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Navn: Ådne Karlsen Persmoen, Eian Sandvik

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## Summary

In our Master of Science thesis, we intend to gain an understand of what organizational designs that will emerge between established financial-institutions and independent actors. We refer to financial institutions as banks, and independent actors as FinTechs. Financial technology is “the name given to start-ups and more established companies using technology to make financial services more effective and efficient” (Dietz, Moon, & Radnai, 2016). The Payment Service Directive 2, is a new financial regulation going into effect on 13 January 2018. The regulation will force banks to open their Application Programming Interfaces to third-parties, if the customer gives consent to give away their customer data. These third-parties could be FinTech’s. FinTechs are agile small players that can drive innovation. From our initial research, Norwegian banks have stated that they intend to cooperate with FinTechs and that is why we believe that by using the PSD2 regulation, we can find some potential complex and interesting organizational designs. By combining a survey and a multiple case study, of both banks and FinTechs we intend understand what organizational design that will emerge. The banks seem to have already taken either a *passive* or a *pro-active strategy* towards the regulation. However, we do not know much about the FinTech side of the collaboration. We intend to first; to contribute to the understanding of organizational design in the financial services sector, and second; to cast a light on what the FinTechs think about the PSD2 regulation and the proposed collaborations between FinTechs and Banks.

## Introduction

We intend to make a multiple case study of the phenomena of collaboration between Financial Technology (FinTech) companies and established financial institutions (herby referred to as banks). Banks in Norway are forced to change their strategy towards the new EU regulation; Payment Service Directive 2 (PSD2). According to Chandler (1962), when a firm change its growth strategy, it must also change its structure accordingly to pursue the new strategy. The Norwegian banks have traditionally organized all their means of control and coordination mechanisms based on hierarchy. PSD2 could challenge the traditional hierarchy mechanisms of coordination and control. We hereby introduce our research question.

*“What organizational designs will emerge from collaboration between financial institutions and independent actors?”*

According to Galbraith (2010) managers prefer to “keep it simple”, but larger companies are adopting towards more complex organizational designs. The reason for this is the pressure of growth and the well-known law of requisite variety which states that “as the environment becomes more complex, the organization must also become more complex and create new units to manage various environments.” (Galbraith, 2010)

PSD2 is a directive which will increase competition and encourage rethinking current strategies and business models. Fjeldstad et.al (2012) introduce how traditional designs are emerging from hierarchy to actor-oriented organizations, which have the capabilities and values to self-organize, where the actors accumulate and share information. In order to accomplish this, there is a need for protocols, processes and infrastructures that enable collaboration between each other. The main change with the PSD2 directive is that banks are required to open their Application Programming Interfaces (API's) which is enabling, or perhaps even forcing, collaboration between banks and FinTechs. The aim for the regulation is to create innovative solutions and increase competition by creating an even playing field for established banks and independent actors. The challenges banks and independent actors are facing in this environment are characterized by solving complex technological problems. We therefore find it interesting to use PSD2 as our laboratory to understand potential changes to organizational design, as a result of the organizational complexity of the regulation.

PSD2 could potentially be a “game changer” in how FinTech companies collaborate with financial institutions, and visa-versa. We believe that by using this regulation, we have a unique opportunity to study the phenomena of collaborative architecture between independent actors and established banks, because it forces the banks to open their API’s.

### **Collaboration between banks and FinTechs**

Financial Technology (FinTechs) companies is “the name given to start-ups and more-established companies using technology to make financial services more effective and efficient” (Dietz et al., 2016)

Banks and FinTech fulfill each other. While banks on one side have the trust of the customer in place, FinTechs are agile small players that utilize next generation technologies. Because of technology it becomes much easier for a small actor, such as a FinTech, to build the necessary technical expertise and knowledge to start a successful business. However, it takes money and time to capture market share, and many good ideas are wasted because of lack of sufficient cash flows early in the venture. Banks, on the other hand need innovation and therefore there is a possibility for collaboration between banks and FinTechs. However, historically the banks have been hesitant to allow other actors to come to market, and getting licensing to operate a bank is not something a small start-up company easily can afford to do. With PSD2 opening the access to customer data innovative FinTechs can request information from banks through the banks open API solutions.

### **Two Strategic responses**

There seems to be two strategic responses to the PSD2 regulation from a banking perspective. The *proactive strategy*, and the *passive strategy*.

The proactive strategy involves the largest banks that seem to have a clear idea of how PSD2 will affect them. They have started what they refer to as Open Banking initiatives, inviting FinTechs to “hackathons” or create in-house innovation hubs and accelerator programs. Capturing the talent cheap and early seems to be the

*proactive* strategy of the banks from our initial research. Get the FinTechs under the banking hierarchy and milk the ideas and future profits.

The passive strategy seems to be more a wait-and-see-strategy, followed by the banks that have less resources. They follow the regulatory requirements, opening their API's, but do not go above and beyond, such as the large players.

Figure 1. divides five banks into our current understanding of *proactive* and *passive* strategy. The proactive strategies have created in-house innovation hubs and accelerator programs to facilitate for innovation, while the passive strategies, follow the regulation, open their API's, and independent actors are supposed to attend hackathons. There are numerous FinTechs that then will connect to the open API's of the banks. Payr, Spiff and AllClearID are mentioned below.

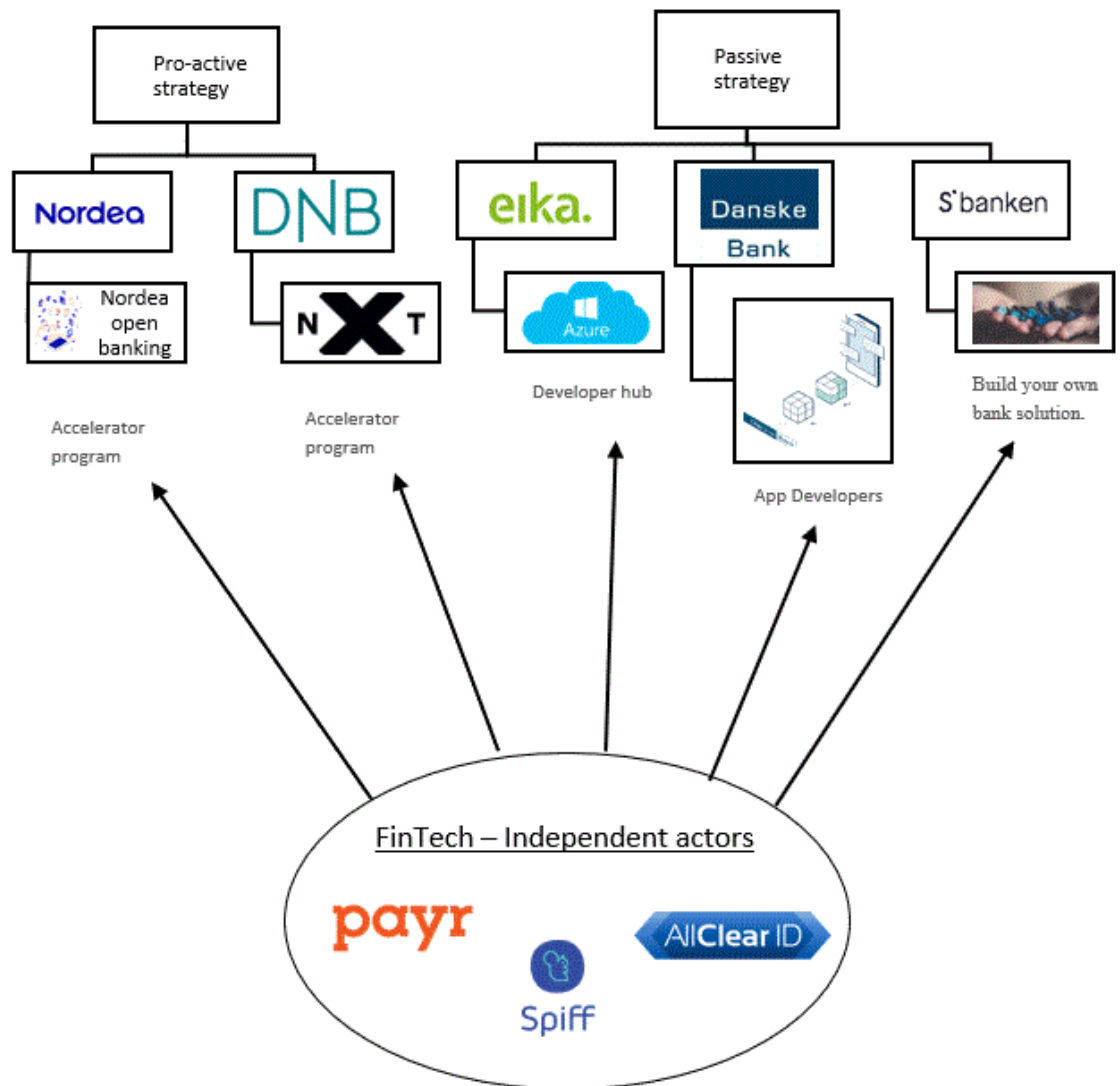


Figure 1: Banking initiatives

### **Third-party Actors**

There are two types of third-party actors, as we see it. The large international players such as Facebook, Apple, Amazon etc., could change our understanding of banking as we know it. These are dominant players with enormous amounts of resources available to outcompete banks. The second type, which is the focus of our research, are the smaller FinTech companies such as Payr, Spiff and AllClearID etc., These are actors that might have an advantage of collaborating with the banks. These small actors have less resources to compete solely on their own, compared to the large players.

Previous research done by consulting companies, such as Accenture and PWC, has studied the perceptions from both the banking and customers perspective towards the new regulation. According to a report by PWC, over 88% of customers in Europe view online payment, through an innovative independent third-party, as a viable option. This, of course, makes the banks worried that their dominant market position is threatened. Some banking managers have stated that PSD2 will be a game changer in line with the emergence of the internet, and that it could be the end of banking as we know it. Other bank managers think it is the greatest opportunity of all times, and embrace the changes and innovation to come.

### **Taking the FinTech Perspective**

Since banks possess large amounts of resources, most research has been done through consulting companies, taking the banks and consumer perspective on PSD2 (Accenture, 2016; PWC, 2016). But what about the FinTech side? After all, we believe the banks want to collaborate with FinTechs if they are going to keep their dominant positions. Do the banks know the FinTechs perspective on how the collaboration should be organized? What does the FinTech community think about collaborating with banks? Who are they? Do they want to collaborate? There is not much research from this side of the relationship, and that's why we think it is important to understand the FinTech side of the story. We believe this will give us a terrific opportunity to get a holistic view of the situation. We hereby propose two hypotheses we want to test;

Hypothesis 1: Will banks need to collaborate with FinTech companies outside of their own hierarchy?

Hypothesis 2: Do FinTechs want to collaborate with banks?

## **Research background**

### **Payment Service Directive (PSD2)**

According to the new EU directive PSD2, banks are required to open their payment infrastructure and user data, for third-party actors. The idea behind this directive is to ensure an easier, faster and more secure solution for consumers to pay for products and services. Today payment solutions in EU are expensive and the transactions are time consuming. PSD2 is developed by EU to solve this problem, making access easier and increasing competition. To ensure that the customer get a seamless experience this directive encourages innovation (especially for third-party actors). The competitive platform is no longer about the transactions behind the scene, but rather the seamless solution that the customer experience when doing a transaction. Payment solutions shall be easier in every payment situations nationally and internationally at a reasonable price.

This directive is different than previous directives in that instead of upgrading on current systems it encourages innovators to create new innovation. The directive does not tell market participants what to do, instead the directive is letting the actors figure it out themselves.

We are entering a new era where the bank's monopoly on payment solutions and account information about the customers will reach an end. As of 13<sup>th</sup> of January 2018, the banks in Norway need to have the legal, operational and technological systems in place (the open API). Although the requirements are of concern, the even bigger issue is for banks to adapt its strategic position to stay competitive. Innovative solutions will be of concern e.g. friend payments, bill payments and in-store payments. Aggregated dashboards showing account data from different banks is also a feasible option. There is a need for new business model solutions to ensure new revenue streams. The FinTechs connecting to banks are referred to as TTP's (third party players). They can be divided further into specialists into open API architectures:



**AISP** (Account Information Service Providers) and **PISP** (Payment Initiation Service Providers).

***PISP**– Payment Initiation service providers: Third parties will be able to initiate online payments to an e-merchant or other beneficiary directly from the bank account via an online portal. Currently there are not many of these services, debit cards and SEPA payments are used.*

***AISP**- Third-party account data aggregation (AISP) formally referred to as “account information service providers”, will be able to extract a customer’s account information data including transaction history and balances – enables new services utilizing this data.*

Table 1: PISP & AISP explanation

PSD2 will also affect the scope of payments made. Extension beyond Europe and the definition of a “Payment Institution”. The scope of payments made refers to “the one leg out”, which is an extension of the first PSD directive. Only one leg of the payment will have to be located within EU, not two as with the previous version of the directive. Prohibition of card surcharges is an effect of the regulation. Security of online payments and account access will be crucial for the directive to work.

## Open Application Programming Interface

*A **private API** is an interface that opens an organizations backend data and application functionality for use by developers working within that organization. Here the API publisher has full control of how the application is developed.*

*An **open API**, in contrast, is publicly available for all developers to access. This can help to increase revenue for the which business, but it can also pose significant risks in terms of customer data security.*

Table 2: API explanation

***Outcomes from PISP's AISP***

We see two outcomes of open API's deriving from PISPs and AISP solutions.

PISP: Payment solutions. Payment solutions will consider e.g. the in-store payments where the retail stores will engage in creating universal systems that communicate with different applications of payments such as Apple pay, Samsung pay etc. Here, there will be a need for creating a seamless experience which substitutes the already existing solution.

AISP: Aggregation of information is especially relevant for tech companies which create unique solutions for how to gather information, and how this can generate value. In this new space wealth management can change, in that you now can see all your accounts in one application. Dashboard consolidating data is a feasible outcome.

In this new era many questions are unknown, and productivity of innovation is the key to stay competitive. According to Snow, Fjeldstad, Lettl, & Miles (2011) firms find it less advantageous to innovate solely on their own, and therefore seek opportunities to participate in knowledge communities driven by innovations across segments in the global marketplace. With the increasing competition from third-party actors, banks need to collaborate with FinTech companies to increase productivity. Creating a seamless API platform where FinTech companies together with banks can integrate their applications will be a key success factor to create new products and services.

According to PWC report (PWC, 2017) about 50% of banks have the ambition of being a platform aggregator to internal and external brands where independent actors can integrate their applications. There will be only a few number of large banks which can expect to build an ecosystem of important partners. But, the question is rather if the banks know the implications of collaborating with FinTech companies. Managers are traditionally used to maintain control over their business. Collaborative communities challenge this way of doing business.

## **Financial service Industry in Norway**

Generally, banks focus on a variety of financial services to their clients. Investment banking, market making, institutional investing and commercial banking are often the main parts of larger banks. Main players in Norway are DNB, Nordea, Eika, Danske Bank, SBanken and Sparebank 1.

The Norwegian banks are often divided into savings banks, investment banks and Subsidiaries of foreign financial institutions. The savings banks are organized as a juridical unit different from those that are organized as stock companies with various external owners. The foreign players are often organized as subsidiaries of their international headquarters.

The financial services sector in general has not been very innovative. However, if you consider the region, the Nordic region has been at the forefront of technological development within the financial sector. In Norway, strong governmental infrastructure makes filing taxes and approving payments easy and safe with the use of BankID.

The FinTech community in the Nordics is growing. Sweden has developed a strong FinTech community in the Nordic region. Companies such as Lendify (peer-to-peer lending), FoundedByME (crowdfunding), Safello (bitcoin broker) have all been launched from Sweden. The FinTech trend is slowly moving towards Norway also. The latest addition to the market are companies like Payr, Spiff, AllClearID, Tibber, Vipps, and Kron.

## **Literature Review**

### **Introduction to Organizational Design**

Organizational design and theory has developed over time. Collaborative architecture is a relatively young theory, but a highly relevant one to study, especially for technology and knowledge intensive industries.

In the late 1930's in his book "The Nature of the firm" Ronald Coase explained when one would choose to organize as a hierarchy or use the market. "People use markets when the gain from doing so, net of transaction costs, exceeds the gains from doing the same in a managed firm, net of organizational costs (Benkler, 2002)". Firms emerge when the opposite is true. As organizational design theory has evolved observers have discovered different forms of hierarchical design. The observer history describes many forms of hierarchy, simple hierarchy, divisional, matrix, and multi-firm networks. We would argue that the strategic topic that falls perhaps closest to collaborative architecture is the network theory. A network of firms falls somewhere between a hierarchy and a market. Markets, hierarchies and networks are all parts of the larger economy as a whole (W. Powell, 1990).

In markets relationships and trust matters less than in hierarchical forms of organizations. What matters in markets is the cost of the transaction, and the cost of the unit in the transaction. Comparing a network to a market, bargaining the best price is what matters the most in a market situation, while within a network of firms it is more important to create that indebtedness and trust over the long haul, which will create a strong and lasting network (W. Powell, 1990). In an hierarchy, compared to a market, relationships become more important, largely due to the employer-employee relationship. The intra-relational ties between employees at the different layers of the organization shape both ones position and power within the organization.

The organizational forms that over the last century have built industrial empires around the world are primary variations of large hierarchies. Value-chains, such as US car manufactures, networks such as banks, or knowledge intensive industries as for instance consulting firms, often referred to as value shops (Stabell & Fjeldstad, 1998) all are based on what activity they perform. While all these organizations are designed as hierarchies, their activities are tailored to the type of problems they are trying to solve for the customer. While a Porterian value chain would be able to

solve many typical input – output problems, some knowledge intensive problems might be better solved by a value shop built up for example from a set of skilled consultants. With a network approach in mind, even with the recent discussions of the effects of block chain, removing the need for the trusted third party, banks currently have to operate as the middleman, facilitating transactions and maintaining trust.

As mentioned the observer history describes many forms of hierarchy, simple hierarchy, divisional, matrix, and multi-firm networks. See table below.

| <b>Traditional Organizational Designs</b> |                                                                                                            |                                                                                             |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <i>Organizational Designs</i>             | <i>Purpose</i>                                                                                             | <i>Coordination and Control Mechanisms</i>                                                  |
| Simple (U-Form)                           | Achieve economies of scale through specialization                                                          | Lower-level units coordinated and controlled by higher-units                                |
| Divisional (M-form)                       | Respond to differentiated customer demand and achieve economies of scope                                   | Division level oversees functions                                                           |
| Matrix                                    | Combine responsiveness to differentiate customer demand with varied technological expertise                | Dual hierarchy (products and functions)                                                     |
| Multi-firm networks                       | Flexible, rapid assembly of multiple specialized capabilities to achieve economies of scale and experience | Hierarchy of the lead firm over the total network and hierarchy within network member firms |

Table 3: Traditional Organizational Designs (Fjeldstad et al., 2012; Snow, Fjeldstad, & Langer, 2017)

### **From a traditional hierarchical view to communities**

Traditionally firms have organized much of their R&D efforts internally (Mowery, 1983). More recently, in particular for complex, knowledge intensive industries interorganizational collaboration and innovation happens in networks of learning. (W. W. Powell, Koput, & Smith-Doerr, 1996). With the rapid technological advancements taking place within certain industries such as biotechnology, doing R&D alone within one’s own organization will not be sufficient to keep up with the pace of innovation within the industry itself. Lack of all the necessary resources in the quickly moving technological landscape will leave the organizations better off collaborating with others, rather than organizing internally. We see an increasing complexity of the hierarchies with time. Organizational arrangements can take place in many forms, as for instance R&D partnerships, equity joint ventures, co-manufacturing or marketing arrangements (W. W. Powell et al., 1996).

With the emergence of the internet, some observers have started to discover even stranger and more complex forms of organizations. Communities for collaborations (commons) create new opportunities for innovations to happen. With rapid technological advancements occurring, keeping up with innovation becomes more important. By applying relevant technology, such as an open Application Programming Interface “API”, a firm can drive innovation by letting the end user not only view and use the product, but also develop it herself. Commons have the potential to democratize innovation. (Von Hippel, 2005). In an open API, it is the source code that is opened up. Linux defines it as “Source code is the version of software as it is originally written into the computer”(Project, 2004).

### **Self-organized collaborative architecture**

The community view poses a challenge to the traditional hierarchy view, in that suddenly self-organized actors cooperate towards a common goal or project without the typical incentives to be involved in such a project. The emergence of, for example, free software puzzles and triggers interest of the theorists working to understand organizational design. For these open source API projects, computer programmers develop the source code largely without the regular incentives we see in market-based, firm based, or hybrid models. (Benkler, 2002). Suddenly without being told by a leader, or being paid for the engagement, these programmers cooperate toward improving, repairing and developing software. Why? Hippel and Krogh (2003) showed how the phenomenon of open source software development was solving individual problems, as well as shared technical problems. Developers in open source projects do not get paid for their services in cash, their motivation are solely driven by the enjoyment of the intellectual challenge or the extrinsic rewards such as peer recognitions, sense of belonging, learning from feedback and the signals this send to software firms as an source of excellence. (Fjeldstad et al., 2012; Hippel & Krogh, 2003)

There are several thousands of these open source “projects” on the web, perhaps the most widely known is the operating system Linux (Weber, 2000). Projects ranges across both small and large-scale projects. Linux is mostly applauded by avid programmers, due to its technical strengths. Among hackers and programmers, open source is being characterized as both “a new method for R&D, and the core of a new business model (Where new mechanisms for compensation and profit need to be created.) Open source solution forms the feeling of a social community and

platform where common good can be created and a knowledge economy to transcend and change existing production structures. It has even been referred as a political movement.” (Weber, 2000).

### **Autonomy vs. Control in knowledge intensive industries**

By involving users and others in important decision making, the hierarchal relationships between actors become more complex and challenging to manage. The question of who should decide evolves, and another philosophical question is posed; does anyone have to decide?

In knowledge-intensive industries the environments are uncertain, complex and ambiguous. The need for redesigning the organizational architecture evolves to face the challenges. Recent literature by Fjeldstad et.al (2012) introduced the actor-oriented organizational architecture which is appropriate in knowledge intensive sectors with organizational complexity. “This actor-oriented organizational architecture relies heavily on three elements; (1) actors which have the capabilities to *self-organize*; (2) *commons* where the actors share their resources and (3) *protocols, processes and infrastructure* which enable the different actors to collaborate(Fjeldstad et al., 2012).” This organizational architecture challenges the traditional hierarchical organization form that is effective in stable and predictable environment. Actor-oriented architecture proposes an hierarchical model which instead of relying on a reporting structure, rely on lateral, reciprocal relationships among members as an source for control and coordination. (Snow et al., 2017)

The organization of ant foraging for food is a good example to illustrate the basic principle of actor-oriented architecture. The queen ant lays eggs, but she does not directly control or coordinate what the other ants are doing. They follow a set of processes and communication protocols which enables them to self-organize their work. With different capabilities in the ant organization, they share their resources for a common good. e.g. soldier ants defend the nest, worker ants follow the scent of other worker ants creating a streamlined solution for tracing the food source. This streamlined solution would be referred to as the commons of an actor-oriented architecture which is collectively owned by the members of the ant community. (Snow et al., 2017)

According to our understanding, one of the main challenges with the open architecture is the appropriate balance between autonomy and control. The study of

communities is a relatively new field of research, and control mechanisms is suggested as a possible research field for example by (Fjeldstad et al., 2012).

Other fields have studied the dilemma of autonomy and control. For instance, the Multi National Company research field (MNC). The control vs. autonomy question has been avidly studied in hierarchal settings, when discussing head-quarter vs. subsidiary relationships. How much autonomy should you give to the subsidiary vs. centralized control? Research within this field finds that autonomy does not directly affect performance of the firm. It depends on the subsidiary's ability to innovate. "Managers should have a balanced approach to improve MNC performance, they should allow for sufficient autonomy and networking opportunities to subsidiaries for them to achieve levels of learning and innovation that are necessary to drive performance." (Venaik, Midgley, & Devinney, 2005) Perhaps the relationships between banks and fin-techs can learn from this research area, when encountering these new organizational designs?

## **Research Methodology and data collection**

The purpose of our master of science thesis is to assess the emerging organizational designs in the financial sector, which has traditionally been characterized by being an isolated, slow moving industry compared to other industries such as telecommunication, computer science etc.

### **Research design**

To pursue our research objective, we have decided to use mixed method, in the form of exploratory sequential design. This entails the collection and analysis of quantitative data, followed by the collection and analysis of qualitative data in order to elaborate or explain the quantitative findings (Bryman & Bell, 2015; Creswell & Clark, 2007).

Firstly, we will apply a, quantitative approach to assess the characteristic of the phenomena regarding PSD2. This will give an overall assessment of the phenomena that is easily approachable to potential readers. Our intention is to provide a great deal of descriptive detail when reporting this master thesis. Our strategy is therefore to employ a survey strategy, collecting data through an online questionnaire. This will provide us with data in an effective and economical way, which is easy to incorporate and compare (Saunders, 2011). Secondly, as a source for increasing our



validity, we will select a subset of the respondents to interview in providing a richer understanding of the dynamics that are happening between FinTech companies and banks through a semi-structures interviews. The reason for choosing a qualitative position for the thesis is because we are examining a phenomenon which is quite new and complex with limited data. Our purpose is to gain understanding and insight in how collaborative architecture as an organizational design will emerge.

As proposed earlier our research question is; *What organizational design will emerge from collaboration between financial institutions and interdependent actors?*

We do not know what organizational design the PSD2 regulation will create with the collaboration between banks and FinTechs. However, we are curious to see if this could become some form of a looser hierarchy. Since the theory about collaborative architecture is in the earlier stages of development we find it useful to follow an exploratory design, because it tends to tackle problems where little or no previous research has been done (Brown, 2006).

Figure 1. illustrate the main steps of our thesis.

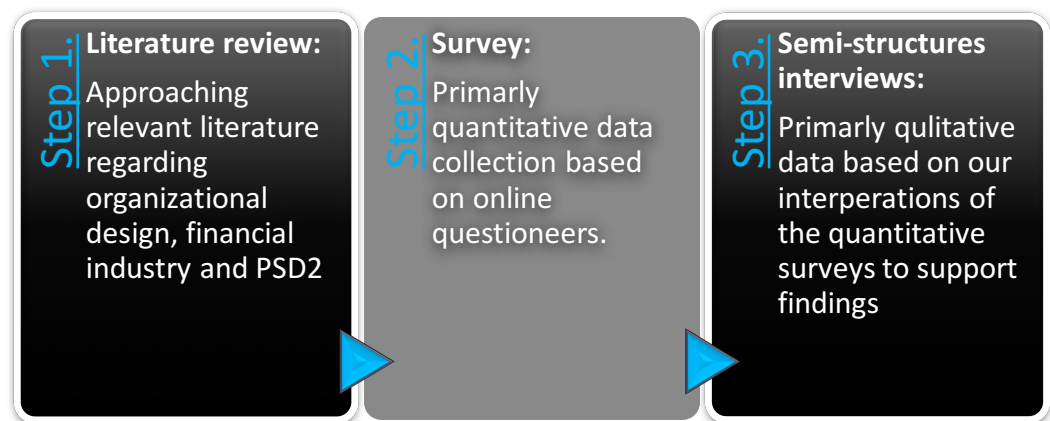


Figure 2: Main steps in our thesis

### **Data collection (The Factory)**

In our initial inquiry into the topic we have visited an FinTech incubator “The Factory” located at Fornebu, not far from Oslo on many occasions. We have listened to various rounds of fund raising pitches for FinTech start-ups. The Factory has a strong relationship within the FinTech community, and the banks in the

Nordics. The main purpose of the Factory is to develop and grow new businesses, and they operate with a four-month accelerator program to help grow companies. The Factory functions as middle man and relationship builder connecting FinTech start-ups with the established banking system in Norway.

The Factory will be an important connection for us to access both banks and FinTechs during our research. The connections provided to us through the Factory will make up the cases for our study from the FinTech perspective. We believe that the Factory will be a great collaborator for us when collecting data.

### Survey

The next step will be to develop a survey that will be sent out to a relevant list of “interview objects” among banks and FinTechs. This survey will be sent out during February.

### Interview

Below are some interview objects that we have talked to and they have given us the opportunity to interview them this spring.

| Name                  | Position                                            | Industry              |
|-----------------------|-----------------------------------------------------|-----------------------|
| Simon Ruud            | Business developer –<br>The Factory                 | FinTech incubator     |
| Didrik Martens        | Bizbot – CEO                                        | FinTech               |
| Stein Roger Sandvik   | CTO - Payr                                          | FinTech               |
| Olav Johannessen      | Finanstilsynet                                      | Regulator             |
| Per Einar Dybvik      | Partner StartupLab - DNB                            | Financial institution |
| Marcus Eger           | Digital business developer –<br>Eika gruppen        | Financial institution |
| Paal Berg             | Digital & customer experience<br>business developer | Financial institution |
| Knut Anders Wangen    | Chief Digital Officer – Danske<br>Bank              | Financial institution |
| Christoffer O. Hernæs | Chief Digital Officer - Sbanken                     | Financial institution |

Table 4: Interview objects

## Project plan

Below we have created a “Gantt chart”. We intend to use this to monitor the progress of our research project. We tried to be realistic when we set the dates, but we hope that we can proceed faster, since we have already established contact with key interview objects.

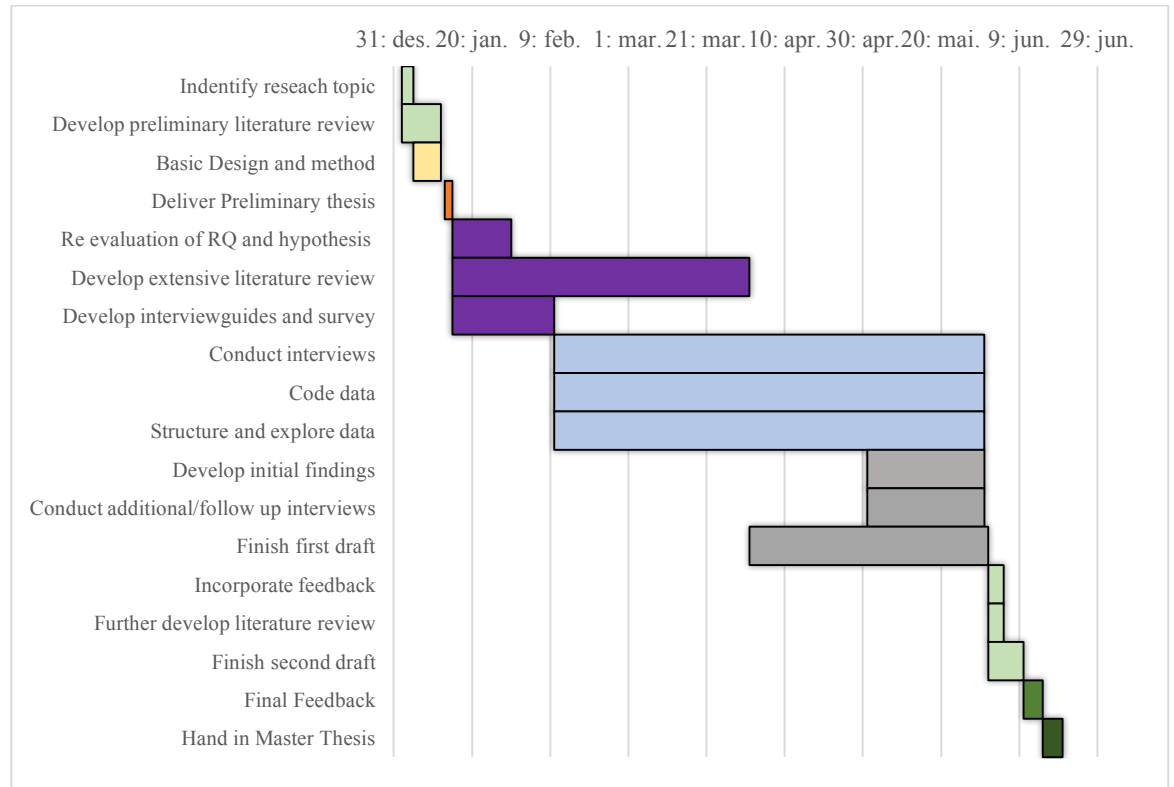


Figure 3: Research plan

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