulation and technology. Lastly, I will look at whether the financial sector considers this as an opportunity to improve their existing service and provide enhanced services or thinks of these changes as a threat and limits itself when it comes to the services they provide.

This was achieved by conducting an empirical study in the form of interviews with subject matter experts who were part of projects implementing these regulatory and technology changes. The interviews done with experts were used to provide insights into the research questions. A set of questions was asked to the experts to gain knowledge and experience from the implementations done as well as the challenges they faced during this. There were three sets of questions prepared that were presented to the group, and each group answered one set of question based on the areas they have worked in (Fintech, GDPR or PSD2).

With regard to interviews, a semi-structured interview method was followed. Semi-structured interviews are well suited for various tasks, predominantly when more than a few of the open-ended questions require follow-up queries. Semi-structured interviews require the interviewer to be agile and familiar about the relevant substantive issues. This method is useful for producing rich data, including observational data. Even though it is labour intensive, it is worth with regard to insights and information acquired, which made it suited for this study. (Adams 2015.) While a set of questions was prepared in advance, the later part of the discussion was carried out through follow-up questions to further gain information on the interviewees' views. The interviews were transcribed and analyzed afterwards.

To provide insights into the situation and to answer the research questions, exploratory research design was used (Research Methodology 2019). The time horizon is cross sectional due to there not yet being enough visibility as to how the business landscape will change over time. Snapshots and recommendations are therefore collected and given based on the current situation.

4.4 Data collection

In this chapter I will outline the methods used for collecting the primary and secondary data. Primary data is the empirical data collected by the researchers and secondary data is collection of existing data gathered from different sources such as articles, press releases, annual reports, white papers, journals or other electronic sources (Eriksson and Kovalainen 2015, 82). The characteristics of the data influence its collection: quantitative data is displayed in the form of number, and qualitative data for example in the form of words and their content. Quantitative data can be measured more accurately as it is expressed in numbers, but qualitative data can also be quantified and explored if a set choice of options is provided with the questions asked (Wallimam 2011, 71–73).

Along with the research approach, a data collection method is selected that is either quantitative, qualitative or a combination of both (Saunders, Lewis and Thomhill 2009). In general, numerical data corresponds with the use of quantitative methods whereas the context to study a particular phenomenon comes under qualitative analysis. Statistical methods can also be used on qualitative data after it has been classified accordingly to resemble quantitative data. (Saunders, Lewis and Thomhill 2009.)

During this study both primary and secondary data were used. The primary method of data collection was using interviews to obtain the interviewees' view on the research questions. The work was conducted based on qualitative research. Questions that were asked were split into three themes: Fintech, GDPR and PSD2. The information acquired varied based on the expertise of the person being interviewed and the role they played during the implementation.

The questions were sent before the interview so that the interviewees had an opportunity to familiarize themselves with the topic and to know what the study is

about. The duration of the interview ranged from 40 minutes to an hour. The interviews were conducted in face-to-face sessions or through online meetings. The interviewees were divided into groups according to their primary industry perspective. Within a certain group, the questions were the same for all the subjects being interviewed but the order may have differed based on the flow of the topic to keep the conversation as natural as possible. At the start of the session consent was taken from the interviewer concerning the recording of the session. If consent was provided, the session was recorded, otherwise notes would be taken while the session was being carried out. All the interviewees agreed to the recording of the session.

The identification of potential interviewees began by an analysis of the groups that were likely to provide insight into the changes in business, technology and regulatory landscapes from the perspective of established banks as well as Fintechs in the Nordic region. The identification of potential interviewees was based on the individual being an expert in the domain and playing a key role within the implementation projects. A group of individuals was then selected and contacted in each category. As the interviewees have worked extensively in areas related to the scope of the study, this strengthens the validity of the conclusions based on the collected data.

The interviewees worked in the following roles:

- Implementation lead, *respondent 1*
- Strategic partner, *respondent 2*
- Subject matter experts, *respondent 3*
- Business driver, *respondent 4*
- Product manager, *respondent 5*
- Head of Open Banking, *respondent 6*
- Project manager, *respondent 7*
- Risk manager, *respondent 8*
- Strategic advisor, *respondent 9*
- Group data privacy officers, *respondents 10 and 11*
- Chief technology officer (CTO), *respondent 12*
- Chief revenue officer (CRO), *respondent 13*

The interview questions covered topics such as the threats and opportunities related to PSD2 and GDPR, the possibilities for cooperation between banks and Fintechs, possible strategic solutions regarding entry into new markets and the role of traditional banks as service providers. The interview questions are appended. With the roles being interviewed, the questions in Appendix 1 was discussed with implementation lead, strategic partners, subject matter expert, product manager, business driver, project managers, a delivery lead and a risk manager. Questions in Appendix 2 were covered by a CTO and a CRO of Fintech companies. Questions in Appendix 3 were answered by a group data privacy officers and strategic advisor. Some of the people being interviewed play multiple roles and tried to provide input from different perspectives. The interviewees totaled 12 individuals of which eight were in group 1, two in group 2 and three in group 3. One person was part of both group 1 and group 3 due to having expertise in both areas. The interviews were conducted between May and July 2019, that is, before the pre-PSD2 September 2019 deadline.

	Group 1 (PSD2)	Group 2 (Fintech)	Group 3 (GDPR)
Traditional bank	8 (respondents 1 to 8)	None	3 (respondents 9, 10 and 11)
Fintech	None	2 (respondents 12 and 13)	None

Table 2. Interviewees by group.

For the collection of the secondary data, literary study was used. The sources used in the theoretical framework include journals, research papers, books, articles and reports on the topics of Fintech, regulations, financial services sector and financial systems.

4.5 Data analysis

Qualitative data was collected from the interviews and analyzed during the research. Qualitative data analysis is not a linear process. (Suter 2012, 348.) In the study, the data analysis already began when the data was being collected.

For this study an interim analysis was conducted. This meant that the moment a round of interview was complete, the data was analyzed rather than waiting for all the planned interviews to finish. Themes are then drawn based on the emerging data. Reflections related to research questions were recorded during the interview session in the form of notes or transcripts which were then compared with data collection done and used during the analysis process. An inductive coding approach was applied by thoroughly going through the transcripts and creating codes out of it. (Thomas 2016.) Patterns and relationships are drawn by comparing the interview data with the secondary data collected. Lastly, research proposition and questions are linked with research findings to synthesize the collected data.

5 Analysis

In this chapter I will present and analyze the results from the interview rounds. Interviews were carried out with individuals within a Nordic bank with roles ranging from subject matter experts to Head of Open Banking, as well as Fintech representatives. In some questions, only a certain group was asked the question depending on its applicability. All the data is analyzed and sorted according to the research findings.

5.1 Speed to market

A key factor to being successful in today's market is the speed at which one delivers services. To achieve the best results, the organization must address the potential to reduce time to market for new services provided. The question of the potential was presented to the interviewees from both the banks and Fintechs. The distribution of the answers is shown below in Figure 20.

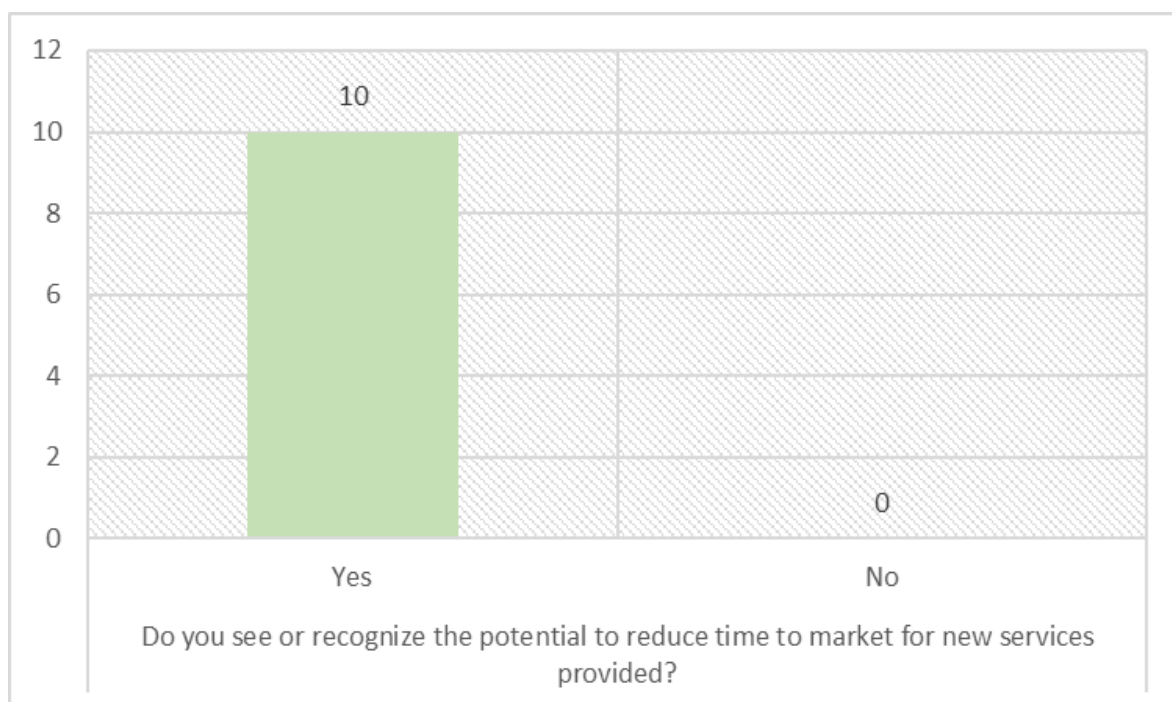


Figure 20. Reducing time to market. N = 10 (groups 1 and 2 combined).

All the interviewees answered the question with a “yes” and also agreed that it is important to reduce the time to market for the services provided. Several respondents acknowledged the potential of partnering with existing providers. The benefit it brings is that a business can offer services to its customers at a much faster

pace. One of the interviewees also brought up the viewpoint that services can be built in-house and then be delivered to customers. But the feasibility of this option will change from organization to organization and the vision that it holds. To build everything you need on your own is not easy. One of the Fintech respondents recommended going to service providers like Tink or API Gateways. To plugin to one API instead of thousands would be a major benefit.

“If you consider all the core systems and legacy system, it took us a few years to build the APIs in the bank AIS [Account Information Service] and PIS [Payment Initiation Service]. Now getting these APIs out will enable other departments in the bank to immediately start to utilize APIs instead of being forced to build direct channel down to legacy system.”
(Respondent no. 5, Product Manager.)

There will of course be some situations where there is no other option but to build services in-house, but in many other cases it is beneficial to find third parties that have services readymade that are relevant to customers.

5.2 Utilizing external firms

There is one issue with in-house development for banks, technological giants or third parties, and that is that not all the needed competence is available in-house. Because of this, the first question was further extended to see whether these organizations work with external firms to develop new services and whether they are continuing to do so, or if the strategy is instead to not be dependent on external firms. The results from this question are presented in Figure 21.

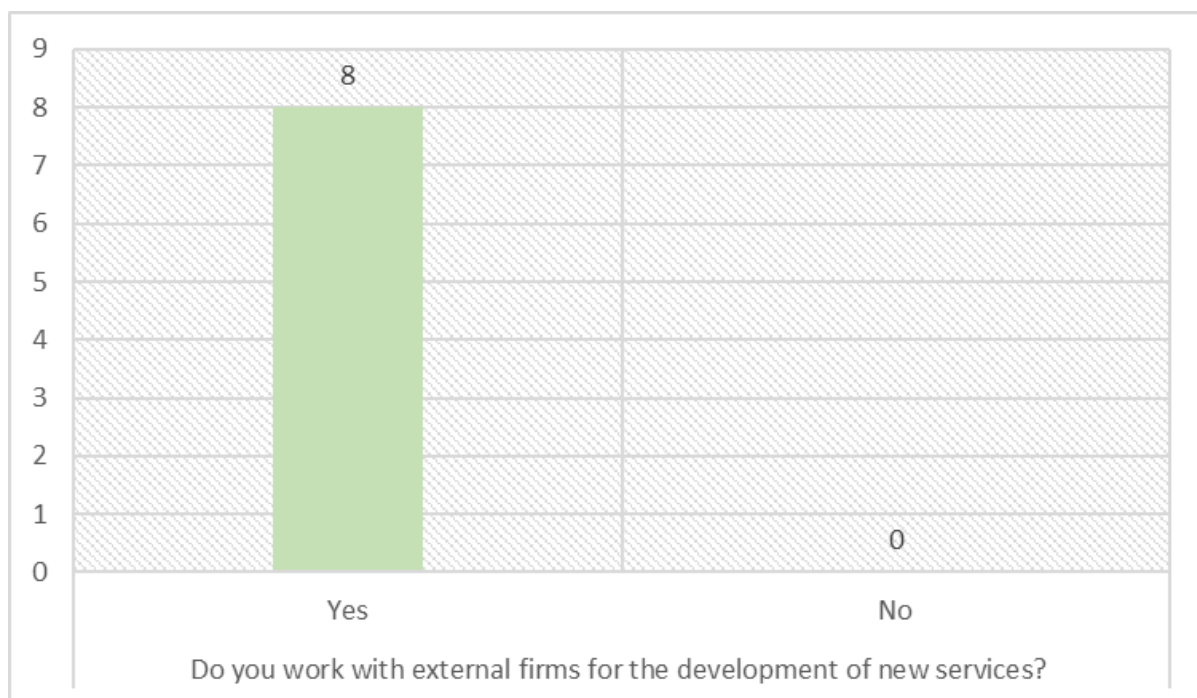


Figure 21. Working with external firms. N = 8 (group 1).

All the interviewees in the banking group believed in working with external firms, but this was only when it came to the development of services and not the maintenance or running of these services through the external partners. The benefit of this is flexibility and reduced time to market. According to one respondent, the motto is to “buy before build”, as there is no point of creating something that someone has already developed. In some cases, applications are bought from the vendors but this cannot always be done, as some systems are closely connected to bank systems. As banks own plenty of data they can work with data driven Fintech through which they can develop premium services. It is also a good strategy to look for existing services available before they are built as partnering with providers owning valuable services results in faster to market. And as a result, doing so improves customer experience.

“Processes in banks are slow, and to get things out quicker it is better to work with external firms. Combination of many things, first is the mindset, then ways of working. Something to get out and get this and try and if it doesn’t (work), adjust and re-do it.” (Respondent no. 4, Business Driver.)

If banks collaborate with Fintech, it will also help them to achieve the Fintech mindset that is more opportunity-based. Since banks are thinking more about

regulation and security, they are reactive. They can benefit from the Fintech mentality.

5.3 Banks and Fintechs

A related question is how Fintech and banks see each other, i.e. do they see each other as competitors or partners where they can collaborate. To understand this, the following question was asked to the group of bank representatives. During the interviews, the same question was asked from Fintechs from a reverse point of view. The majority of the interviewees considered each other as partners, but some also considered each other as competitors or as both partners and competitors depending on the situation.

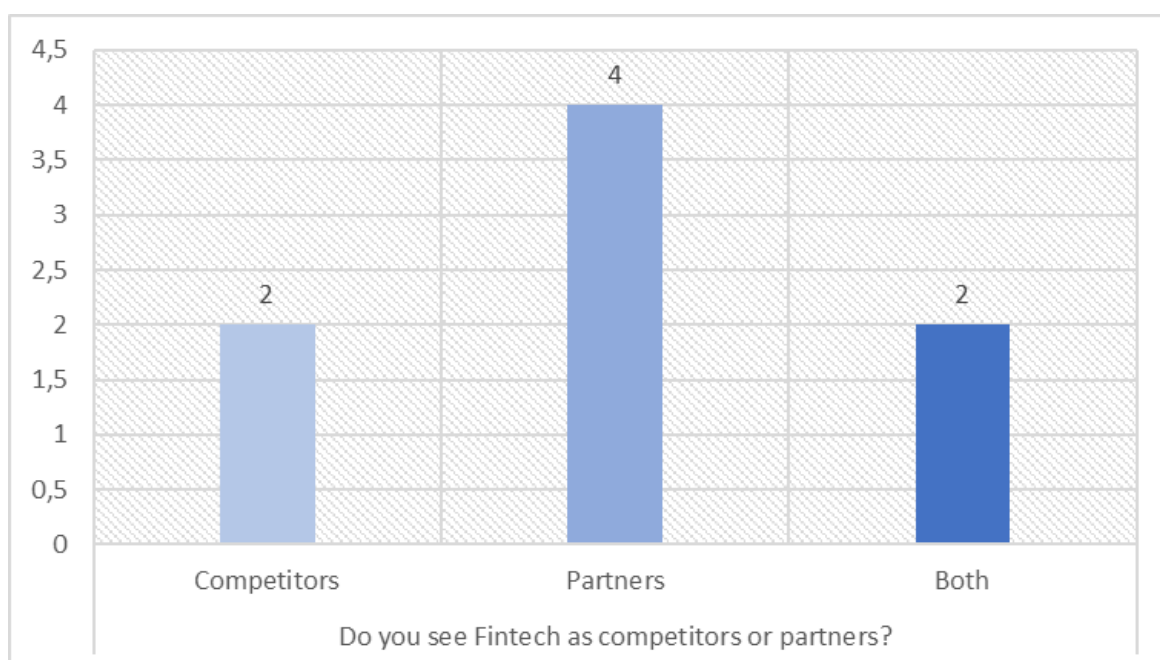


Figure 22. Banks and Fintechs, competitors or partners. N = 8 (group 1).

Respondents in the banking group majorly saw Fintechs as partners. A collaborative approach can be seen as beneficial since when looking at the interests of Fintechs and banks, banks requires services from Fintech that they can bring to their customers whereas Fintechs need the collaboration as banks store customer data for millions of customers that could be utilized for developing premium services. Collaboration is also the only way that the customer will get value:

“Consider them as partners, but Fintech might see it otherwise, and this could be market not being mature as some are seeing it as competitors

only. Both should consider each other as partners, else customers will have little to gain from what banks and Fintechs do together. This will result in competition rather than collaboration.” (Respondent no. 1, Implementation Lead.)

“Banks that are first out and identify third parties that provide great services that are useful for bank customer will get more attention and a more satisfied customer. How can we become among the first and best that can find the best services from third parties and provide to our customers (...). This is not competition but opportunity space from Fintech or third parties. They have services that we don’t have, we have customer who want these services. The third parties, small player do not have customers but have services so there is clearly win – win scenario.” (Respondent no. 2, Strategic partner.)

However, one of the respondents in the banking group also argued that since Fintechs primarily focus on household customers, there cannot be much collaboration as banks make the most revenue out of corporate clients. If there are no services created for corporate customers, the partnership potential is limited. According to one Fintech interviewee, the viewpoint had changed over the course of the years. A Fintech in the early stages of startup is more likely to view banks as competitors. As the company then becomes more established, more opportunities are being created and they begin to look at banks as partners through which to provide more services.

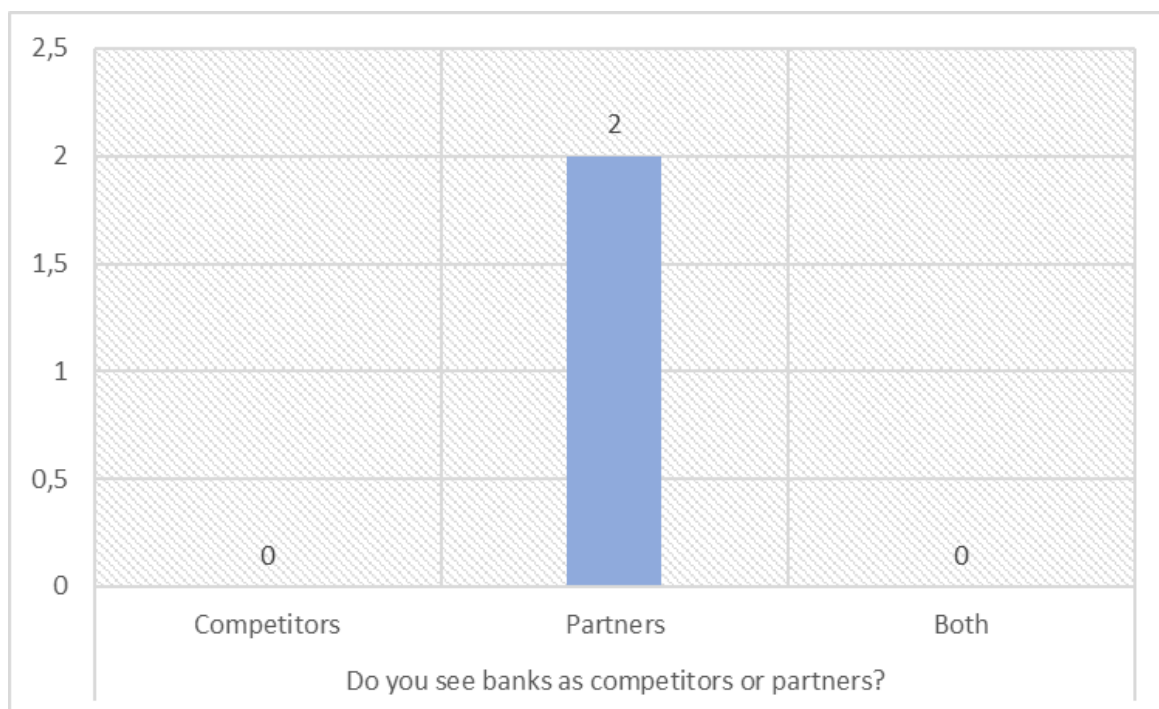


Figure 23. Fintechs and banks, competitors or partners. N = 2 (group 2).

One interesting point that arose during the interview session in the banking group was the need for Fintech to create a sustainable business model. Fintechs currently rely on venture capital funding in their initial stages, but if they do not come up with a model to make revenue, they will eventually go default. In this case to be successful they would need to collaborate with banks and in return work as partners rather than competitors. There is also another dimension to this where some Fintechs will partner with banks and some will compete, depending on the Fintech. The model might work out where some of the Fintechs would be using services provided by banks as customers. Some of the Fintechs can become middle layer and sell the banks' services as partners. Some will capitalize on banks' customer base to sell their own services and vice versa by leveraging open banking capabilities. One respondent noted that Fintech also see banks as customers.

On the basis of the interviews it appears that when it comes to competition, it will most likely be from one bank to other instead of banks competing with Fintechs as Fintechs need banks to get data as well as sell their services. Banks will also face some competition from Fintech based on the type of services being offered.

5.4 Banks as backend providers

When asked about the idea of banks becoming the backend and providing the infrastructure and Fintech becoming the face for the customers, the interviewees were equally divided with some suggesting it is ok if banks become the backend. The idea was less appealing to banks. Some were critical that losing customer interaction will have a negative impact and that effort must be put into having customer facing services. Otherwise, banks may only become backend or regulatory or a “compliance box” (respondent no. 13 in the Fintech group). An interviewee in the banking group stated that banks “would not like to be plumber or infrastructure for services”. Other respondents from the banking sector confirmed that they do not want to lose the direct relationship with the customer. Instead, they want to be “a relationship bank” and have customer relationship with the end consumer, both corporate and personal banking customers.

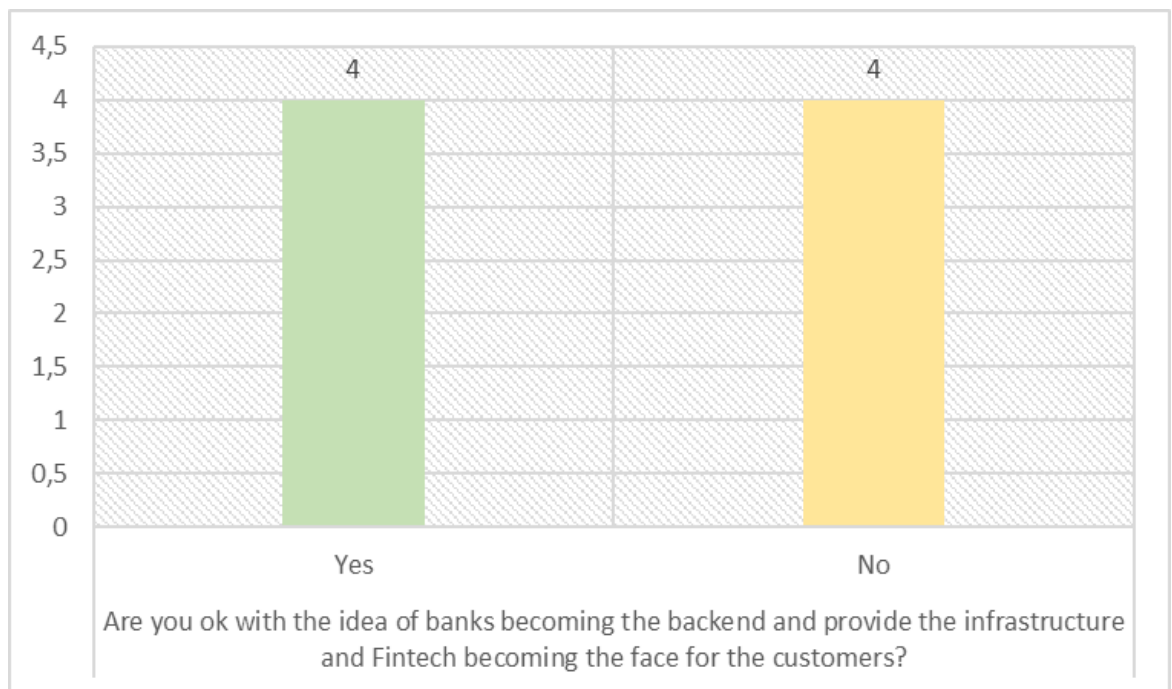


Figure 24. Banks as backend (bank respondents). N = 8 (group 1).

Figure 24 shows the viewpoint of the bank respondents whereas Figure 25 displays the point of view of Fintech respondents. The groups were equally divided on the idea of banks being the backend. The division on the response may be due to the perspective of the interviewees involved either on the business or technical side of the implementation. The division on the Fintech side could be due to the realization of the PaaS opportunities that could be a potential revenue model for

some banks. The other respondent thought that banks would like to be the face for the customers and if they are not, they could be squeezed out of the competition.

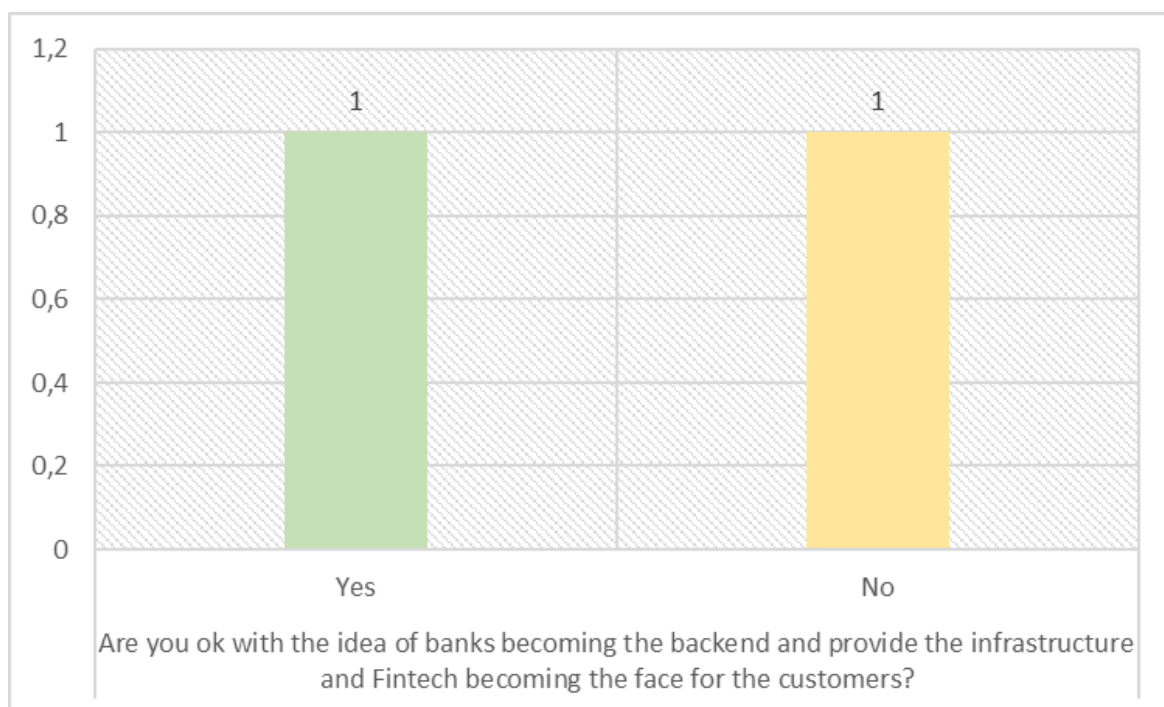


Figure 25. Banks as backend (Fintech respondents). N = 2 (group 2).

But when one looks at the other side of the coin, as stated by the respondents not all banks will be successful in maintaining customer relations and it may not be a bad idea to focus on becoming an infrastructure provider. Banks whose sole focus was to fulfill compliance and who did not look at the regulation changes from a perspective of opportunity will have limited chances of recovering as there will already be many players entering the market. This could also be a strategical decision to not be in the frontline, but instead to be specialized in being the infrastructure for anybody who need to consume financial services.

Even as backend, there are opportunities to provide custom services such as balance sheets as a service. As the existing Fintechs either provide connectivity or data products and not balance sheets as a service, banks can be competitors even if they become the backend. One also needs to look at different parts of bank where it is acceptable for certain product units to become a backend provider, but this may not be desirable for others:

“It is ok for certain product units to become a backend provider and not ok for others. If you take capital markets, they were disrupted already

15 years ago when trading stations such as FX came into market. They have lost the customer position for many years. They are very used to sell[ing] their products as white label. They know they can only compete being better, cheaper and faster.” (Respondent no. 6, Head of Open Banking.)

One of the biggest advantages that banks have is that customers have trust in them, as these organizations have been running for decades. Also, whenever an issue comes up with their accounts or services, people usually prefer to call banks even if they are using Fintech services. It is not likely that banks would entirely become backend. It depends on how willing banks are to adapt to the new technologies. There will always be some customers who will prefer human interaction and also trust, and that is what banks are good at.

5.5 Opportunities and threats from regulation

Regulation changes could result in both opportunities and threats with opportunities being collaborating with partner to provide services, enabling the use of technology and providing enhanced services with open banking. But there is also the threat side with the cost of implementing the regulation and increasing competition as a result of the entry of new players into the market. This point of view will change from player to player, as some will partner to provide the services, some will act as a bridge to provide these services and some will develop solutions in-house.

Usually when banks look at regulation, the first thing to come to their mind is cost. But regulation also brings opportunities. For example, PSD2 enabling open banking where banks, third parties and Fintechs could provide additional services on top of meeting basic compliance demands. This way, they can create a model that brings additional revenue. The strategy will vary from organisation to organisation. Beyond compliance, there is opportunity. Fulfilling only the compliance needs will result in costs if opportunities (providing premium services to the customer) are ignored.

According to the respondents, by using partners banks can reach a broader market and with that, provide more direct and operational services. As banks own

plenty of data, it could be shared with other parties for a small fee in the initial stages and later move towards a dynamic market by partnering and creating services that could then be sold to customer using the data available.

5.5.1 Parties impacted

When you look at changes to regulation and compliance, there is an always an impact associated with it. This is usually dispersed across the customer or banks or third parties. To analyze this, the following question was asked to the interviewees. The results obtained are displayed in Figure 26.

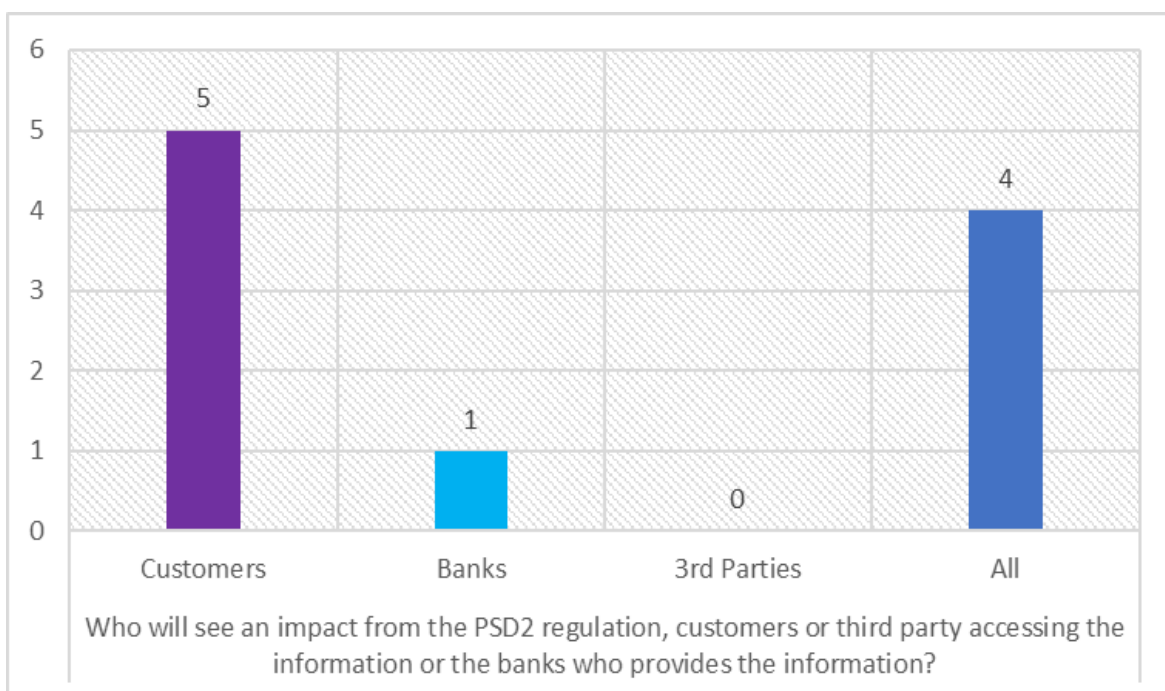


Figure 26. Parties impacted by regulation. N = 10 (groups 1 and 2 combined).

The impact can be positive or negative. Based on the results, the majority of the interviewees believed customers will gain the most. Apart from customers, the regulation would impact all the parties: banking in terms of opening up the competition, customers in terms of being able to get new services and third parties being able to offer services to customers or banks. One of the major benefits that third parties gained out of PSD2 was that third parties are now allowed to access account and transaction information of the customers. Therefore, third parties can now offer premium services to customers within Europe.

Some respondents mentioned that the impact would depend on the country. Countries that already have technologies such as screen scraping in place would not see major changes. Screen scraping is a process through which screen display data is collected from one application and is translated such that the data can be used and displayed on another application.

“Banks definitely see the impact of more players coming into the space. Banks will see intensified competition in banking and financial industry. In terms of customer, and if we look at customers as consumers, it would depend on which country they are from. For example, Sweden has allowed technology such as screen scraping and reverse engineering.” (Respondent no. 5, Product Manager.)

Another respondent thought that the countries that would see the biggest impact would be Finland, Poland and Netherlands that had not allowed screen scraping. These are the countries where competition would increase the most as new players will enter the market.

These days banks' direct relationship with the customer happens online or via mobile channels. PSUs coming through TPPs' applications could remove this advantage, making banks more behind the scenes. It can increase competition by bringing new players or companies into financial services and banking. Overall quality of services that are offered to customers, be they consumers or the corporates, will tend to improve. But this could result in a double-edged sword, for customer it will bring benefits in the form of new services but for providers (whether banks or third parties) it will create a challenge in terms of competition and dealing with regulatory changes.

5.5.2 Enabling market access

With the introduction of PSD2, challenger banks and Fintechs can get into the market and provide the services as barriers to entry are lowered and there are new business opportunities. This is where there is some potential gain for Fintechs and challenger banks. As some of the respondents from the banking group noted, the benefits would fade away over time when they actually start providing financial

services, as they will need to fulfill the same regulatory requirements as banks currently do, for example KYC. The advantage would then level off.

The interviewees believed customers will gain as there will be more providers from where you can get the banking or payment services. As a result the cost will go down bringing more gain, but a massive number of options for getting your banking or payment services could also create confusion for the customer. For the new players it will take time to settle as they need to gain the customers' trust. Players who have proven that they provided customer experience will have an upper hand. It should be noted that if the price of banking services decreases, so does the banks' revenue. As mentioned in chapter 2.3.2 banks are already under pressure to improve their cost efficiency.

In general, banks are in a good position since they cover both the consumer and corporate side as customers and could also act as third parties over time. With challenger banks or Fintechs typically tending to focus on just the household customer, banks will have better opportunity if they find ways to combine offers and leverage services across consumer bases. So far, banks have not done that well in this area and more work is needed here. PSD2 regulation results in increased competition, forcing banks to improve their services. In the future this also helps in providing better services and increasing revenue which becomes an indirect benefit. If it was not for PSD2, the majority of the banks would likely still only be thinking about developing or implementing APIs.

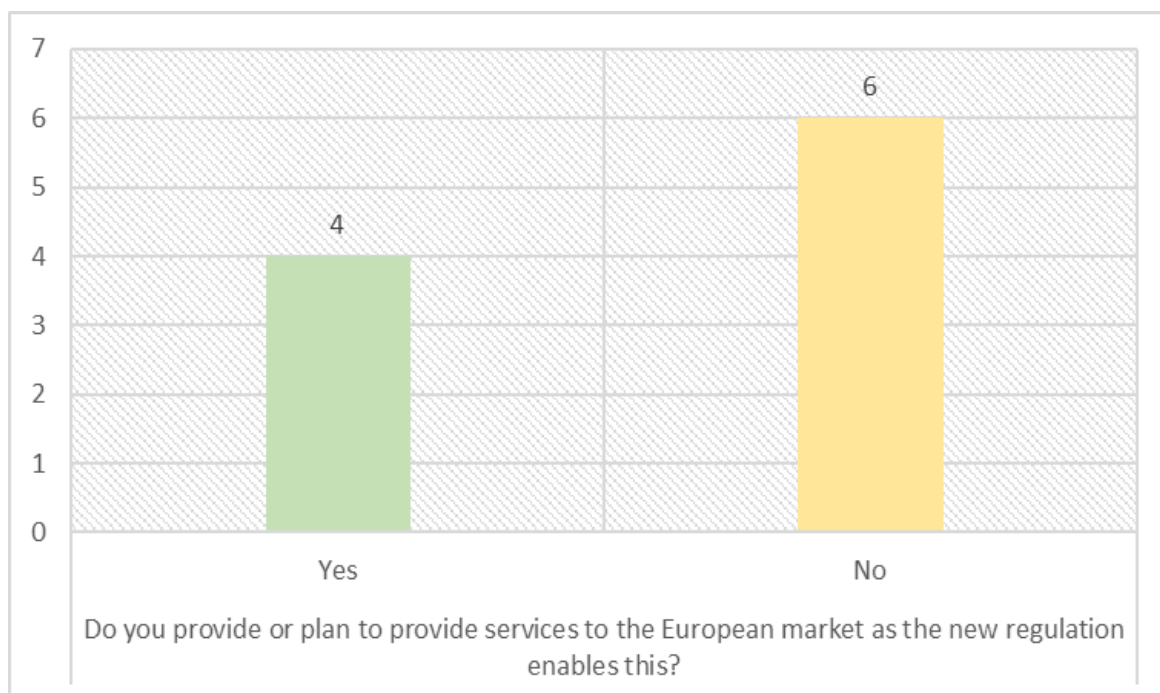


Figure 27. Services to European market. N = 10 (groups 1 and 2 combined).

Today, banks are focusing more on their current market than capitalizing on other markets that would also be available due to common market regulation. Their focus is currently towards compliance rather than opportunities. This is in part due to necessity, since if regulation and compliance are not met a bank can lose its licence. In the near future, business needs to figure out which one of all the services provided today could be digital services and in what markets can there be potential.

This question had a mixed review as 40 percent of the interviewees held the opinion that service should be provided to European market, whereas 60 percent were voting to focus on their current market to strengthen the business. Fintechs were more optimistic about moving towards the European common market. On the banking side, only one in three respondents said they were planning to expand their scope. For the banks, the focus is more on corporate customers than household ones as revenues to be made are much higher on corporate the side. One of the interviewees stated that there was already some customer demand from outside the Nordics for some of the services provided, but there was no plan of reaching out to these markets at this point in time. However, some respondents also thought that at some point the focus should be towards banking as a service that

should go beyond the national market. But some things need to be considered beforehand.

“No, some products within capital markets will like to sell their products white label to, for example, startup banks in Portugal or Fintech in Italy and so on. They have products that can be sold that way, like banking as a platform service. Other services can’t be sold that way as it requires an account (..) to exist in the bank, but some will definitely reach out and widen the geographical footprint.” (Respondent no. 6, Head of Open Banking.)

White labeling refers to a service or product produced by one business that others can rebrand to make it appear as if they had made it. This could be a way in which some of the products could be marketed outside the country. In general, it is evident that banks are currently hesitant about widening their markets. This could be due to multiple reasons, such as needing to focus on compliance. Also, banks need to work on other sources of revenue such as premium APIs to their customers in the existing market before they could venture out.

5.5.3 Providing premium services

When discussing the questions related to benefits with regulation changes, investment prioritization triggered by new opportunities, providing services to the European market and the impact of regulation on customers, third parties and banks, the topic of premium services came up with respondents from both banks and Fintech groups. Both banks and Fintech were of the opinion that premium services could be a way that the regulation changes could be taken as opportunity. Fintech needs banks to get the platform and customer base and this way, banks are able to provide the customers with enhanced services. By doing so, they satisfy the existing customer and tempt new ones to try out the services.

Increasing competition can be looked from the opportunity point of view as with more service and third parties creating them will enhance the customer experience. There is more upside to this than downside, as banks can white label or collaborate with partners to sell their services or vice versa.

“We’ll see how the market place evolves. But how do banks really make money? Well – one major way is by lending. If TPPs help the bank extend its reach to more and more customers across the EU (...) then lending opportunity increases. We can expose a huge set of ‘premium’ services to our household, SME and corporate customers benefit that consumers of those APIs would pay a premium to consume, thereby monetizing the platform. We can also partner more closely with innovative Fintechs that we identify as mutually beneficial. Finally, we can play the TPP roles and access customers’ accounts at other banks – making it easier for our customers to manage their money and transfer between accounts across different banks.” (Respondent no. 3, Subject Matter Expert.)

5.5.4 Security threats

The opinion of the interviewees was divided when it came to security threats due to regulation. Some of the interviewees were of the opinion that the regulation has improved the security aspects and did not see any threats, whereas others thought that the regulation (specifically PSD2) introduces security risks because of the involvement of additional players trying to access the customer data, which increases the possibilities of misusing the data. As the regulation also involved new technology that banks are not very familiar with, this can also create additional risks.

The combined results are displayed in Figure 28. Six of the respondents from the bank were of the opinion that regulation changes did introduce new security threats, while two disagreed. From Fintech, one person believed that regulation changes did not introduce any security threat. Another one thought that new threats had appeared.



Figure 28. Security threats introduced with regulation. N = 10 (groups 1 and 2 combined).

“I still can’t see more security threats in the future than there were before, analog interaction, people to people or shuffling papers was much more insecure than what can be done with technology. Actually, I see technology as enabler that strengthens the security.” (Respondent no. 2, Strategic Partner.)

“There are lots of security threats with PSD2. PSD2 has post security threats in a dimension the others haven’t because we are utilizing new kind of technology that we haven’t used before, we are exposing our code outside of firewall 24/7 which we haven’t done before and of course that creates new risks.” (Respondent no. 6, Head of Open Banking.)

As third parties can now directly interact with customers, they can provide terms and conditions that might sometimes be “pretty flaky” (respondent no. 3, Subject Matter Expert). However, since customers are now providing their consent and accepting the terms and conditions when interacting with a third party, they are responsible for the process and their data. But with strong customer authentication (SCA) that was introduced as a part of PSD2, fraud could be limited by requiring a multi factor authentication. Along with multi factor there are also other security levels in place, such as eIDAS that are used for verification purposes. One of the

risks highlighted was that the third parties have to follow processes such as KYC or AML even though they are not actually processing any information and as a result makes the process very heavy.

There are also threats on technical details due to lots of sub-standard implementations of PSD2 open APIs across Europe. Banks and regulators will require that security threats are handled before mass interaction can start. This could be one reason why many will be hesitant to open up fully as there is quite a lot of uncertainty. But players who are not early adopters will face stiff competition and the ones who are early adopters will have to take the risk of opening up and make improvements based on the feedback received.

5.5.5 Impact on customer relationship

One of the threats is that direct relation with customers will be impacted with TPPs coming in and banks might lose the customer facing aspects with time. It adds additional layers between consumers and providers.

With technological and regulatory changes there comes also the overhead, such as SCA coming into force making the customer experience cumbersome especially with regards to payments. It also introduces new players that come in between banks and consumers. Banks that used to hold the accounts and provided the end consumers services but now third parties can come in and provide the services directly to consumers or merchants. This brings challenges and can be considered as a threat when someone comes in between customer relationship and forcing banks into just providing core as it adds additional layers between consumers and providers.

As one of the respondents said,

“There are new ways to utilizing technology to be digital that is out competing the old ways, can see that on players like Amazon that are taking over industries and totally out competing incumbent players. For that reason you also understand that they have what others don’t and to large extent it’s technology driven they have find ways to use new technology like open API and cloud and so on in a way that make them much more capable of competing in fully digitalized economy. With fully

digitalized you of course much better achieve economy of scale which they do and they can also do thing faster than incumbent player. It will come to banking and if banks are not ready we will be totally out competed.” (Respondent no 6, Head of Open Banking.)

Compared to new players, banks can do much more in the context of PSD2 as they have the banking license, have been in the market for decades and can provide improved services to their large set of customers.

5.5.6 Investment prioritization

Banks can invest in partnerships as well as in innovation. According to the respondents, investment prioritization is based on expected gains and if there is no return, investments will not be made. Another factor is how these investments will enrich the services provided and how they can then be shared together with partners. If no opportunity is seen and if investments are made on platform development, then there are just large costs involved without any benefits. One respondent suggested that the goal should be, for example, to create a subscription-based business model through which premium services could be offered.

“There needs to be some kind of business case that is beneficial for banks, why would we else invest, it doesn’t matter what the technology is or what the service is. In any investment case there is an opportunity. Bank’s investment decisions are made based on strategic needs and strategic development of the investment object. We don’t make investment into companies just to make money but to strategically grow and to provide services we wish to bring to customers rather not do ourselves we allow third party to do that.” (Respondent no. 2, Strategic Partner.)

Banks are under heavy cost pressure and need profitable use cases before investments could be done. When it comes to PSD2, even though it was a compliance and regulatory project it also involved technological aspects to it where an API platform was built and that involved the integration of customers and third parties. If it was not for compliance money this would not have possible as the management want to see results and in situations like these, results come with time.

One of the interviewees said that another approach could also be taken, as there are already banks within Europe who are providing AIS and PIS services. For example, Klarna is quite active and promoting their open banking platform and some other players are expanding their AIS. Banks are also working on other investments, for example in consumer finance.

A Fintech representative thought banks would not have invested in the technological changes if it was not for regulation forcing them to. Banks are not very open to working on new services. On the banking side, a similar opinion was shared where one of the interviewees believed that the funding for implementing PSD2 would not have been available if it had not been a compliance project. Changes in regulation mandated banks to adopt new technology available. With this, banks can now offer customers premium services.

"There will be not a single financial institution in the world who won't have the need to connect other banks. What I do think is the primary effect of the regulation is that the incumbent banks have realized that now this is regulated, now we are comfortable enough to leverage the benefits of open banking as well. Before we had the regulation I wouldn't believe that banks had the guts to use account aggregation for something. They need certainty before they embark of projects such as adding aggregation of payments initiation into core banking services." (Respondent no. 12, Chief Technology Officer.)

PSD2 regulation has helped banks to be technologically stronger than they were before by using the latest technology rather than relying on legacy systems. It might happen that some banks will only do the bare minimum necessary to fulfill the regulation requirement and will not be able to benefit from technology change than those who have invested more in the change. That will be the difference between proactive and reactive banks. The end result will be that reactive banks will not remain transaction banks and instead become niche banks or go out of the market as they will have difficulties in competing with full-service banks or other players if they do not capitalize on new technology.

5.5.7 Lessons from previous implementations

The implementation of regulation usually takes time. The size and scale of implementation provide valuable input that could then be utilized in future projects if they are captured and evaluated before the next round. Several respondents thought that the main lesson was to have the mindset of how to turn regulation into opportunity or threats into opportunities. Open banking is one such opportunity, and based on the bank's vision some are only fulfilling the regulation demands whereas others are investing heavily to gain from it. PSD implementation was also massive and banks had to do changes in existing systems that was very cumbersome, whereas PSD2 was solved by building an entirely new type of platform.

The other lesson was that as PSD2 touches so many parts of the bank, individuals need to work on coordination and minimize double work or do things better, as there have been cases where people from different units carried out the exact same work and answering the same question. This can be avoided by proper communication and coordination. Lastly, there is the question of how PSD2 is implemented in each country and how the differences are interpreted across the bank.

Some of the respondents thought that there are threats due to improper implementation. There are a lot of APIs available in the market, but the implementation quality is not at par with the requirements. This, in turn, can trigger bad customer experiences as well as provide an opportunity to service providers who do have quality services.

“Threats more on technical details, we still see lots of very funky implementations of PSD2 open APIs across Europe. Despite that fact that UK has been spear-heading it still doesn't work. After two years the quality of APIs that are out there are still are not kind of production way. It's lots of custom implementation of authentication flows, redirect flows, work flows that are really sub par, hindering their options of new services. The regulation pass kind of negative side effects. There are lots of API's available but they are not of very high quality and it creates an opportunity for some one who could improve the services and have upper hand in the future.” (Respondent no. 12, Chief Technology Officer.)

5.5.8 Exploring European markets

Banks cannot easily enter other market as it requires the consideration of deep integration and legal elements. Looking at the potential, it is not worth entering the European market on the consumer side. Other players will come into the market, but building the customer base will not be easy and it will require plenty of investments as it is cheaper to keep a customer than acquire one. On the other side there will also be technological players such as Google, Amazon, Facebook who will step into the financial market space and provide financial services. As they already have a customer base and know the spending patterns of these customers, they can build the relation with them. There is a heavy cost involved if banks enter other markets and several banks are reducing their geographical footprint.

The interviewees were asked whether they were planning to enter the European market and what risks they saw in it:

“Not currently, as regulation is the one that drives the cost. It has been immensely expensive to have a customer because of all the KYC requirements. In long term, if you manage to digitalize all regulatory requirements so you can have operation, you can live up to requirement (...if) it’s all automatic, then maybe. Regulatory changes come so quick, so most banks cannot really cope with building fully automated solutions.” (Respondent no. 6, Head of Open Banking.)

Another issue that was mentioned during the interview sessions was that the banks need to trust the country’s Financial Conduct Authority (FCA) in that they have done their due diligence of the TPPs. But what was noticed is that there were some national authorities who are providing the license easily, which could increase fraud due to opportunities created by open banking. Banks are looking at the EBA to monitor these authorities and to ensure that standards are followed.

5.6 Banks and GDPR

The questions on GDPR were only discussed with the interviewees who were in the banking domain since the organization had the needed expertise in terms of GDPR implementation. Because Fintechs are generally smaller in size and do not

store large amounts of customer data as of yet, they were not deemed relevant for this set of questions.

5.6.1 Limiting Fraud

One of the key themes about GDPR was that it was going to help in protecting data. The interviewees were questioned about their views on whether GDPR improves data security and whether they thought it could limit fraud. There was a mixed opinion for this question, with one interviewee answering GDPR does not limit fraud whereas others agreeing that it could. The interviewees believed that with GDPR, identifying and tracking counterparts will be easier and more reliable.

Along with individual rights and preventing data breaches, GDPR has high requirements on data governance that is one of the key areas in the regulation along with information security. GDPR ensures that the customer is in control of their data and owns the authority to share the data. Responsibilities are defined for keeping private data private, but this does not prevent misuse if the customer does decide to share data. As one of the interviewees emphasized, the organization should also carry out adequate safety measures to protect the data. When asked about the relation of GDPR with anti-money laundering, one of the respondents replied that the objectives of AML and GDPR are different where one focuses on the privacy of individuals and other protects society against the terrorist funding.

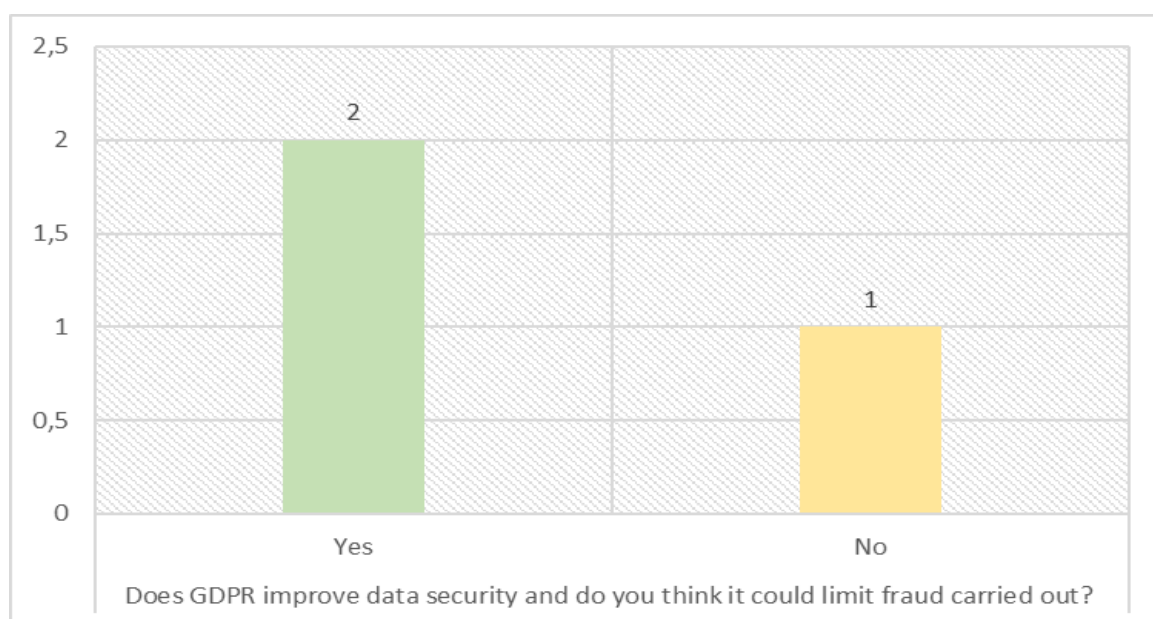


Figure 29. GDPR and data security. N = 3 (group 3).

5.6.2 Implementation experience

When the group were asked about their implementation experiences, they were of the opinion that banks had done fairly well compared to other sectors since they had already been handling the customer data for a while. But they did mention that the implementation GDPR was expensive, painful and complex and took around two years to implement. This was due to the fact that services were required to be developed on the top of existing ones, and with banks having lots of historic customer data, the implementation was not easy. What GDPR also did was make banks keep record and track that they have both existing and relevant information. Along with this, the banks also needed to guarantee who the customer or company is and also have the supplementary data on the financial behaviour of the customer. These requirements made the whole implementation process expensive. Also, as it was connected to the IT infrastructure and process description, it involved many challenges and required a significant amount of work. The implementation took development capacity way after the deadline and was not proactively implemented in an efficient way.

When asked about whether they were they expecting GDPR changes any time soon, the interviewee replied that there should be no changes to GDPR regulation anytime soon as it requires major effort from both the organizations and the regulators. When it comes to data organization, there is other legislation apart from GDPR that allows banks to process the data (such as AML measures). As per one of the interviewee's experience, there were three areas which took time beyond the program's original timeline:

“Establish data governance which is more solid to handle detail requirements, improving information security needs to have a longer plan for culture and training, which is recurring and needed to be on the menu of the programs.” (Respondent no. 10, Group Data Privacy Officer)

5.6.3 GDPR and limits on customer data utilization

As banks have been working with customer data for while, they are aware that data cannot be spread outside the bank, and there is a strong focus on information

security as data breaches are heavily penalized. The respondents thought that GDPR did not change much when it comes to how banks look at customer data. Banks needed to oblige even before GDPR, and the previous directives were similar in content with regards to data protection. The goal is to filter the data that is not needed, such that it is not exposed by accident or misused for purposes that are not permitted by the customer agreement. What this has done is that it has highlighted the need to have explicit consent and tightened the possibilities of using data for commercial purposes.

As per all the respondents shown in Figure 30, data is clearly an asset and banks are becoming more and more aware of it. But there are constraints as to what you can use the data for and it places requirements on data quality, data governance and information security capabilities. These attributes are extremely important for building a foundation for a high quality customer relationship.

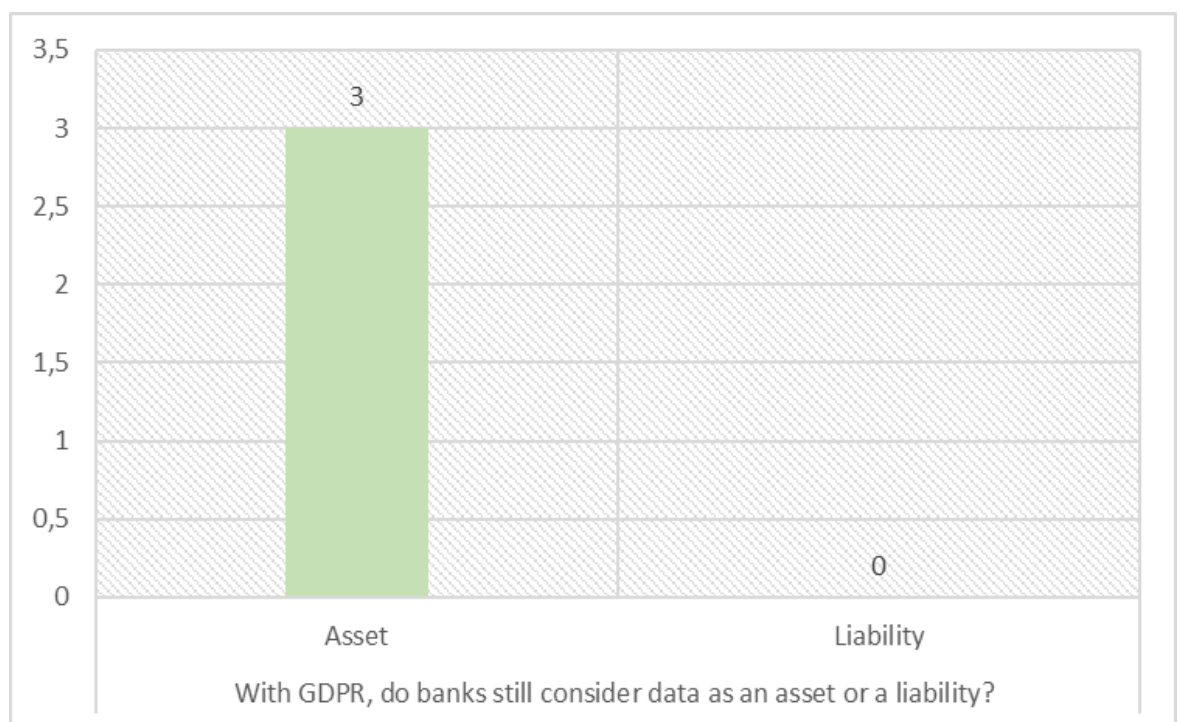


Figure 30. GDPR and data as asset or liability. N = 3 (group 3).

5.6.4 Acquiring consent

Consent is one of the legal bases on which banks are allowed to process data. As data is a valuable resource, banks would like to have access to it. When asked about whether banks need to ask the customer for the use of already existing

data, the interviewees answered that banks already do that, and for all agreements their compliance with GDPR is ensured and stated within the customers agreement. For already existing consents, banks need to check that they are in line with GDPR. One of the crucial efforts of the GDPR program was to identify all of the core process where you handle personal data, such as customer agreements. This agreement clearly mentions what the data is being used for. When it come to new purposes, explicit consent is made available in mobile and netbank.

When asked about how easy it is to get consent, the interviewees stated that to get consent, one needs to be particular about purpose. According to the respondents, what banks are doing with personal data is completely legitimate and there are no concerns regarding it but the critical thing is not to leak data. The regulation also requires that banks keep the record of processing as stipulated in Article 30. Processes where consent is required were closely associated with marketing, and the rest of the data could be continued to be used for processing. Another point made by one of the interviewees was that the majority of data processing by banks occurs on a lawful basis other than consent, and there is only a small minority of processes where consent is involved. Also, in the financial sector the controllers of personal data are leaning on legal bases such as the performance of a contract and legitimate interest, so consent is only the last resort that banks look for. But what is still required is transparency and informing the individuals that banks are conducting additional processing.

Regarding one consent overriding the other, interviewees mentioned that one needs to look into how widely consent can be reused and whether one can leverage consent for the closely related processes:

“In theory it can be done, but legal entities need to be involved to see if requisites are fulfilled. There are workarounds to get the consent, but there are also limitations.” (Respondent no. 11, Group Data Privacy Officer)

The question was further elaborated to whether compliance bases can override consent, to which the reply was that there is other regulation that override this – for

example, when a customer ends his relationship with a bank and wants the data to be deleted but the bank still needs to keep the data for bookkeeping purposes. AML and KYC require data to be stored for several years, and there are situations where banks have to store even sensitive data for longer periods due to other regulations. It is important to figure out for what purpose the processing of data is required and whether it has a specific data governance aspect to it. On whether it was possible to acquire consent using loopholes:

“Regarding asking the consent again and again, the regulation is not specific on this. The idea of GDPR is to serve the customer’s rights and interests. Nothing formally prevents banks asking the consent over (and over), but if it’s done repeatedly, you are approaching a position you are not acting in the interest of the customer. It’s kind of a loophole, but the regulation is purpose-based and you can find parts of the regulation kind of tells you that even though it can be done but perhaps one shouldn’t do it. There are a number of situations and questions which put responsibility on banks to act sensibly, because regulation is not specific.” (Respondent no. 10, Group Data Privacy Officer.)

Consent becomes specifically sensitive in the case of new customers. If banks have existing customers, they can actually do quite a lot with legitimate interest as a basis for processing. To rely only on consent would make processes more difficult and less customer friendly, which is not the purpose. With new customers, banks need to verify consent before processing any new data or in marketing campaigns, and an offer is only made if the customer has explicitly accepted it.

5.6.5 Artificial intelligence and GDPR

Some customers may not give consent to process their data by algorithms, which could affect its accuracy. Accuracy is important for predictive analysis that could be used to better understand customers and offer custom-made services. Regarding the question of whether GDPR will negatively impact using data for machine learning, two out of three respondents were of the opinion that there would be no negative impact. If banks can explain what they are doing with the customer data, then the impact will not be negative. There are specific

requirements in the regulation when it comes to how one can use machine learning and treat data with machines and algorithms. Also, banks are not always dependent on consent as a lawful basis as mentioned above. In the financial sector, banks depend on the other lawful bases such as legal obligation, performance of agreement and legitimate interest. But there are concerns within the society that AI and machine learning should be used wisely.

“In order to have machine learning one needs huge volumes. Should the underlying database of the personal data not fit the processing purpose, then we would need to go and seek for consent or do compatibility testing with the additional processing purpose. What we are looking here is more like technical implementation, and we should then consider possible risks that are inherent for this type of new technology, and that would be mostly on data minimization and privacy by design and default. It impacts, but not necessary negatively.”
(Respondent no. 11, Group Data Privacy Officer.)

Similarly, regarding the use of data across multiple applications, the respondents replied that in general, application dependency does not bypass consent, and data cannot be utilized without explicit consent. But there are cases where the data is cross-grained instead of fine-grained, and in this case if the customer desires to use multiple applications, then consent needs to be passed on. For the banks, this means that they need to be specific about the applicability of a consent given elsewhere before they can use it for other services. The key goal should be to be compliant across the applications.

6 Conclusion

In this chapter I will present the summary of the results from the analysis and evaluate the strategies that banks have available. My goal was to look at how banks could provide enriched services to their customers in the light of changes in regulation and technology and how they could partner with Fintechs.

In conclusion, I found that it was actually the changes in regulation that forced banks to adopt the new technology. If it had not been for regulation, banks would probably be hesitant to invest in technology such as open APIs as they are already under cost pressure. Even though there are costs involved, banks need to focus on new technology to improve their processes and services. This could enable them to widen their customer base, improve market lending efficiency and provide greater investment capacity. This in turn can be used for the enhancement of internal processes and by doing so, improving the customer experience and reducing in costs. This virtuous cycle can be achieved by the use of technology, collaboration and partnerships with potential service providers. (RQ1.)

Second, if you partner with Fintechs or other third parties, you can provide the services faster and thereby improve customer experience that is the key when there is so much competition around. There will be a lot of services available in the market, and the idea should be to see which services could enhance the customer experience. Also, it is not possible to build everything in-house due to competence and time it takes to deliver the services. When you compete in a market, time and speed to market is the crucial aspect in deciding who wins the customer. The quality of the service is also very important for a long-term relationship with the customer. (RQ2.)

With PSD2, what it regulates is really only a subset of accounts, that is, it only regulates payment accounts. But if you look beyond the regulation, there are other areas where services could be provided. One of the things that Fintechs have been providing for the last couple of years is services also related to non payment accounts, balance sheets, mortgages, loans and investments, and banks should also look at expanding their service scope. (RQ3.)

Financial services are currently overly complicated, and they really do not need to be. The goal should be to offer multiple products seamlessly and globally and fo-

cus on developing better core banking services. The services can then be moved to other markets to capture customer base with an improved product. Traditional banks need to build better collaboration with partners and understand and build contingency around scenarios such as what happens if the customer experience is bad. (RQ3.)

One of the threats that banks are going to see in the near future or are already experiencing is the entry of the technological giants into the financial service market. As these companies have the muscle to expand as well as some existing customer base, it will not be extremely difficult for these companies to also provide financial services to their customer base. This means they have the potential to take a part of the customer segment. To tackle this, what banks can do is either to partner or collaborate with service providers so they can fulfill the demands of the tech-savvy customers. Banks can also partner with data-driven Fintechs and expose their existing data to develop services which then can be sold as premium services to a specific group of customers. Even with all the regulation cost involved around GDPR, banks still are of the opinion that data is indeed an asset. (RQ1.)

The other option that banks have on their hands is to offer Platform as a Service (PaaS) or Infrastructure as a Service (IaaS) (backend or platform services), leave the customer aspects to others and focus on providing reliable infrastructure to process and store transactions. This is an option which banks would most likely be hesitant to take as this diminishes the customer relationship. This option can be good for some banks who cannot compete in terms of providing customer services but could act as reliable platform providers. Apart from being platform providers, the other way banks could compete is either to acquire a potential Fintech or then invest in companies who could in return provide services which banks could not efficiently develop in-house. (RQ3.)

The current focus of Fintechs is on the household consumer which does bring some revenue, but issue remains that the majority of household consumers prefer to have services without any additional cost. But there is another group of customers, that is, the corporates where services could be developed and sold, as corporates are more likely to buy premium services. Currently, the partnership between banks and Fintechs is limited in part because of the Fintechs' focus.

There also needs to be better trust between banks and Fintechs. Since banks need to be very particular regarding regulation and compliance, the trust can only come if Fintechs incorporate regulation and compliance thoroughly into their functioning. If this happens, Fintechs will be able to run managed services for the banks, resulting in mutual benefits. (RQ2.)

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Appendices

Appendix 1. PSD2 Interview Questions

1. What role do you have in the process involving PSD2?
2. What type of benefits or threats do you see with regulation changes?
3. Do you see or recognize the potential to reduce time to market for new services provided?
4. Are there any derived investment prioritizations triggered by new opportunities?
5. Do you work with external firms for the development of new services? a. If yes, what are the benefits? b. If no, why? c. Is the future goal to rely more on external firms for development or develop services in house?
6. PSD2 will lead to changes and requirements, can you share some reflections from current / previous version of implementation of this?
7. Who will see an impact from the PSD2 regulation, customers or third party accessing the information or the banks who provides the information?
8. Do you see any security threats introduced due to regulation? How do you tackle them?
9. Do you see Fintech as competitors or partners?
10. Do you provide or plan to provide services to European market as the new regulation enables this? If yes, when and what type of services? If not, why?
11. What type of risks do you see if banks enter the European market along with Nordic / domestic?
12. Are you ok with the idea of banks becoming the backend and provide the infrastructure and Fintech becoming the face for the customers?

Appendix 2. Fintech Interview Questions

1. What role do you have in the process involving PSD2?
2. Do you see banks as competitors or partners?
3. Do you see any security threats introduced due to regulation? How do you tackle them?
4. What type of benefits or threats do you see with regulation changes?
5. Do you see or recognize the potential to reduce time to market for new services provided?
6. Are you ok with the idea of banks becoming the backend and provide the infrastructure and fintech becoming the face for the customers?
7. Do you provide or plan to provide services to European market as the new regulation enables this? If yes, when and what type of services? If not, why?
8. Who will see an impact from the PSD2 regulation, customers or third party accessing the information or the banks who provides the information?

Appendix 3. GDPR Interview Questions

1. Does GDPR regulation improve data security and do you think it could limit the fraud carried out?
2. How long did it take to implement the GDPR project? Did the changes happen smoothly or were there challenges noticed during the implementation?
3. How does GDPR impact the way bank looks at customer data?
4. Do you see a need for asking customer for use of your already existing data? If yes, how easy is it to get the consent from customers? If no, do banks need to update customers about the use of their data and how is it done?
5. With the GDPR regulation, do banks still consider data as an asset or a liability?
6. As AI or machine learning need data to gain accuracy. Will GDPR impact negatively when it comes to data being used for machine learning as some of the data will not have needed consent?
7. While handling data across multiple applications how do you ensure that it's GDPR compliant?
8. Are you able to verify consent before any new data processing or marketing campaign?