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Universitetet  
i Stavanger

Master of Science in Business Administration (Strategy and Management)

**What is the extent to which mobile payment systems are changing the banking industry in Norway?**

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**FACULTY OF SOCIAL SCIENCES, UIS BUSINESS SCHOOL**

TITLE:

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**STUDY PROGRAM:** Master of Science in Business Administration **SPECIALISATION:** Strategy and Management

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## DEDICATION

**My Dear Mother,**

I dedicate this work to my lovely mother, Loveness Kapumha. Your unconditional love, support and encouragement has been priceless throughout the entire period of my study and my upbringing. You have taught me values that I treasure and make me stand out. To be the head and not to be on the tail has been your words and they keep me going.

## DECLARATION

I, Tatenda Vincent Muzondo hereby declare that all my written work submitted to the University of Stavanger in partial fulfilment of the requirements for the degree of Master of Science in Business Administration:

Has not been used in other written submissions to the University of Stavanger or other institutions in Norway or abroad

Does not refer to work of others without citation in the text

Does not refer to earlier work without citation in the text

Cites all sources (including websites) in the literature lists

I realize that infringement on these rules is to be regarded as cheating while sitting for an exam or test and writing of a thesis.

Signed at .....

On the ..... Day of ..... 2018

## ACKNOWLEDGMENTS

I stand tall to John Donne's proverb, 'No man is an island.' I strongly believe that we are who we are because of the people around us, and we require help from others now and then because of our limitations. This has been a very exciting and challenging journey for me and I would not have done it on my own.

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## ABSTRACT

Disruptive innovation has gained popularity over the past two decades. Globally, the banking sector having been affected by the financial depression in 2008 and has started implementing innovation in its systems. In Norway, innovation plays a big role in the economy as well as on the social aspect. The use of mobile phones to do banking is one of the disruptive moves by banks in Norway. In light of these development, the challenge is that while a scholars have attention to product and service innovation, studies on disruptive innovation remains sparse. A recent study in Sweden focusing on mobile payment systems has looked at how users related to different payment systems and their preference. Accordingly, this study focusing on users in the Norwegian context investigated the drivers, barriers and responses to mobile payment systems.

The study was qaulitative and cross-sectional involving semi-structured interviews of users who are millennials. Data analysis involved based on themes identified in the literature. The findings reveal that that mobile application systems in the banking industry in Norway have been widely adopted by the market, particularly millenials. While this has been driven by the convergence of innovation, shift towards a digital and cashless society, social influence and customer demands, the findings also show that security, transaction time, difficulty of use and the application acts as barriers to the adoption of mobile payment systems. The findings suggest that banks and Fin-tech companies need to address these barriers for the successful adoption of mobile payment system by the market. At the same time, there is need for policy makers, particularly government to come with the necessary regulatory mechanisms that support the adoption of disruptive innovation.

Keywords: Disruptive innovation, mobile payment systems, millenials, Banks, Fintech, Norway

## **ABBREVIATIONS**

ATM – Automated Teller Machine

DI - Disruptive innovation

EEA - European Economic Area

EU – European Union

FinTech - Financial Technology

KI – Key informant

P2P - Peer to Peer

R&D – Research and Development

U – User

UiS – University of Stavanger

# CHAPTER 1: INTRODUCTION

## 1.1. PURPOSE OF THE STUDY

Disruptive innovation (DI) is rapidly changing the banking industry. At the core of this disruption is technology, changing consumer taste and a shift in demographics. Thus, new technologies, in particular, mobile phone and handheld devices are changing how people carry their day to day activities including financial transactions. As such peer to peer services are now a defining element of the banking industry. In Norway, one of these technologies that have gained large use over the past two years is ViPPS, a mobile money transfer and payment method. According to Nickel (2015b), the use of mobile banking service in Norway has increased by 100% over the past two years, therefore the banks know that their customers are keen to use digital services. It is reported that this is a peer-to-peer payment service from Norway's DNB bank that has shot to the top of the app stores of both Apple and Google for individual users and corporate customers (Nickel, 2015b). This is also supporting the Norwegian cash-free era born recently, whereby the use of cash is slowly becoming obsolete whilst getting a step closer to complete digital society (The Nordic Page Norway, 2017). This discussion starts with a general outlook and the phenomenon unfolds with specific attention to the millennials as a market segment. It looks on the drivers of innovation and why the banking industry should cope with the changes brought by DI.

## 1.2. CONTEXT OF THE STUDY

### 1.2.1 Norwegian Banking System

In order to bring about an understanding of how we ended up with digital products being offered by the banks we need to understand the history of banking in Norway, the current banking situation as well as how we came about to have ViPPS. Primarily, Norwegian banking started parallel to that of Denmark, since the oldest Norwegian bank was a department of the Danish Royal Bank, founded in 1813. In 1760 as well as 1770 there were efforts to establish a bank for Norway alone but it was not successful till 1816 when Norges Bank was founded.

The Norwegian banking system is regulated by The Central Bank of Norway (Norges Bank) that has the exclusive right to issue banknotes and coins. The banking system is also governed by laws under Finanstilsynet. The Central of Bank of Norway is responsible for the execution of monetary and exchange rate policy. It is also responsible for analysing trends in the Norwegian economy, paying particular attention to financial markets, and giving the Government advice on matters relating to economic policy. In addition to this, Norges Bank compiles bank statistics and statistics relating to the balance of payments. (Government.no, 2015). Finanstilsynet is an independent government agency that builds on laws and decisions emanating from the Parliament (Stortinget), the Government and the Ministry of Finance and on international standards for financial supervision and regulation.

The Central of Bank of Norway and Finanstilsynet have different but complementary functions. Thus, on one hand, The Central of Bank of Norway is responsible for the execution of monetary and exchange rate policy giving the Government advice on matters relating to economic policy (Government.no, 2015). On the other hand, Finanstilsynet is responsible for the supervision of banks, finance companies, mortgage companies, insurance companies, pension funds, investment firms, securities fund management and market conduct in the securities market, stock exchanges and authorised marketplaces, settlement centres and securities registers, estate agencies, debt collection agencies, external accountants and auditors (Finanstilsynet, 2018). Finanstilsynet's principle is that Norwegian enterprises must be afforded competitive conditions which all in all are in line with those enjoyed by institutions in other EEA member states. 'The European Economic Area (EEA) binds together the 28 EU member countries and Iceland, Liechtenstein and Norway as equal partners in the internal market. All EEA countries have the same rights and obligations when it comes to trade and investment, banking and insurance, and buying and selling services, and the citizens have the same right to work, study and live in any EEA member country. The Agreement also covers cooperation in other important areas such as research and innovation, education, culture and the environment' (EEA Grants, 2018).

### 1.2.2. P2P TRANSACTIONS

There is a rapid evolution in the digital consumer payments and this has seen a number of third-party innovative solutions that are now replacing traditional credentials and biometrics to mention a few. Some digital trends like Internet Of Things, Cryptocurrencies and Biometrics are affecting the way in which consumers transact and interact with payment partners (Boston Consulting Group & Google India, 2016, p. 10). The continuous growth in the use of mobile devices has increased this digital revolution and these changes will provide a new value that will change the competitive landscape. Globally there are various trends that are changing how people make payments daily, in Europe, there are collaborations by banks to offer platforms that offer inter-bank transfers for payments. These platforms are seen in the Netherlands and Norway, they are seen growing and at the same time impeding other payments players like PayPal to succeed (p.11).

'Peer-to-peer is a communication structure in which individuals interact directly, without going through a centralized system or hierarchy' (OECD, 2002, p. 232). Peer-to-peer (P2P) payment products are some of the most innovative developments from the payments industry in the past decade, Windh (2011). Windh says that a lot of writings have been taking place covering the cutting-edge opportunities for banks and other payments providers in P2P payments. Consumers have never had so many payment choices along with other existing methods of transacting like PayPal, Google Wallet, Venmo, Visa and MasterCard, whilst defining P2P as payment made by one consumer to another consumer or to a small business. P2P transactions make it exceptionally simple to transfer money between peers digitally. This could involve giving someone money or paying for a product purchased, these payments simplify the money transfer experience. Due to technology advancement, smartphone adoption has reached 70% in developed countries, whereby phones are often replacing wallets and cash (Deloitte, 2015, p. 2). New domestic peer-to-peer (P2P) payment providers are being born up on a regular basis, due to catalysts like social platforms, digital currencies and near-field communication (NFC) based payments (Ibid).

The internet usage has been rapidly increasing with some interesting statistics in Norway where the internet penetration is almost 100% with 5 167 573 people using the internet which is 97% of the total population (KEMP, 2017). According to (Statistica, 2016), for 2017, the number of smartphone users in Norway is estimated to reach 4.1 million and 4.7 million in 2021. As the number of smartphones is increasing and millennials becoming more tech-savvy the number of P2P

transactions is also likely to increase. According to (Villiers & Codrington, 2016) P2P lending marketplaces are growing much faster than traditional lenders. Some of the best lending marketing places in terms of their default rates, interest rates and other metrics include Lending Club, Prosper, Upstart and funding circle (Garret, 2017). According to Garret (2007), P2P lending has grown rapidly over the years and it is now a new source of fixed income for investors. Compared to stock markets, P2P investments have less volatility and a low correlation. They also offer higher returns than conventional sources of yield.

### **1.3. VIPPS**

Vipps, a Norwegian payment service owned by DNB, Norway's largest financial services group, was partly sold to a group of more than 106 Norwegian banks. ViPPS is a P2P (under the OECD, 2002 definition) mobile payment application developed by DNB and counts for about 2.15 million individual users in the country and more than 30,000 corporate customers. On average 204,000 transactions are carried out daily. Initially developed by Norway's biggest bank DNB, Vipps was competing with MobilePay but now stands as a monopoly on the Norwegian market, developed by Denmark's Danske Bank and which is also backed by top Nordic bank Nordea (Nordic, 2017).

Vipps makes mobile payments as simple as sending a text message and is available for use on all mobile devices. Another key feature is that it allows short chat messaging between the users. According to (TCS, 2018), Today, only customers of the Norwegian bank DNB have the opportunity to get the money right away when someone makes a transfer in the payment app Vipps. If the money is transferred to an account from another bank, it won't get there until the next settlement between the banks which might not take place until the next day. Vipps has become a verb and a brand in Norway, with the market value equivalent to apple in Norway. 'Norwegians do not make Payments anymore, they just Vipps it!' (TCS, 2018).

### **1.4. RESEARCH PROBLEM AND QUESTIONS**

Marketing studies have looked at the introduction of new products and services into markets as well as how customers react. According to (Mazzucato, 2013, p. 863; Tidebrant, Arvidsson, & Laestadius, 2013, p. 47), regulation is key to the financial markets and it must go hand in hand with policies that are aimed at innovation and industrial policy. Adding on to that, it was noted that it was now the time to take innovation seriously and build economic policy on a theory of innovative enterprise that

comprehends how value is created, not only extracted, in economies in which “intangibles” and innovation are increasingly important (Lazonick & Mazzucato, 2013, p. 1124). There are ongoing discussions on disruptive innovations and one of them poses a question that how can an innovation be disruptive to some adopters but not to others?. If disruptive innovations have characteristics that are already used by an organization be it functionality, a technical standard, or a form of ownership then the innovation will not likely be disruptive to the organization (Nagy, Schuessler, & Dubinsky, 2016, p. 121). At the same time, innovation management studies (Tidd, 2010, p. 33) have paid more attention to product and service innovation and their diffusion but attention on DI (C. Christensen, 2012; Tidebrant et al., 2013, p. 1095) remains sparse. Furthermore, according to Tedebrant (2013) in a Swedish study says that the focus has been driven on stakeholders and that has brought about how the consumers are relating to different payment schemes and their preferences when it comes to billing. This study will be parallel to that in a Norwegian study. In light of these citing, the following research questions may suffice.

#### 1.4.1. Research Question:

What is the extent to which mobile payment systems are changing the banking industry in Norway?

#### 1.4.2. Sub-questions

1. What are the drivers of mobile payment systems?
2. How has the banking industry changed because of mobile payment systems?
3. What is the response of the market to mobile payment systems?

### 1.5. RESEARCH AIM AND OBJECTIVES

The aim of this research is to understand the nature of disruptive innovation in the banking sector focus specifically at DI such as P2P electronic transactions. Accordingly, the research endeavours to fulfil following researching

Objectives:

1. To explore the drivers of DI and mobile payment systems in the banking sector
2. To understand the responses of banks and their customers to DI
3. To understand and explain the barriers and enablers of DI in the banking sector



## **1.6. SIGNIFICANCE OF THE STUDY**

This study is significant to banks in Norway and around the world in that are innovating. It will provide a clear understanding of what mobile payment systems is its impacts on the banking sector. It will be of importance to the marketing managers, product developers and interested stakeholders. It is also expected that the study will provide information and a better understanding of benefits of DI in financial services. This will be done by looking at ViPPS as an example of a mobile payment systems and a form of peer to peer transactions in Norway. This should provide more understanding of the current market trends and how it paves the path for future investments in similar products and services. The study will also be providing information to policymakers, government agencies and the private sector to be able to design policies, strategies and interventions that are parallel to DI in banks and other financial sectors.

An inspired theme that has risen in this study which is probably a non-typical occurrence is: *Disruptive innovations introduced by the ones being disrupted and gaining from it as well*. Although this will not be measured it has raised an interesting aspect of DI.

## **1.7. ASSUMPTIONS OF THE STUDY**

- The time set within the constraints of a master's degree is enough for the study
- The researcher will have access to both customers and managers directly dealing with marketing of banking services
- Participants in the study will be willing to share information.
- Millennials are the target for latest banking innovations
- DNB has gained in the introduction of ViPPS.
- Innovation is disrupting the banking system.
- Technology is the one of the drivers for innovation in the mobile banking system.

## **1.8. STRUCTURE OF THE THESIS**

This chapter provides a summation of the entire study. The research report is structured and presented in the following chapters:

Chapter 1: This chapter laid the foundation of this study. The study proceeds with a detailed review of relevant literature in Chapter 2.

Chapter 2: Literature review. This puts into perspective the theoretical and empirical considerations involving mobile banking systems as disruptive innovation. It looks at the drivers, barriers and responses of banks to DI.

Chapter 3: Research design and methodology. This presents and justifies the research design and strategy, techniques for data collection, presentation and analysis.

Chapter 4: Presentation of the data. This presents results of the study in different forms to show the findings from the interviews.

Chapter 5: Analysis of the data. This analyses the results as they relate to the literature review and addresses the research problem.

Chapter 6: Conclusions and Recommendations. This chapter gives conclusion, recommendations and limitations of this study and suggests areas of future research

## CHAPTER 2: LITERATURE REVIEW

### 2.1. INTRODUCTION

The research focuses mobile banking systems as a form of disruptive innovation (DI) in the banking sector. The discussion looks at how new technologies emerge, diffuse and how they are adopted by the market. It specifically focuses on the drivers of adoption of mobile payment systems, barriers to their adoption by customers and the bank's responses to ensure effective market uptake.

The discussion starts by defining key terms: innovation and disruptive innovation (DI). This is followed by a background into the mobile payment systems. It then goes into the main discussion looking at mobile payment systems in terms of drivers, barrier and responses by the banking industry. The chapter concludes with a summary of the literature.

### 2.2. DEFINITION AND THEORITICAL UNDERSTANDING OF DISRUPTIVE INNOVATION

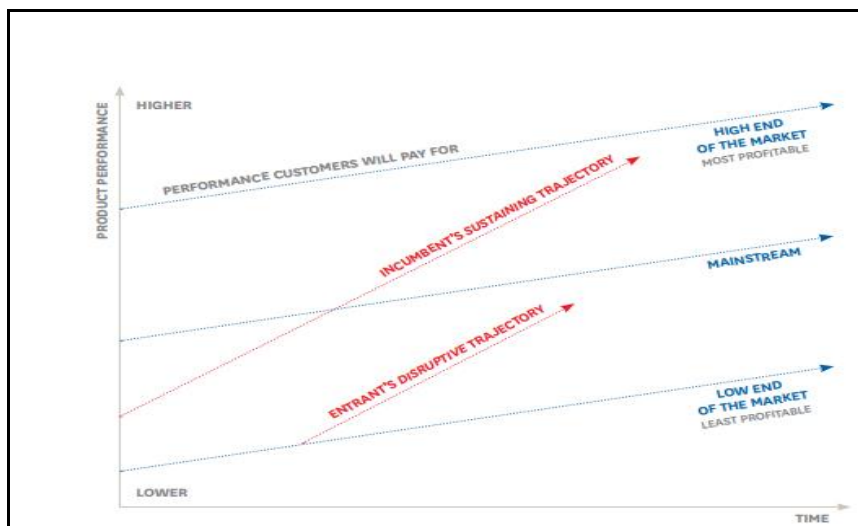
#### 2.2.1 Innovation

There are many definitions of **innovation** and many of them talk about the introduction of new things. The term innovation comes from the Latin '*Innovare*' meaning to make something new. (Tidd, Bessant, & Pavitt, 2005, p. 66) define innovation as a process of turning opportunity into new ideas and of putting these into widely used practice. A classic reference in this field, Schumpeter (1932) defines innovation as the introduction of a new product or a qualitative change in an existing product, a process innovation new to an industry, the opening of a new market, the development of new sources of supply for raw materials or other inputs and changes in organizational behaviour. Another definition offered by O'Sullivan & Dooley (2008), defines it as process of making changes, large and small, radical and incremental, to products, processes, and services that result in the introduction of something new for the organization that adds value to customers and contributes to the knowledge store of the organization (p.3). According to Fitjar & Rodríguez-Pose (2014) innovation happens with engaging partners, these include universities and innovation partners. Iakovleva (2013) similarly states that for innovation success it is important to engage potential customers, collaborative partners and research institutes for a rich base of resources and knowledge, otherwise it will be very difficult to succeed (p.21).

## 2.2.2. Disruptive Innovation

Disruptive innovation is a fairly new concept developed over the past two decades or so but lately, is it becoming an interesting area of study as it is being understood and elucidated by scholars (Tidd et al., 2005). DI is a process by which a product or service takes root in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors (Christensen, 2012). Christensen (2015), makes a further development that a smaller company with fewer resources can unseat an established, successful business by targeting segments of the market that have been neglected by the incumbent, typically because it is focusing on more profitable areas (p.9). This thesis will adopt the DI definition by Christensen.

Christensen's theory of disruptive innovation (1997), was a controversial theory that was used to explain the dilemma of organizations when they were faced with a significant new technology. Christensen identified two major innovations that affected the organisations that were sustained and disruptive innovation. The central question for Christensen (1997) is how managers of leading companies fail to identify disruptive innovations and instead steer their companies towards destruction. According to Christensen (1997) sustaining innovations are aimed at improving the performance of existing products. The figure below is a model that explains what happens when disruptive innovation is introduced.



**Figure 1: Sustaining Vs Disruptive Innovation on performance (C. M. Christensen, 1997)**

The figure above shows a contrast between product performance trajectories: The red lines denote how products and services improve over time with customer demands trajectories. The blue lines show customers' willingness to pay for performance. As the incumbent companies introduce higher-quality products or services (upper red line) to satisfy the high-end customers, they rocket the needs of the low-end and mainstream customers. The high-end market is where profitability is highest. This shift leaves room for new entrants where the incumbents are neglected. The entrants on the lower red line improve the performance of their offerings and move upmarket where they challenge the dominance of the incumbents (C. M. Christensen, 1997).

Christensen's work has been criticised by (Danneels, 2004, p. 246; Markides, 2006, p. 19) as much as it has been widely admired by a lot of theorists and scholars. In their critics, Danneels says that the definition has become flaccid as it is now not clear on what actually constitutes of disruptive technology. Markides on the other hand questions the assumption that the model can be used to explain all sorts of disruptive innovations and argues that new technology will not always dominate the market as it is stated in Christensen's work. According to Markides (2006), this model mainly looks at technological innovations where the total market dominance of new innovations is far more likely than it is for new business models (p.23).

DI is taking place in the shadow of large businesses as they concentrate on improving products and services for its most demanding customers and therefore smaller businesses gain a foothold at the bottom end of the market or tapping a new market (Tidebrant et al., 2013, p. 64). DI then grows when the incumbent's mainstream customers start taking up the start-up's products or services in volume, for example Uber and AIRBNB. DI can be a product e.g. iPod which changed how music was viewed, the same for UBER which changed how people moved from one place to another (Reinstaller, 2013, p. 9). The services are what is changing in the business otherwise the offers have not really changed.

### 2.2.3. Disruptive Innovation in the Banking Industry

As of the 1990s until of July 2007, change in the keeping money industry was driven by the twin powers of deregulation and innovative change (Benner & Tushman, 2015; Booth et al., 2013). Deregulation evacuated limitations to rivalry in conventional and new (non-managing an account) item territories and additionally geologically. So also to authoritative advancements in the US (which cancelled long-standing controls that isolated business from venture saving money), the European

Union's Single Market Program enacted for the likelihood of an all-inclusive managing an account framework and a solitary saving money permit in 1992(Booth et al., 2013; Corley & Gioia, 2004). The presentation of the euro in 1999 further expelled hindrances to cross-fringe exchange keeping money and budgetary administrations. Comparable improvements have occurred in other created and (at times) creating saving money frameworks.

The effect of new advances on saving money action has been a key element of the business in the course of the most recent decade or somewhere in the vicinity. In keeping money, a few investigations have inspected examples of reception of developments, including Automated Teller Machines (Hannan & McDowell, 1984, 1990); Credit scoring advances (Akhavein, Frame, & White, 2005); and Real Time Gross Settlement Systems (Bech & Hobijn, 2006). Furst et al. (2002) utilize multivariate logit relapses to distinguish factors driving the appropriation of web keeping money. Banks that will probably present web managing an account administrations are those that brought about high settled costs in respect to networking incomes; banks that are individuals from a bank holding organization or are situated in urban regions. Courchane et.al (2002) look at the choice to put resources into web keeping money utilizing a two-organize genuine choices system. Bank measure, industry fixation and bank area were critical determinants of the likelihood of reception (Courchane, Nickerson, & Sullivan, 2002).

DeYoung et al. (2007) utilize countless to survey the effect of web depending on US bank execution. They find that web keeping money enables banks to expand a piece of the overall industry by pulling in new clients, and furthermore diminish generation costs, along these lines upgrading gainfulness (DeYoung, Quilty, & Peterson, 2007). Beccalli (2007) discovers an interest in data equipment and programming has minimal general impact on gainfulness or productivity of European banks. Nonetheless, certain kinds of interest in IT administrations from outside suppliers, (for example, counselling and outsourcing) seem to affect emphatically on execution (Beccalli, 2007). While a considerable measure of work has been led taking a gander at the effect of the reception of new advancements, no work (the extent that we know) has been finished connecting innovation selection to such factors like hazard taking, advertise returns or virus. These could give productive territories to future investigation.

### **2.3. THE RISE OF THE MILLENNIALS AND BANKING INDUSTRY**

According to FICO (2014) millennials are said to consider non-traditional payment methods in most cases. They see value in the convenience, mobile support and ease of use. Equally, the consideration of non-traditional payment methods decreases with age (FICO, 2014, p. 3). For all age groups, customer satisfaction with a primary bank has no significant impact on consideration, with an equal number of satisfied and dissatisfied consumers now using non-traditional payment companies. The millennials' higher consideration of non-traditional banking overall is an area to watch in the future as the generation ages and as more new non-traditional products and services emerge. The most common digital banking activities include checking account balances, checking for fraudulent activity, transferring funds and performing account maintenance (ibid). According to FICO (2014), alternative banking may still be in its infancy, but it has the potential to grow rapidly, especially as the millennial generation enters its prime and pushes these services to the forefront of its banking agenda (p.11).

In Norway 49% of 18-34 year olds in Norway and Sweden are disengaged with bank services, therefore there is still great need to design services and products that suit this age group as they do make a huge impact on today's world (Stähli, 2017). According to a survey by Bradley (2015), 70 percent of the millennials polled were not even interested in a conversation with banks and that shows that a big change is underway. This has been a result of the change in technology and the way it allows millennials to manage their finances and interact with banks as well as other businesses. As a result a clear trend is seen as millennials are choosing non-traditional means of handling their finances and making payments, but that does not necessarily mean banks are down for the count.

### **2.4. MOBILE PAYMENT SYSTEMS**

Behind the development and vast popularity of the Internet, the use of e-commerce related online services has become increasingly common globally. Internet developers have introduced a lot of forms of electronic methods of payments (Tellez & Zeadally, 2014, p. 36). It offers new opportunities for banks to provide added convenience to their existing customers in developed countries, and reach a large population of unbanked customers in emerging markets (Gupta, 2013, p. 3). In these methods consumers have no need to have cash in order to carry out daily transactions. Traditionally, in the real world, the most popular modes of payments have been cash, cheques, debit cards and credit cards. With the possibilities created by the Internet, a new generation of payments appeared,

such as electronic payments, digital payments and virtual payments (Raina, 2014, p. 180; Tellez & Zeadally, 2014, p. 36). This has shifted and reshaped the global payment industry where no one wants to be in possession of hard cash (Ding & Hampe, 2003, p. 878).

Mobile payments are defined as the process of two parties exchanging financial value using a mobile device in return for goods or services (Ramezani, 2008, p. 4). Similarly, Mobile payments include payments that are effected or made possible through digital mobility technologies, via handheld devices, with or without the use of mobile telecommunications networks (de Albuquerque, Diniz, & Cernev, 2010, p. 529). According to (Adractas et al., 2011, p. 22) mobile payments encompasses many different solutions, ranging from near field communication (NFC) contactless solutions and SMS-based payments offline to e-wallets, digital currency and P2P networks online. These are regarded as the next big thing as to the concerns of innovation as it is enhancing e-commerce and efforts to unbridle the potentials of mobile payments (Ramezani, 2008, p. 4). Mobile payments integrates all heritage payments that is for all payments that need hard cash, transfers and credit cards, in return provide with alternatives for users in different channels in a faster and safer way than using cash or PIN.

According to Tidebrant et al., (2013), overall, the world of mobile payment systems adoption is growing rapidly along with the increasing infiltration of smart phones (p.20). Mobility has changed the business scene for many industries over the past years and now the payment industry may be next in line. Mobile payments are potentially the biggest disruption the payment industry has seen, and incumbents need to carefully choose the right strategies in order to avoid being substituted by emerging, independent stakeholders in this game (Tidebrant et al., 2013, p. 1). Furthermore, the mobile payments business models has promised to bring a great value to customers and the merchants although much of the developments are still in infancy.

Mobgen (2015) divided mobile payments systems into two and these are; Remote Payments and Proximity Payments, and they are discussed in the following section.

#### 2.4.1. Remote Payments

These are the transactions that are performed independently of the mobile phone's location. The necessary software required for functionality resides online or within an application which enables the user to make online purchases. One of the best known providers of this type of payment is PayPal.



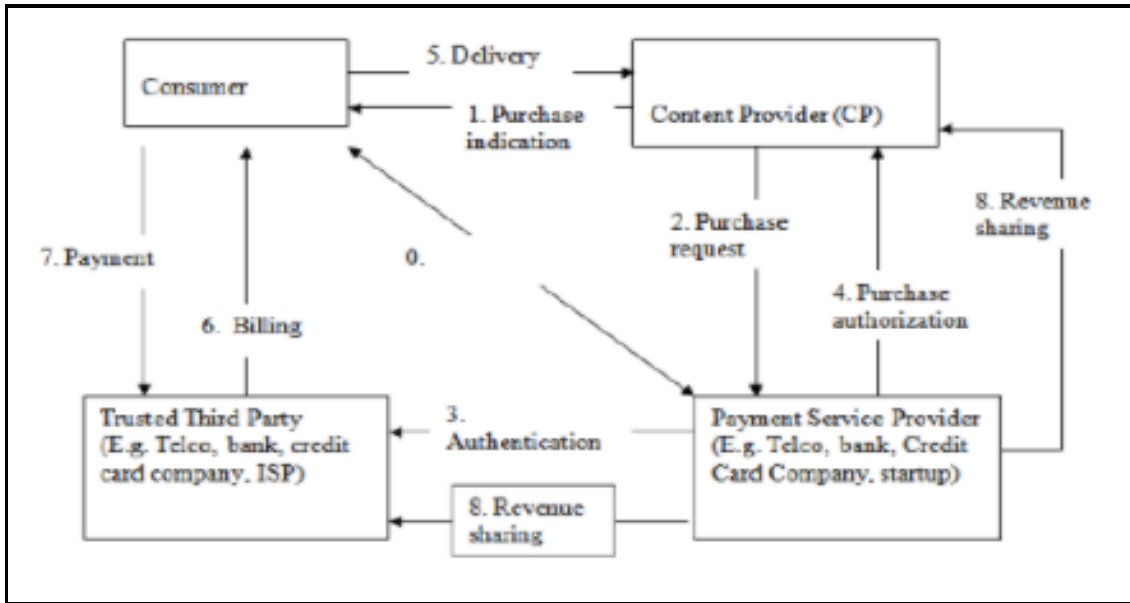
Putting this into action requires the user to share their bank or credit card details with the application for example ViPPS and PayPal. Accepting the terms and conditions of using such applications means that no sensitive information is exchanged with the seller, thereby significantly increasing the safety of the transaction (Mobgen, 2015). According to Raina (2014), remote mobile payments are perfect for use in markets that require P2P payments and for under-banked consumers and merchants who are not part of the normal POS acquirer payment process, such as flea market vendors and seasonal outside vendors (p.5).

#### 2.4.2. Proximity Payments

Proximity payments requires the mobile phone to make contact with a payment terminal (or other hardware) in the immediate vicinity. Near Field Communication (NFC) technology is often used for this. The vast majority of new smartphones are equipped with a NFC chip these days, as are a rapidly increasing number of outlets. Some of the advantages of this method of payment is that there is high security whereby the login details are stored in cloud and there is no interference of any other human in the time of transaction since it is just a one touch process to complete transacting (Mobgen, 2015). Another example noted by Raina (2014) is that they are fast, convenient, and the fact that NFC payments use the existing financial payments processing infrastructure. There is no need to set up payment processes or accounts with a third party, and the proximity mobile payment data is linked directly to a payment card issued to the consumer by a trusted financial institution (Raina, 2014, p. 183).

#### 2.4.3 Mobile Payment Process

Payment transaction process in a mobile environment is similar to typical payment card transaction. The only difference is that the transport of payment details involves wireless service provider. WAP/HTML based browser protocol might be used or payment details might be used or payment details might be transported using technologies such as Bluetooth and infrared. Mobile payment process has the following steps:



**Figure 2: Mobile Payment Process**

(Raina, 2014, p. 194)

- **Step 1: Registration** – This is when the customer opens an account with the payment service provider
- **Step 2: Transaction** – At this stage the customer indicates the desire to purchase a content using a mobile phone
  1. Content provider forwards the request to the payment service provider.
  2. Payment Service Provider then(Raina, 2014) re-requests the TTP for the authentication and authorization.
  3. Payment Service Provider informs content provider about the status of the authentication and authorization. If customer is successfully authenticated and authorised, content provider will deliver the purchased content.
- **Step 3: Payment Settlement** – A settlement takes place in real time. Prepaid or post-paid mode. In a prepaid type of settlement customers pay in advance using smart cards or electronic wallets. In the post-paid mode, the payment service provider sends billing information to the TTP. The TTP sends the bill to the customer receives the money back and then sends the revenue to the payment service provider. The PSP is then responsible for computing the revenues of each entity and distributing the funds accordingly (Raina, 2014).

#### 2.4.4. Peer to peer Model

Raina (2014) describes a P2P model which was an innovation creation by the payments industry in order to process payments without using existing wire transfer and bank card processing networks adopted from Raina (2014). This process has been done for many years with providers such as Western Union but with the changes of internet this has made it more convenient. Most of these payments allowed remote payments but could not be used for real time purchases. Today P2P service providers allows a secure mobile payment between users. Raina described a P2P process in the following scenarios;

- Scenario 1: Provider deploys contactless cards/devices to customers and POS equipment to merchants in a closed loop model.
- Scenario 2: Provider deploys a mobile payment application for the NFC-enabled mobile device.
- Scenario 3: Peer-to-Peer service provider uses an existing online application (e.g., PayPal Mobile). No POS equipment is required

Referring to the scenarios, DNB bank is the primary shareholder of ViPPS that has had agreements with other local banks to be on the platform. Therefore ViPPS is available to anyone that has a Norwegian bank account, social security number and over the age of fifteen. The Merchant acquires ViPPS from DNB and pays fees to the bank. The users of ViPPS transacts for free for all transactions less than NOK5000 and there of the sender is charged 1% of the amount sent. The mobile operator links the customers (with android or IOS) with the banks for communication through the portal (ViPPS, 2018).

#### 2.4.5. Trends and Mobile Payments in Norway

A lot of businesses from various sectors are already putting the new mobile payment solutions to good use in generating added value for customers and banks not staying back as well. This is being done by integrating the capabilities within their own application (App). In particular, retailers, airlines, hotel chains and the restaurant sector are deploying their apps as the ideal channel to enter and deepen relationships with customers, especially regular ones. According to Mobgen (2015), incorporation of mobile payment solutions can add unlimited deals of value to a successfully realised

app channel connecting directly with your target group. Similarly, Gupta (2015) says that most banks believe that the mobile channel will help them reduce transaction costs as well as increase customer engagement and retention (p.3). This is very similar to the intended benefits of online banking several years ago and adding that, a number of banks are already investing in mobile technology and security, developing smartphone apps, adding new features such as remote deposit of checks, and educating consumers (p.3).

In Norway the use of smartphones to pay for goods and services is fast becoming a common practice (Nickel, 2015a; Nicolaisen, 2017). According to Nickel, bank branches are a less common sight across the country these days there is an increase in people using their mobile phone to manage their finances. Norwegian people have long preferred making payments with credit and debit cards over cash transactions, and now mobile payments are starting to take off. It now appears only a matter of time until Norway's society for residents at least is entirely cashless. Mobile payments are commonly used in splitting a bill in restaurants, which is one function the writer noted. It is often a common site to see the use of mobile payments for parking, paying in stores as well as sending to friends across different banks (Nickel, 2015a; Nicolaisen, 2017).

According to Nicolaisen (2017) and (Sharma, 2017) , there are changes that are coming along with the new payment system. The banks therefore need to be prepared for the possibility of an altered market structure and technological innovation may lead to new vulnerabilities and risks. Just like PayPal and other mobile payments methods, banks are not necessarily safe in the evolving market of mobile and networked forms of payment. These payment methods offer a very convenient and cheap method of payment that they have been able to take transactional business away from banks. While at first peek this might not seem to be a problem for formal banks, any competition in areas of customer convenience and transactions is a serious threat to their business model and cannot be taken for granted (Nicolaisen, 2017). Today's consumers are digitally savvy and always on the go, expecting to access information wherever they go. Most of these are millennials and as financial institutions it is a huge task to keep this volatile market satisfied. This brings a huge shift from the DNA banking, department-centric organizations to agile, customer-centric organizations that leverage digital technologies to create better customer experiences (Lirtsman, 2016).

The emergence of the digital payment systems is likely to replace the traditional financial institutions. This is slowly bringing in a world without banks and the key driver for this scenario is the innovation created by intermediaries, who are regarding new ways to process payments without using existing

wire transfer and bank card processing networks. Their innovative models might be capable of excluding traditional players and catalysing adoption (Merbecks & Bruck, 2017, p. 20).

## **2.5. ADOPTION AND DIFFUSION OF DI IN THE BANKING INDUSTRY**

In any given social setting ideas and new technologies spread and this is governed by various factors. In 1962, E. M Rogers introduced the diffusion Theory. The main essence of the theory is to understand why and at what rate innovative ideas disperse. Roger's Innovation Diffusion theory has influenced the concepts of innovation management, and a number of scholars have later expanded the concepts based on his theory (Wonglimpiyarat & Yuberk, 2005). In this paper the diffusion theory explores how the peer to peer transactions have become profound and successful in today's banking sector. Numerous definitions have been used to define diffusion and amongst the existing definitions, diffusion is defined as a process by which innovation is communicated through selected channels over a given time within the social system (Rogers Everett, 1995), diffusion is a process defined by relationships (Fichman, 2000), a process by which technology spread across population conceptualized the patterned communication of organizations (De Tarde, 1903).

According to (Makasi, Govender, & Tapfuma, 2014, p. 2557), staff competency is a critical role in the adoption of disruptive innovations. Some of the other factors that contribute are availability of funding, type of infrastructure available, leadership orientation, and nature of promotional campaigns also contribute to the faster adoption of disruptive technologies. Makasi et al., (2014), added that the style of leadership plays an extensive role in the adoption of disruptive technologies. In this regard, it was found that leadership styles which promote the creativity and innovation among the employees are critical to the successful adoption of disruptive innovation (p.2555). DI is a highly capital intensive; thus for any company to successfully manage this adoption it must be financially stable. If all these are achieved they could provide a competitive advantage on the market with continuous modification and extending resource bases whilst increasing adoption. In addition to this, being able to draw a line between circumstances and customers is a formula for success, a product should be targeted at the circumstances where customers are rather than at customers themselves. This is achieved by conducting market segmentation based on product type, price point, demographics and psychographics. In return this will result in understanding the circumstances that customers are in when they buy or use a product (C. M. Christensen & Raynor, 2003).

## 2.6. THE DRIVERS OF MOBILE PAYMENTS IN THE BANKING INDUSTRY

### 2.6.1. Increased Mobility

A new breed of non-bank payment provider has kick-started a swell in payments innovation, ranging from FinTech start-ups (those looking to leverage technology to bring advancements to the payment, thus disruptive innovation (BNY, 2015)). The changes that are being experienced in the banking sector are not only coming as a technology changes but as well as the trends in the market that are changing due to globalisation. Banks are increasingly becoming aware that FinTech and the developments occurring in retail payments have enormous influence over the future path of corporate payments, the payments space is evolving rapidly as traditional players and FinTech pioneers establish collaborative partnerships to leverage the best elements of both parties (BNY, 2015).

A lot of the disruptions affecting other industries are disruptors precisely because they have not entered these markets with the intention of replacing the odd product here or there, but rather have focused on building entirely new platforms. In other words, the disruption has not been to take traditional offerings, products and services and find new ways to deliver them, but have rather changed the way that the customers receive the outcomes they are looking for, without delivering traditional services (Villiers & Codrington, 2016, p. 16). This means that there has been a huge increase in banks increasing on their commitment to innovation from year to year and statistics has shown that from 2009 to 2015 banks have increased their innovation investment from 15% to 84% respectively. Interestingly the adopters of these innovations are mostly millennials and higher income customers. According to EY millennials are not satisfied with banks and prefer mobile banking (financial and banking apps are the second most important apps on millennials' phones). This way they are able to control these day to day function on their mobile phones (ibid).

In a study done by Makasi (2014), it was found that in the banking sector, technology is driving change and customer demands have become increasingly sophisticated (p.7). Therefore the continuous changing demands in customer needs sees the birth of products like ViPPS. This presumably serves a particular market that is tech-savvy and these are the millennials. In a study by Andrew Dearing for OECD, a larger number of respondents strongly agreed that sustainable development is a key business driver for the firm and 83% confirmed that sustainable development is an explicit part of

the firm's mission and values. Those that felt otherwise generally argued that this reflected the wider priorities of the marketplace (Dearing, 2010).

According to (Amith, Amit, & Avinash, 2017), the banking customers have an expectation on their financial service provider. This has led to an evolving customer-bank relationship necessitating banks to be more customer-centric by embedding themselves in customers' lives to meet rising customer experience expectations. This has posed challenges on banks in meeting customer expectations, as they are troubled with legacy challenges in both terms of technology and culture. In their article, "What You Need to Know", they highlighted some of the major trends that are driving banks to see the dynamics of the banking system challenged. The following are some of the trends aforementioned;

1. Banks are investing in cybersecurity systems with the increase in cyber threats
2. Banks are increasingly adapting public cloud services, as it provides flexibility and agility
3. Banks are testing augmented reality to provide enhanced customer experience
4. Banks have been working together to identify and understand the use cases of distributed ledger technology
5. Banks are looking at cognitive banking to provide an edge over competitors

Lastly Amith et al (2017) states that there is an increase in the number of customers moving toward digital channels and this simultaneously increases the amount of data generated from their interaction with banks is increasing exponentially in volume as well as in complexity. In return customers are expecting a pleasurable service experience and from their banks and addressing these expectations would require huge investments by banks in customer support with the absence of artificial intelligence. One of the implications for this would be that banks will explore the possibility of using artificial intelligence to improve efficiency and customer experience.

likka, et al (2015) adds that the banking industry is no exception to the rapid changes brought about by digitalisation, which is altering the way that individuals and companies operate. The recent dawn of mobile devices has accelerated this era with millions of people handling or preferring to handle their own transactions. This has made a shift on the way people bank and the ways banks interact with their customers (Ruotsila, Ekdahl, & Vitali, 2015). As (Amith et al., 2017) also reported, likka, et al (2015) states that the driving factors impacting the banking industry are; customer-orientation,

competition that is opening up to new ways of doing business, technology innovation which is being fuelled by customer expectations and digital disruptors that are addressing customer needs in completely new ways.

This survey by Accenture Strategy (2018) was conducted with executives from the eight largest Nordic banks across Sweden, Finland, Norway and Denmark to gain insights into their perception of threats and opportunities in the shifting digital landscape. One of the key findings was that banks are now positioned to fulfil all their customers' daily financial but also non-financial life needs, centred on customers' key life events. Banks as a service provider need to fulfil a specific financial need, compete on price for their customers, optimize interaction across channels and offer financial services. This is also supported by (Das, Verburg, Verbraeck, & Bonebakker, 2018), who says that it proves hard to remain competitive and stay relevant in a rapidly changing environment with new global players and increasing market volatility.

#### 2.6.2. Consumer Expectations and Competition

Rising consumer expectations (Barrotti, 2016), technology innovation and new competition is unlocking new business opportunities in financial services. Banks need to assure that their offerings address customer needs. This is driving the banks to innovate more so that they meet the customer needs and stay competitive (Ruotsila et al., 2015). According to this survey, 78% of banking professionals see the new entrants as one of the top three challenges they are facing today. Disruptors themselves believe the main reasons they are a threat to traditional banks is due to their modern technology platforms which allow them to quickly adapt to consumer demands.

The author of 'The Emergence of New Banking Business Models', Michael Pearson says that the threat of industry disruption from technology companies is believed to be high by 48% of banks. He also noted that the development of digital technologies is, however, also providing opportunities for new entrants in the retail banking market. The threat of disruption is perceived to be high by banks, and is increasing still. This threat is said to be coming from start-up companies. This has resulted in a lot of competition on technology, price and customers.

A case example of DNB cited that the bank launched a new mobile payments service, called Vipps, which is open to customers of any bank in Norway. The service application has already been downloaded by 25% of Norwegians and has fundamentally changed the way people make payments.



This was done in order to meet the rising expectations of customers where according to DNB, radical changes in customer behaviour require a new operating model as everything is going digital. About 90% of customers are regular digital users, whereas only 15% are regular branch users.

Of all the digital interactions at the bank, about two thirds are now mobile and one third online (Pearson, 2016). Looking at the trends, the banks in low income countries were much less likely to have an innovation strategy than banks in other countries, and have a lower self-rating of innovation performance, but more of them appear to be increasing innovation investment in 2016. Research has showed that the millennials remain the group that is fast adopting such innovations making the future of innovative banking as they are ten times more likely to use P2P platforms (FICO, 2014, p. 11). Norway as a high income country is driven towards innovation in this regard.

### 2.6.3 Digitalization

This study also noted that digitalization of banking is now moving at full speed with substantial investments being made. This is not only applying to moving transactions from physical to digital channels but looking at digitalization as an end-to-end process for achieving efficiency gains and to some extent for delivering a better customer experience. One challenge for banks, in a financial environment which continues to be difficult, is how much to invest in innovation, and where (Pearson, 2016). There are a lot of drivers in literature towards innovation in banking but globalization and digitalization remain the main drivers of change; both governments and established firms have to adapt now to the challenges related to these changes (Parida, Sjödin, Lenka, & Wincent, 2015, p. 42).

### 2.6.4. The Internet

According to Tellez & Zeadally (2014), the worldwide proliferation of internet has led to the emergence of an extensive range of services and one of the most popular being electronic commerce (p.36). In the recent years technology developers have made various portable devices that are being used with very high speeds of internet anywhere and at any time to perform transactions. These developments in technology and internet have enabled mobile devices to become a critical component to the new digital economy. It was expected that the use of mobile payments will reach 450million users with a transaction value of 721 billion US dollars (Tellez & Zeadally, 2014, p. 37).

## 2.6.5 Innovation

According to literature innovation is claimed to be the driver of success (Iakovleva, 2013, p. 21). In as much as the banking sector is said to be reluctant in adopting new payment systems, most European countries and North America have been very successful in the adoption of innovations related to mobile payment solutions in comparison to Asia and the developing countries (Ślązak, 2014). These innovations allow the customers to be able have a combination of a system that allows the users to initiate a payment, authorize and complete a financial transaction in which money and or funds are transferred over a mobile network over a mobile device (P.137). Innovative ideas are able to provide a passage between the traditional and the new payment systems hence this will bring a long term shift in the future to a new channel for payments (Bolt, 2012, p. 12; Ślązak, 2014).

Innovation has enabled payment applications (Apps) loaded on mobile phones and the mobile networks. These systems have been adequately isolated, since they store sensitive customer data and allow one click payments, by this it avoids cross-contamination of data. These systems are also equipped with certification processes that aim to provide the assurance that the Apps are secured sufficiently (Fung, Huynh, & Sabetti, 2012, p. 48). Before the emergence of the mobile payment systems banks dictated products and services offered to customers, as well as deciding what was of value to the customer (Carton & Dennehy, 2011). Today payment solutions now have innovative solutions to involve customers in experience. These include self-checkout at gas stations and supermarkets, online reservations and use of ATM's. These intermediaries are partnering with financial institutions or MNO's for the provision of mobile proximity payments (p.2).

According to Carton & Dennehy (2001), historically innovation was primarily equated with the development of new products or technology and more recently, innovation is been viewed as the development of new service offerings, business models, pricing plans, entry to market plans and management practices (p.3) There are a lot other incentives that are now being offered by the and are resulting in the conflicts and disruption of the ecosystem.

## 2.6.6. Cashless Society

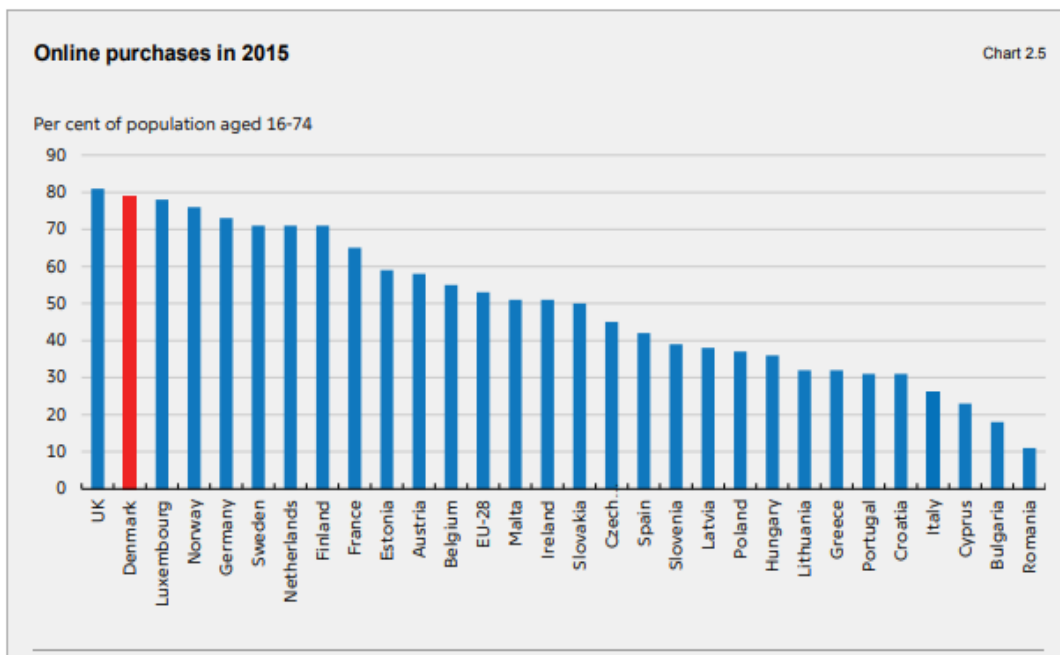
Mobile payment systems are pushing the banks to provide full variety of services and assisting in the ongoing battle of a cashless society and the cost and risks that come with the usage of cash (Ślązak, 2014, p. 140). According to an Australian blog, ' For ease of use, nothing beats simply taking a card

from your wallet and waving it in front of a machine – no cash to worry about, no change to count, no PINs to enter (for amounts below a threshold), and nothing to sign. ‘ (Novatii Innovation for payments, 2015). This simply how most of the developed worlds are shifting from the age of cash, this even apply to some of the developing countries (where most of the population is unbanked) where cash has become a thing of the past whereby on a day to day, one might not even get to use cash in any of their transactions.

According to Oaks (2016), ‘A cashless society is not only inevitable, it’ll be here before you know it.’ In this article the humans are being challenged to see how quickly things are changing around us and how the cashless society trend is fast approaching in many parts of the world. The cashless payments are faster, more secure, and overall less expensive than those of a decade ago (Oaks, 2016). In 2014, there were a few banks that had mobile support but as of today a lot of banks all over the world are developing their own mobile applications as these have become highly demanded.

It is the same trend in the Nordic banks that are a slowly using cash in their branches (Wheatly, 2017). A lot of young people that are educated are increasingly paying using their cards and mobile phones and this march towards the cashless society is said to be unstoppable. In Sweden cash is now only used in 15% of the transactions on the point of sale (Wheatly, 2017, p. 33). Just like in any of the other Nordic banks, the distribution for cash remains very expensive (DANISH PAYMENTS COUNCIL, 2016). The handling of cash is not only expensive for the banks but also for the retailers hence going cashless is fast becoming common and this also sees the number of ATMs dropping seeing regular discussions of cash in Denmark and Norway (p.5).

Danish consumers are happy to shop online and are used to electronic payment solutions and electronic communication with the public sector. The majority of the people that are using cash are the senior citizens, disabled and socially vulnerable groups (DANISH PAYMENTS COUNCIL, 2016, p. 7). The Danish community so as the Norwegians embrace technology and this is reflected in how they prefer to use online shopping, this is why most of the functions of the economy are all becoming digitalised. The graph below shows the percentages of countries and their online shopping.



**Figure 3: Online purchases in 2015 (DANISH PAYMENTS COUNCIL, 2016, p. 17)**

Figure 4 shows all of the Nordic countries are big online spenders reducing the use of cash in the process. This also highlights how they have been very quick to adopt technology in their economy.

### 2.6.7. Convenience

According to literature, a good mobile payment system has the task to convince the user of the attractiveness of the system addressing its value and at the same time make it worthwhile to learn and adopt something new (Ślązak, 2014, p. 143). In terms of portability and mobile payment systems are seen to be more convenient than the old banking systems that the users have been using. Furthermore, 'At some point, in the not too distant future, the general consumer population will demand the added convenience of this mobile model. It will become just as commonplace as making a purchase on the Internet is today' (Barrotti, 2016; Kim, Mirusmonov, & Lee, 2010). This will see the elimination of using a lot of credit cards in the wallet and going to the ATM to get cash, instead all these will be made simpler and easier by the system that will link them into a one for multiple use purpose.

Ślązak (2014) also extends this by emphasising the issue of flexibility for the user whereby there is a choice of selecting the particular card that they want to make a payment with rather than having a lot of cards in the wallet which can be tedious. Another benefit that should drive the use of mobile payment systems is the ability to carry out transactions faster on particular types of transactions.

According to the statistics paying using this methods is said to be at least 15-30 seconds faster than using the normal card as it eliminates entering the card pin as well as signing the receipt at the point of payment. This method of payment will be faster in cases like toll gates where customers need to move quickly in transit.

In Australia, Novatti Innovation for Payments (2015), states that the people have generally adopted that mobile payments systems depending on the options available to them. It makes it clear how convenient it can be not to be able to use cards and the money but simply carrying out a transaction on a mobile device, from activating the App, authorizing payment as well as getting confirmation without the need to have to sign a receipt. Oaks (2016) gives us an insight of a most likely everyday situation whereby one has to pay for a Starbucks coffee via their app, something thousands of people do every day without interaction with a human through the payment process.

#### 2.6.8 Social Influence

Social influence is very important when it comes to technology acceptance and there has been a number of models explaining this behaviour. Thus it remains an important motivation for adopting new technologies (Koenig-Lewis, Marquet, Palmer, & Zhao, 2015, p. 544). New technology adoption therefore involves connectivity to peer groups, trends, communication and social norms. Most people adopt a technology when they find out that their friends or family are also using it. Mobile phones are mostly used in a public or social framework where users can observe others' behaviour and are therefore likely to be influenced by their peers, or people who are important to them (Thakur & Srivastava, 2014, p. 382).

Social influence may also have an indirect influence through the effect of how the perceived usefulness is seen toward the intention to adopted mobile payment systems. Research has shown that there is evidence that perceived enjoyment is a socially constructed phenomenon (Koenig-Lewis et al., 2015). The social environment of the adopter plays an important role in the adoption process of mobile payment systems, thus promoting these services through the word of mouth from opinion leaders is crucial for a faster diffusion of these technologies amongst young people (p.550).

### 2.7. BARRIERS TO ADOPTION OF MOBILE PAYMENTS SYSTEMS

Studies by (Wessel & Christensen, 2012, p. 56), claim that disruptive innovations are like missiles launched at your business. Disruption is less a single event than a process that plays out over time, sometimes quickly and completely, but other times slowly and incompletely. Effectively escalating and launching innovations depends on a throng of internal and external firm aspects. Both internal and external barriers to the firm affect the ability to succeed in innovation. According to (Benner & Tushman, 2015, p. 4), the most common internal barriers are a firm's strategy, organizational architecture, leadership, organizational culture, the organization of research and development, and performance incentive. The common external barriers are market dynamics, competitor behaviour, and market and technology turbulence (Hung & Chou, 2013, p. 369). These barriers are dependent on the size of the firm as well as the sector. The global financial crisis in 2008 established firms in the financial services industry face the challenge of organizing for change and banks had to re-look into their business models to remain profitable and adapt current processes in order to comply with these new regulations. Moreover, organizations will need to identify internal leaders for business model change, in order to manage the results of these processes and deliver a new, better business model for the company (Chesbrough, 2010, p. 362).

The biggest challenges are continuously seen are technology and culture. The number of interconnected systems are also a big problem when it comes to developing new products and services. From a cultural perspective, it is just not possible to create a start-up like culture in a bank and hire the same sort of people as start-ups do. In order to succeed in the long term, regulation and compliance continues to be critical factors in banks. Bank failures are often due to problems with risk management or cost management, not from a lack of innovation. (Pearson, 2016).

(Hanif, Masood, & Azhar, 2013, p. 6) presented a framework of barriers divided into organizational barriers, technology barriers and market barriers. This framework is guided by the thought that the entire business consists of organization to produce, technology to be commercialized and market to buy. All these three have to be aligned through a strategic orientation for both disruptive and sustaining technology (See Figure 5).

| Organizational Barriers                | Technology Barriers                          | Market Barriers                             |
|--|--|---|
| 1. Organizational culture              | 1. Replacing current technology              | 1. Identifying emerging markets experiences |
| 2. Organizational policy               | 2. Developing new technological competencies | 2. Serving less profitable customers        |
| 3. Allocation of operational resources | 3. Setting up new technological production   | 3. Serving less attractive markets          |
| 4. Commitment by higher management     | 4. Adopting disruptive technology            | 4. Developing new market relations          |
| 5. New investment possibility          | 5. Piloting new dimensions of technology     | 5. Responding to disruptive market trends   |

**Figure 4: Barriers framework (Hanif et al., 2013, p. 6)**

### 2.7.1. Organizational Barriers

These are the entire set of activities within organisation and they include processes, policies, management, culture, capabilities and orientations which hinder the adoption of disruptive technology. The structured routines, method of performance evaluation, size of organization, structure of organization drive technology decision which work as barrier for adoption of disruptive technology (Hanif et al., 2013, p. 8).

### 2.7.2. Technology Barriers and Security

Technology is an offering on certain technological principal serving the users on a dimension of performance. Technology barriers as existing products or technologies serving mainstream market causing barrier to adopt disruptive technology. Number of other product and technology related barriers are technological inertie, not willing to cannibalize present products, risk of low performance of new product, irrelevancy with established customer needs, made investments in current products, established sales networks and inability of firm to handle new production and marketing for disruptive technology (Hanif et al., 2013, p. 8). As the use of mobile devices and the communication technologies continue to evolve and improving, and new technologies offering attractive business opportunities are emerging. The banking systems need to catch up with all these changes in order to deliver value to their customers. Looking on the other side, designers must

continuously adapt existing mobile payment systems to allow their customers to take advantage of the benefits associated with emerging technologies while simultaneously ensuring secure and reliable payment transactions (Tellez & Zeadally, 2014). Technology is a driver of mobile payment systems but it is also a barrier as it is faced with a lot of security and performance issues that are also coming along with the changes. The issue of security is also mentioned by Ślęzak (2014), which is a barrier as well as a response to mobile payment systems. The mobile payment systems are potentially having to reduce the likelihood of fraudulent POS transactions therefore providing more safety to the users.

### 2.7.3. Market Barriers

Market barriers are all the factors outside the organization domain such as buyer, user, investor, and other stakeholders which affect the decision about a technology. The market for current products play deterministic role and organizations is compelled to continue serving it. Mainstream market is a strong barrier for incumbent for adoption of disruptive technology. The market provides high margin and large sale volume to current products while disruptive technology serves a niche and gain very low margin (Hanif et al., 2013, p. 9).

There are also barriers to DI identified by (Arnold & Hamilton) and these where from an association of upper management people from various companies across the world.

- Strategic importance of disruptive innovation is not understood
- Inability to generate disruptive concepts
- Inappropriate funding
- Product development routines cater to continuous innovation

### 2.7.4. Consumer and Merchant adoption

According to Heijden (2002) the success of mobile payment systems is dependent on both the merchants and customers whereby the latter must want to use their mobile devices to transact and the merchants providing the appropriate infrastructure to that to happen as well as them seeing the benefits of it for their own business (p.441). In a study done by Heijden in Netherlands in Sweden, for merchants to accept mobile payment systems they had to consider the cost of substitutes, ease of use as well perceived risk (p.439). Above all the study show that the high cost disabled the success of adopting the mobile payments systems.



### 2.7.5 Transaction and Settlement Time

The rise of mobile payment systems has resulted in a change in the landscape of monetary transactions and challenged the pre-existing systems to a great extent. Since mobile transactions are built in an interdependent network of companies, they tend to adopt a lot of approaches as well as regulations that differ across different countries (de Albuquerque, Diniz, & Cernev, 2016, p. 528). A study across a number of mobile payment systems was done on a platform level and on a user level and it showed that problems related to settlement and transaction were recurring (Gannamaneni, Ondrus, & Lyytinen, 2015). In as much as the systems provide a very lucrative deal to the users implementing the on a large-scale payments remained problematic. In the case of Paybox in Germany the mobile networks owed the financial systems and vice versa (p.1162), In Switzerland a scheme offered by Postfinance worked well but the consumers found the payment processing was too time consuming and the additional payment terminals were bulky for their current payment systems (p.1164). In South Korea the challenge faced was on the side of network providers where the customers need certain handsets in order to be able to use the App with flawless transactions. Over all it was studied that solving the problem at one level was not preventing failure.

According to World Bank Group (2016) there are settlement acts in each country which governs the systems and provide regulations to avoid exploitation and money laundering in economies (World Bank Group, 2016). The innovative platforms offered by start-ups and FinTech are therefore challenging the systems this means that at times transactions will take time before they are actually effected and reflect to the recipient. In certain mobile payments systems individuals not registered on the platform will not be able to use the service as personal information is required for authenticity as security purposes (p.17). Settlements acts in some countries therefore limits real time payments for interbank due to some of these reasons (p.34). To the user this comes as a barrier and one might find it difficult to cope with hence it becomes a barrier to adopt mobile payments.

### 2.7.6 Ease of Use

It is a critical factor that relative advantage needs to exist in the adoption of mobile payments. It is inevitable that users will compare new service with the existing means of payments they use today (Arvidsson, 2014). A common dependant variable in the ease of usefulness looks at the experience of easy or difficulty to learn a mobile payment system (p.158). This is also complemented by other

psychological issues like perceived trust and security. According to Arvidsson (2014), 'The consumers and merchants believe that mobile payments should be at least as quick, at least as simple, at least as inexpensive and at least as secure as a card payment in order to be attractive! If it fails in these dimensions they are less likely to start using it' (p.164). This included the issue of trust which has a large effect and security being important factors for users to adopt mobile payment methods (Zhou, 2013, p. 1089).

In a study by Thakur & Srivastava (2014), adoption readiness positively affects a buying decision. In this case, ease of use and facilitating condition one realizes that the two dimensions require both the handset provider and the service provider to come together to provide users with a user friendly seamless service (p.382). Therefore, users expect an uninterrupted access to the system in order to consider it useful in their day to day life. The design of the application including well-designed interface, clear layout, powerful navigation and prompt response play a critical role for the adoption (Thakur & Srivastava, 2014). If otherwise this will become a barrier of adopting the system. Moreover, this variable is influenced by users' social network.

According to Zhou (2014) continuance intention to use a mobile payment methods had three main dependant variables that are trust, flow and satisfaction. A decrease in trust can happen if service providers cannot ensure service reliability, promptness and personalization and on the other side if personalization is tailored trust will increase (p.1089). Therefore, service providers need to continuously deliver quality system, information and services in order to facilitate users' post-adoption usage of mobile payment systems.

Perceived ease of usefulness was also studied by (Kim et al., 2010) who highlighted that mobility, reachability and convenience. It was concluded that ease of use and perceived usefulness exerted significant intention to use mobile payments (p.319). The more easy the system is easier for the user the greater the intention to adopt it.

### 2.7.7 Application design

In the latter section Thakur & Srivastava (2014), states how the design of the mobile application plays a role in how payment systems are adopted. Users expect an interface which is friendly as well as a design which caters for all the functions that one requires to transact. According to Al-Jabri & Sohail (2012) banks should offer mobile banking services that are compatible with various current user

requirements, past experiences, lifestyle and beliefs in order to fulfil customer expectations. The usability of mobile phones and the tools is also another factor that was addressed by (George, Lennard, & Scribbins, 2013) as a significant issue. Application design also addresses that a good design should be easily usable by as many people as possible, without obliging them to make any special effort or add on adaptations.

## **2.8. MARKET RESPONSES TO MOBILE PAYMENTS SYSTEMS**

Financial technology (FinTech) is doing more than just disrupting some of the activities of traditional banks, it is potentially going to disrupt the ways in which banks are structured. It may very well force banks to search for value in the back end or middle office spaces, rather than in front line products and services (Villiers & Codrington, 2016). According to (Arnaboldi & Rossignoli, 2015), financial innovation is more hard to define than other sectors like manufacturing. This is because the features of innovation in the banking sector are quite different from the characteristics usually encountered from other sectors.

Innovation in the financial sector often happens due to the interaction with customers and then it spreads to the other functions of the bank, this makes it very hard to measure as it is not only developed by the banks but by also non-financial firms, such as software houses or specialized technology firms (Arnaboldi & Rossignoli, 2015; Fitjar & Rodríguez-Pose, 2013, p. 137). Anarbold & Rossignoli (2015), furthermore say that industry grants a minor direct contribution to innovation. Most innovations are produced in other industries and then transferred into the banking sector, particularly as far as technology is concerned. This is the case, for example, of a bank implementing an internet platform for distribution of online services, thanks to new processors provided by software houses. This study showed that innovating banks hold an average a larger market share, are younger, more cost efficient but less profitable than less innovating ones.

According to Nyatira (2012) the growth of innovations has had a huge impact in the banking sector. This has seen an increase in the number of financial institutions that offer a variety of homogenous services. Technological developments have seen a huge impact on the birth of sophisticated mobile payment methods that are slowly eroding the user of hard cash which is a threat to the traditional banking (Nyathira, 2012). Competition has been increasing a result of these developments which is being fuelled by increasing technology (Al-Jabri & Sohail, 2012) (p.2, 379). Nyathira's study in Kenya showed that it is evident that the financial innovation has had merits with the emergence of the

mobile payment methods that has resulted in financial growth in all banks. This has been a success as it offers convenience, security and efficiency whilst also targeting the low end customers that have previously been ignored in the previous years (p.45).

There is now a huge drive by banks to provide value, faster and better service which is being faced with a lot of competition. Innovation therefore has become the core to overcome this challenge. With this banks have stated innovation as a core strategy in the financial sector whereby billions of dollars are being spent on research and development (R & D) for new processes and technologies (Fitjar & Rodríguez-Pose, 2014; Integrated Reporting, 2017, p. 3; Webster & Pizzala, 2015, p. 3). Banks are faced with a challenge to now continuously reinvent themselves following Bill Gates statement that, 'Banking is necessary; Banks are not.' According to Webster & Pizzala (2015), most investments are increasing towards IT costs, digital banking and innovation labs. There is also an increase in the number of start-ups and FinTech incubation pods which has been dominant with large banks like Barclays. Furthermore Webster & Pizzala say that, 'Success in the digital era depends on a bank's ability to respond logically to the threats and opportunities of FinTech innovation. Executives must ask themselves why, what and how they are innovating and have great confidence that each answer is grounded in a robust growth strategy and protected by a digital risk platform' (p.6).

According Graham (2017), in order for banks to respond to the issues of FinTech, they need to do two things that are Fight or Flight in order to increase the motivation.

- I. **Fight** – under this Graham says that the banks must be prepared to completely challenge the tradition of the banking systems and offer new ways of doing business. This is a risky move but a bank can stand to have an edge and be competitive over others resulting a profitable business on customers and price (Graham, 2017).
- II. **Flight** – doing the opposite of Fight, here banks will continue to do what they do best considering and serving their known and reputable customers (Graham, 2017).

In conclusion to these, after looking at a study by PWC, Graham thinks that there is always going to be two types of banks. The first strata will consists of banks that will focus on traditional banking that will look at lending and borrowing giving the best service they can. The second strata of banks will be the ones adopting the new FinTech giving a variety of products and services that are coming with the

new age. Looking at the literature FinTechs are playing a big role in the transformation of banks and new age products related to mobile payment systems.

One of the issues that needs to be addressed is security is quite important when it comes to the banking sector. Consumers are always concerned with protection from malicious software and hacking attacks since a lot of information will be stored in the mobile devices used to transact. According to Ślęzak (2014), 'Although payment information stolen from a phone could not be used to make payments that rely on dynamic authentication, that information might be used for other types of fraudulent payments.' (p.147). Therefore the banks will need to ensure that they have strong security for their operating systems and hardware.

## **2.9. SUMMARY OF DISCUSSION**

The most important themes that are being identified in the literature review are: drivers of disruptive innovation, its barriers and responses to mobile payment systems. These are the themes that serve as a conceptual framework in addressing the main research focus as well as sub questions around mobile payment solutions and the banking industry. The following summaries these themes as well as the sub themes.

According to Tidd et al (2005), there are two important features that allow the creativity, one of them is that some people are comfortable with ideas which challenge the whole way in which the universe works. This lies within the culture of people, which is where innovation can thrive. Culture is a complex concept, but it basically links to the pattern of shared values, beliefs and agreed norms which shape behaviour in other words, it is 'the way we do things round here' in any organization (Tidd et al., 2005, p. 81). Innovation has been inspired by people who see solutions where others see problems.

According to a report published by Innovasjon Norge, these are the people that are needed when problems arise, these creative and savvy men and women are able to come up with new products as well as new businesses and new ways of doing things (Dyb, 2016). The Norwegian innovation culture therefore has provided one of the most important environments for new technologies as well as new ideas. Therefore the constantly changing environment has identified various emerging markets and one of these markets is the millennials that banks thrive to serve as they hold a great market share. As much as they are a focus, there is also the need of not forgetting to serve the smaller markets that

are perceived to be less attractive because they are slowly adapting to technological changes. It is therefore critical to respond to disruptive innovation in that manner.

The three major barriers to DI that are organisational, technological and market barriers (Hanif, 2013) identified. Some of these barriers are also seen to be the drivers of innovation. In addition to these there are also organisational internal issues that were identified from the upper management's point of view. Out of these barriers and drivers we can also note what the bank's responses have been to DI.

The internet era has brought about changes in which the majority of the banking population has shifted significantly from the traditional banking system to mobile banking and payments system. This is the most preferred as it is convenient and customers are able to manage their own finances via mobile devices from anywhere outside the banking halls. Opting for these mobile payment systems has been very popular with the millennials who are technologically savvy and moving ahead of time.

Lastly the responses to mobile payment systems have mostly pointed to the issue of security and technical aspects. As the banking systems are becoming more digital, a number of security threats are also emerging therefore it is important for banks to tighten loopholes. It is also important for banks to deliver value to the users through continuous interaction and learning. The increase in competition is another task for the banks as they need to stay abreast with all the changes in order to retain their customers.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1. INTRODUCTION

According to (Rajasekar, Philominathan, & Chinnathambi, 2006, p. 5) methodology is a systematic way to solve a problem. It is also a science of studying how research is to be carried out. Fundamentally, the procedures by which researchers go about their work of describing, explaining and predicting phenomena are called research methodology. It is also defined as the study of methods by which knowledge is gained. The main aim of a methodology is to give the work plan of research.

Research Methodology helps us to explain

- Why a particular research is undertaken
- How the research problem is formulated
- The type of data that is collected
- The method which is used to
- The type of technique used to analyse data

This chapter outlines detailed steps of the research design and methodology in order to provide an assurance that appropriate procedures were followed to address the research problem. The chapter is structured according to the following key elements:

- Paradigm and Approach
- Research Design
- Data Collection
- Participants selection
- Data Analysis
- Assumptions and Delimitations
- Summary

### **3.2. PARADIGM AND APPROACH**

This research is an interpretive qualitative study. This is a new phenomenon, therefore we want to explore on how people understand the issue in subject. Disruptive innovation being diverse and complex, it can be difficult to compute numerical analysis as it is more of an intangible process therefore a qualitative approach is used in this study (Creswell, 2014, p. 74). The qualitative approach, which is adopted for the purpose of this study, is associated with the interpretive paradigm. It involves understanding a phenomenon in its natural setting Yin (2003). A qualitative study emphasises the use of words, rather than statistics to describe social phenomenon and attempts to unearth the deeper meaning and significance of human behaviour and experience Yin (2003). A qualitative research will give us an insight on the phenomena being studied, develop new concepts about a phenomenon and/or ascertain the problem that exists within a phenomenon (Leedy & Ormrod, 2005).

### **3.3. DESIGN**

Principally, the research design creates the foundation of the entire research work. The design will help perform the chosen task easily and in a systematic way (Rajasekar et al., 2006). Research design is also a plan for selecting subjects, research sites, and data collection procedures to answer the research question(s) (Creswell, 2009). The main function of a research design is to provide results that are judged to be credible. The other function of a research design is to ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible. Obtaining relevant evidence entails specifying the type of evidence needed to answer the research question, to test a theory, to evaluate a programme or to accurately describe some phenomenon (Yin, 2003).

The study will take a cross sectional analysis on users. This study takes a "snapshot" of the proportion of individuals in the population for example students (Creswell, 2014). This is an emerging problem, the cross sectional allows us to have a number of views that can make us understand DI on local banks. The interviews will enable us researchers to describe and provide meaning through analysis of the views expressed. Some of the advantages of carrying out a cross sectional study are:

- Data on all variables is only collected once
- It is relatively quick and easy to conduct
- It brings about multiple outcomes and exposures
- It is good for descriptive analyses and for generating hypotheses



### **3.4. DATA COLLECTION**

The research will take qualitative approach using structured interviews. It will interview users of ViPPS in order to understand ViPPS on the marketing point. According to (Turner III, 2010) semi-structured interviews help to highlight themes and aspects to the interviewer where the subject of the matter not be understood by the interviewee. Semi-structured interviews are often preceded by observation, informal and unstructured interviewing in order to allow the researchers to develop a keen understanding of the topic of interest necessary for developing relevant and meaningful semi-structured questions using open ended questions (Bernard, 2000). Qualitative research largely relies on interviews, observations, document review and audio-visual materials as sources of data (Creswell, 2014). Although this can give a lot of information, it will be difficult to transcribe.

According to Bernard (2000) semi-structured interviews also allow informants the freedom to express their views in their own terms. Semi-structure interviews can provide reliable, comparable qualitative data. They also provide valuable information from context of participant's experiences.

The interviews followed an interview protocol (see appendix). The first part of the interview guide was designed to identify the drivers of mobile payments systems. The following parts were designed to identify barriers and responses respectively.

### **3.5. PARTICIPANT SELECTION**

In this research the users of ViPPS will be the respondents. A general observation has been noted on the younger ages (Millennials) using Vipps, this is going to be a pivotal source of information. It is argued that researchers must justify the criteria for selecting particular units in a study (Leedy & Ormrod, 2005). It is important that the research must select the appropriate respondents that will provide accurate and reliable information and enhance the understanding of the phenomenon being studied (Sargeant, 2012) . This is why in this research I used a sample population of 20 users of ViPPS. The users where students that were easily approached at the university campus, who had the mobile application and were already using it. This was convenient and required less protocol as students are willing to assist each other, therefore will be willing to participant in the interviews. (See participant profiling in Chapter 4 (Section 4.2.1).

### 3.5.1. Millennials

The term millennial has been used increasingly of late and it has attracted a lot attention. The term 'millennial' was devised by Neil Howe and William Strauss in 1991. Millennials are broadly classified as individuals born between around mid-1980s to 2000 and are usually expected to have reached adulthood around the turn of the 21st century. They are also commonly termed 'Generation Y', following their predecessors 'Generation X' (Kurian, 2017). Millennials have been termed the 5th generation by KPMG. Millennials have received several names varying with regions and time, In Sweden they are called Generation Curling, Generation Serious in Norway, and Generation John Paul II in Poland. The Chinese call them ken lao zu, or 'the generation that eats the old', and the Japanese termed them, nagara-zoku, and 'the people who are always doing two things at once.'(Ibid).

The study will draw a random sample for interviewing students at the University of Stavanger. This is because of time and resources. In random sampling each member of the population has an equal chance of being selected as respondent. The entire process of sampling is done in a single step with each subject selected independently of the other members of the population. This also follows my own perception that students are more willingly to respond and help to each other's as we all have a common goal to finish studies successfully. Therefore I will approach students in the library, cafeteria and other common places where students are usually found. Turner III (2010) talks about the importance of selecting the right and qualified candidates who can give the most reliable information to the study (Turner III, 2010, p. 50).

### 3.6. DATA ANALYSIS

A Thematic analysis will be followed in this study. It involves identifying emerging patterns from the data and relating it to the things identified in the literature review (Ritchie, 2003). The main themes for the paper are drivers, barriers and responses of banks to mobile payment systems. It offers a useful framework made up of four (4) steps:

1. Familiarization - this is when the researcher listens to the interview transcripts and read notes repeatedly until they are familiar with what is being said by interviewee.
2. Data reduction - where the data is minimized to a few key points. Additionally, this is followed by
3. Pattern matching - the key words are related to the themes identified in the literature review.
4. Write up of the findings is done including stating the key words relevant quotes and a short narrative.

The framework by Ritchie (2003) is also complemented the data structure method by Corley & Gioia (2004) which first categorises the interviews in to first order and then categorising into second order and eventually into aggregate themes identified in the literature (Gioia, 2004, p. 21). The presentation of the findings is aided by a charting method as used in Muringani (2015), followed by selected verbatim comments from the participants and it ends with a narrative discussing the emerging themes (Muringani, 2015). The analysis also guided by the data structure method proposed by Corley and Gioia (2004) for identifying and clustering emerging themes into the main themes guided by the thematic framework developed in the literature review.

### **3.7. ASSUMPTIONS**

The following assumptions were considered in the study:

- The participants are either using or have substantial knowledge of mobile payment methods such as ViPPS.
- The participants are highly skilled employees with adequate knowledge of the banks' products and processes.
- The perceived time and resources are enough to carry out the research.
- The product managers and marketing team know the benefits of the products
- The product managers and marketing team know why people are not using mobile payment methods.

### **3.8. DELIMITATION OF THE STUDY**

Limitations of a study are the weaknesses or flows in the research design.

- The study focus specifically on mobile payment systems and millennials. There is the assumption that millennials is a market that is the primary or with a higher population of users of ViPPS and the related products.
- The study is set in the context of a developed country, Norway. This is my country of residence at the time for study therefore accessibility of data will be easy.
- It looks at innovation from a marketing perspective, whereas a number of studies have looked at innovation from an innovation management perspective, on how firms manage innovation.
- Potential participants are not always to participants. Initially the study proposed to interview employees of DNB but nobody responded to request for interviews.

### **3.9. ETHICAL CONSIDERATIONS**

Research ethics look at nature of agreement that is between the respondents or contacts. This involves getting consent from the contacts and issues around publishing their information to the panels that examine the research as well as publishing as an academic article (Bell, 2010). Therefore in this research was very important to exercise confidentiality and anonymity where it was required. When carrying out interviews, the users where guaranteed of anonymity whereby their names or any personal information was required. The users were also informed that the interview responses where only used for academic purposes.

### **3.10. SUMMARY**

Chapter 4 focussed on the research methodology. A qualitative exploratory cross sectional study of twenty users of a mobile payment system was carried to explore the drivers, barriers and responses to mobile payment systems in Norway. A thematic analysis was used to understand the experience of the respondents to ViPPS. This research methodology was effective and sufficient to explore the main research issue and fulfilling the objectives and aims. The research findings were able to highlight the important information and understand the responses of people in terms of DI in the Norwegian banking sector.

## CHAPTER 4: PRESENTATION OF DATA

### 4.1. INTRODUCTION

Chapter 3 outlined the methods and techniques for collecting and analysing data in exploring the main research issue: The extent to which disruptive innovation is changing the banking industry in Norway. This chapter presents the findings from the interviews of twenty users of ViPPS and the population was represented by students from the University of Stavanger. There is also findings from the KI of ViPPS in Stavanger.

### 4.2. PARTICIPANTS PROFILING

A total of twenty face to face interviews were conducted. The participants were users (Students from UIS) of ViPPS. The students were randomly selected at the campus from the library, cafeteria and different faculty buildings.

#### 4.2.1 Users of mobile payment systems (ViPPS)

Table 1 shows the demography of the users with their gender, age group, level of study and nationality.

**Table 1: Participants Profile**

| User | Gender |        | Age group |       |       |     | Level of study |         |     | Nationality |
|------|--------|--------|-----------|-------|-------|-----|----------------|---------|-----|-------------|
|      | Male   | Female | 18-21     | 22-25 | 26-29 | 30+ | Bachelors      | Masters | PHD |             |
| U1   |        | x      | x         |       |       |     | x              |         |     | Norwegian   |
| U2   |        | x      |           |       | x     |     |                | x       |     | Zimbabwean  |
| U3   |        | x      |           | x     |       |     | x              |         |     | Norwegian   |
| U4   |        | x      |           | x     |       |     | x              |         |     | Norwegian   |
| U5   |        | x      |           | x     |       |     | x              |         |     | Norwegian   |
| U6   |        | x      |           | x     |       |     | x              |         |     | Norwegian   |
| U7   |        | x      | x         |       |       |     | x              |         |     | Norwegian   |
| U8   |        | x      |           |       | x     |     |                | x       |     | Norwegian   |
| U9   | x      |        |           | x     |       |     |                | x       |     | Norwegian   |
| U10  |        | x      |           |       | x     |     |                | x       |     | Swedish     |
| U11  |        | x      |           |       | x     |     |                | x       |     | Norwegian   |
| U12  | x      |        |           | x     |       |     | x              |         |     | Norwegian   |
| U13  |        | x      |           |       | x     |     |                | x       |     | Norwegian   |
| U14  | x      |        |           |       |       | x   |                |         | x   | Italian     |
| U15  | x      |        |           |       |       | x   | x              |         |     | Camerounian |
| U16  |        | x      |           | x     |       |     | x              |         |     | Angolian    |
| U17  | x      |        |           |       | x     |     |                | x       |     | British     |
| U18  |        | x      |           |       | x     |     | x              |         |     | Norwegian   |
| U19  | x      |        | x         |       |       |     | x              |         |     | Norwegian   |
| U20  | x      |        |           |       |       | x   |                | x       |     | Norwegian   |

According to the table above a total of 20 users (U1-U20) were interviewed from the University of Stavanger. There were 7 males and 13 females, with ages ranging from 18 – 30+. The levels of study of the interviewees were bachelors, masters and PHD. The majority of the users were Norwegian and the others were Zimbabwean, Swedish, Italian, Cameroonian, British and Angolan.

### **4.3 PRESENTATION OF RESULTS**

This section presents data collected from informants from DNB bank and twenty users of ViPPS. The presentation of data is guided by three major themes identified in the literature review namely:

1. Drivers of mobile payment systems
2. Barriers of mobile payment systems
3. Responses to mobile payments systems

The results are presented with results of interviews from the users of ViPPS. The presentation of results uses tables generated from Microsoft Excel and narrative format from the interview transcripts. The format follows steps that are mentioned in the methodology section and these are:

- An Introduction of the major theme and this is followed by a narrative description of the sub-themes found from the interviews and an overview of the results.
- Tables that present the interviews in a Table format with an 'x' in the box which indicates comments and statements that correspond to the sub-themes of the main themes and 'U#' which represents the respective respondent.
- A narration looks at the data including some verbatim statements from respondents and the key informants.

### 4.3.1. Drivers of Mobile Payment Systems (ViPPS)

The respondents were asked questions related to the drivers of mobile payment systems in the banking sector in Norway. They responded that the key drivers are; innovation, convenience, social influence, cashless society and customer expectations. The table below shows an overview of their comments as described in 4.3.

**Table 2: Drivers**

| Users | Drivers    |             |                  |                  |           |
|-------|------------|-------------|------------------|------------------|-----------|
|       | Innovation | Convenience | Social Influence | Cashless Society | Customers |
| U1    | x          | x           |                  | x                | x         |
| U2    | x          | x           | x                | x                |           |
| U3    | x          | x           | x                |                  | x         |
| U4    | x          |             | x                | x                |           |
| U5    | x          | x           | x                |                  |           |
| U6    | x          | x           | x                |                  |           |
| U7    |            |             |                  | x                | x         |
| U8    | x          | x           |                  | x                | x         |
| U9    | x          | x           |                  |                  | x         |
| U10   | x          | x           | x                |                  | x         |
| U11   | x          | x           |                  | x                |           |
| U12   | x          | x           |                  |                  |           |
| U13   | x          | x           |                  | x                |           |
| U14   | x          | x           | x                | x                |           |
| U15   | x          | x           | x                | x                |           |
| U16   |            |             | x                |                  |           |
| U17   | x          |             | x                |                  | x         |
| U18   | x          |             | x                |                  | x         |
| U19   | x          |             |                  |                  |           |
| U20   | x          | x           |                  | x                |           |

#### 4.3.1.1. Innovation

The themes presented in Table 1 are discussed individually in their sequential order. This starts with innovation, convenience, social influence, cashless society and ends with customer expectations. The majority of the respondents identified innovation as a key driver to mobile payment systems. Innovation looks into new ideas that become widely used practices. The transcripts showed that most of the users using ViPPS as a new service that has brought about a new revolution to mobile payment systems is various ways. Most of the users expressed the drive by this change from the time it was introduced. The statements captured below responded to what the users were using before ViPPS:

**U2:** *“Here in Norway it’s just a normal bank account you send the money to another person’s account but it is not so long when I stopped transferring money from other people’s accounts because the moment I came here I heard of ViPPS, so I have been using ViPPS for a long time”*

**U9:** *"The old system, just logging into online banking and transferring money which was kind of boring"*

**U20:** *"I used cash or online banking"*

The users indicated that before ViPPS, they used mostly their bank's online system to transfer money or to make payments but when ViPPS was introduced, they shifted from the 'older slow' system to the new payment method. Some users indicated that there was a similar payment system similar to ViPPS but it was not so commonly used as ViPPS. Every user who took part in the interviews had ViPPS and were using it all the time as before they were not using anything related to it.

#### 4.3.1.2. Convenience

A majority of the users also indicated that convenience drove the usage of mobile payment systems. Convenience is how they perceived using the service without any difficulty and saving time that was highlighted in their comments by the key words like 'easy'. The following comments were noted in regards to that;

**U16:** *"It is more difficult, I can ViPPS someone who is not in the same building with me but I cannot give cash to someone right not next to me, it is just easier."*

**U10:** *"ViPPS is easy, I like having to see and track all my money on my phone rather than having cash everywhere. People like it better when you ViPPS them rather than giving them cash because no one wants to hold cash."*

**U11:** *"It is easier to use ViPPS than to carry around cash."*

Almost of the users emphasised how it was rather easy to use ViPPS today rather than the latter way of logging in their online banking in order to transfer money to a friend or to make a payment when they did not have cash with them. While some also mentioned that, they would rather use ViPPS instead of going to the ATM machine to get cash to make a payment or to transfer to a friend.

#### 4.3.1.3 Social Influence

Social influence is another driver that was identified in this research. Many users mentioned that they are using mobile payment systems as it is easier to transact with their friends and family. The key words highlighted in the interviews were, everyone, friends, family and grandparents. Some of this was noted in the following comments;

**U12:** *"I think almost everyone I know uses ViPPS."*

**U13:** *"Yes, almost everyone, even like my grandmother uses ViPPS."*



**U14:** *“My family, friends and most people that have smart phones.”*

Some who had been using ViPPS from inception had very strong beliefs that everyone has adopted the use of ViPPS. The people that were included were friends, family and parents. This could only make sense that they need people around their social groups to be able to use the service.

#### 4.3.1.4 Cashless Society

The results also showed that the respondents are moving towards the cashless society movement. The following inserts are further discussed;

**U17:** *“You can easily over spend when you have cash in your hands. As a student I don’t have the time to go to the ATM and get cash, ViPPS is convenient because I always have my mobile phone with me.”*

**U1:** *“Cash is more problematic, in this modern society we do not really use cash anymore because it more easy to use bank cards or just transfer the money with your phone.”*

**U3:** *“I don’t really carry around cash, I just have the small wallet with my cards. So it is really easy to use my phone sometimes.”*

There were many comments that reflected that users are no longer interested in the use of cash in their daily lives because of mobile payment systems. Instead, they mentioned that ‘everyone’ is using ViPPS and making it a cashless society whereby it is now common to use mobile payment systems instead of the traditional way of using cash. It also reflected how people would rather do everything on their mobile phones and have control of their funds where they easily monitor and track it.

#### 4.3.1.5 Customers

The last key driver that was identified from the users is customer expectations. Customers create demands from the banks that in turn drives the bank to adopt and implement. This shows how the customers are a driver to mobile payment systems and this is seen in the following verbatim;

**U3:** *“They will lose money, it has made them more popular and definitely a customer.”*

**U17:** *“Of course they will lose a customer. As a student we tend to have these small transactions like a paying for tickets that does not require cash. I also can buy stuff when I don’t have my wallet. So if the bank does not have ViPPS anymore they will lose one customer.”*

**U19:** *“They will lose a lot of customers because when I think of ViPPS I associate it with DNB.”*

Most of the users expressed how they thought many customers will be lost if there was absence of mobile payment systems like ViPPS in Norway as such have brought many customers. They were asked, 'Suppose you did not use ViPPs would they lose anything and why?' Other users also expressed their affiliation with the bank due to ViPPS.

#### 4.3.2 Barriers of Mobile Payment Systems

The respondents were asked questions related to the barriers of mobile payment systems in the banking sector in Norway. The results showed that Risk/Security, Transaction and Settlement time, Difficulty and Application are the main barriers to mobile payment systems adoption. Table 3 below shows an overview of their responses.

**Table 3: Barriers**

| Users | Barriers      |                              |            |             |
|-------|---------------|------------------------------|------------|-------------|
|       | Risk/Security | Transaction/ Settlement time | Difficulty | Application |
| U1    | x             | x                            | x          | x           |
| U2    |               | x                            | x          |             |
| U3    |               |                              | x          |             |
| U4    |               |                              | x          |             |
| U5    |               |                              | x          |             |
| U6    | x             |                              |            |             |
| U7    |               | x                            |            |             |
| U8    |               |                              | x          | x           |
| U9    | x             |                              |            | x           |
| U10   | x             |                              |            |             |
| U11   |               |                              | x          |             |
| U12   |               |                              | x          |             |
| U13   |               |                              |            | x           |
| U14   | x             |                              | x          |             |
| U15   |               | x                            |            |             |
| U16   | x             |                              | x          | x           |
| U17   | x             | x                            |            |             |
| U18   | x             |                              |            |             |
| U19   |               | x                            |            | x           |
| U20   |               | x                            |            |             |

##### 4.3.2.1 Risk and Security

Risk and security was one of the barriers that appeared to have been dominant from the respondents. Many of the security issues surrounded users' personal information and issues regarding theft. The key words that were reflected in the comments included safety, risk and fraud. These were identified in the following verbatim;

**U16:** *"Yes definitely but it is so easy, I can take the risk. Someone can rob you because it is internet based if someone hacks my phone and get access to my card information."*

**U10:** *"Has there been any frauds. Is it safe?"*

**U3:** *"...people who get hold of my phone or something. It is just a pin code and they can steal. It is one more way of stealing money or something."*

**U9:** *"More safety barriers and controls to make sure people do not lose their moneys?"*

Many of the users are satisfied with the transition from the use of cash and to the use of mobile payment systems. U20 among a few mentioned how they trust the banks but some raised questions to whether they are safe using the new technology and some mentioning that they do not feel completely safe with mobile payment systems

#### 4.3.2.2 Settlement and Transaction Time

Another key barrier that surfaced in the interviews was settlement and transaction time. There was a concern of users that experience low speed in time of transactions when they want to make payments on the bus or in the school cafeteria. This is evident in the following statements;

**U2:** *"Make transactions clear quicker and if possible get the money immediately if it is from another bank"*

**U15:** *"yes I have two bank accounts and ViPPS is very slow to do a transaction"*

**U17:** *"hmmm maybe the issue that if I transfer money for someone over the weekend, they can only get it on Monday not there and there"*

**U20:** *"Time and speed between banks and transactions"*

There were also a number of users that mentioned that their transactions took longer to reflect to the receiver especially on weekends or across banks. This was a challenge as they expressed that someone could have been in an emergency and want to access send funds immediately or they are in a bus and it takes long before their payment goes through.

#### 4.3.2.3 Application

Application design or access is also another barrier that was raised by users. They found the application not to work efficiently in certain functions, for example on the 'Split bill' where more than one person has to contribute to pay a bill. U19 expressed the need for the application to be faster

when making payments which is also a barrier under settlement time and speed. These are were identified in the following responses;

**U16:** *"Sometimes they have maintenance so the application sometimes is not open"*

**U10:** *"Having the app on the apple watch"*

**U8:** *"make the Split bill function easier"*

The users expressed how they wanted a smooth and running application all the time when there is a need to carry out transactions. U10 said that they wanted to access ViPPS on the apple watch as it is convenient.

#### 4.3.2.4 Difficulty

The last main barrier that was raised in the by users was difficulty. Adoption of mobile payment systems is dependent to the ease of use to a great extent. Absence of this will be a barrier to the adoption of mobile payment systems. Despite the issues of time across banks as well as some that said that it was slow to make payments they were some comments in relation to difficulty.

**U9:** *"May be that it is easy to send money to the wrong people"*

**U2:** *"Sometimes you are stuck and you want to use the money then but you can't access it so it is rather not different from doing an internet transfer"*

U9 said that it the application needs to be easy because it is easily possible to send money to the wrong people when they are complexities. U10 expressed how it is important to be able to access the application all the time, mentioning that sometimes when a user is stuck they need to be rescued with no hitches.

#### 4.3.3 Responses to Mobile Payment Systems

The respondents were also asked questions relating to the responses to mobile payment systems in the banking sector in Norway. Responses in this case are the opposite of barriers that express the users' feelings and attitudes toward their adoption of ViPPS. Some of the responses reflect barriers and drivers in a certain way. Most of the users responded in a positive way towards product but some reflected otherwise. Nevertheless, the results showed that the key findings where related to the Application, Settlement time, Value and Easiness. The table below shows an overview of their responses.

**Table 4: Responses**

| Users | Responses   |                 |       |      |
|-------|-------------|-----------------|-------|------|
|       | Application | Settlement Time | Value | Easy |
| U1    | x           |                 |       |      |
| U2    |             | x               |       |      |
| U3    |             |                 |       |      |
| U4    |             |                 |       |      |
| U5    |             |                 |       | x    |
| U6    |             |                 |       |      |
| U7    |             |                 | x     |      |
| U8    |             |                 |       | x    |
| U9    |             |                 | x     |      |
| U10   |             |                 |       |      |
| U11   |             |                 |       |      |
| U12   |             |                 | x     |      |
| U13   |             |                 | x     | x    |
| U14   |             |                 |       |      |
| U15   | x           |                 | x     |      |
| U16   | x           |                 | x     |      |
| U17   |             | x               |       |      |
| U18   |             | x               |       |      |
| U19   |             | x               |       | x    |
| U20   |             | x               |       |      |

#### 4.3.3.1 Value

When the users were asked on what could be done to the challenges they were facing using ViPPS and their comments regarding mobile payments too they expressed a lot mostly satisfaction that reflected value. In this instance they were mostly satisfied that ViPPS does exactly what it is supposed to do, that is delivering a satisfactory outcome. Under the barriers some of the users did not face any difficulties adopting the system therefore in response they found value in the mobile payment systems. This was highlighted in the following comments;

**U5:** *"...think it is a good thing it makes everything a lot easier than it used to be."*

**U13:** *"I do not know it is easy I cannot remember how we did before ViPPS it is like ViPPS is taking over in Norway."*

**U5:** *"ViPPS is the future."*

The users expressed a huge satisfaction with ViPPS as it made life easier than before and U5 said that it was the future in the mobile payments. U13 similarly expressed great satisfaction in ViPPS.

#### 4.3.3.2 Easiness

The easiness of mobile payment systems was also highlighted in the findings. The users expressed how they found it using compared to the online banking, cash and a previous mobile system that was available before ViPPS. It was also associated with how they wanted to do everything on their mobile phones wherever they were. In respond to the questions mostly used phrases like, 'I like it, it is cool' to mention a few. The following statements indicated this;

**U18:** *"Not really. I love it."*

**U15:** *"it is very good."*

The above statements show that the users find using ViPPS easy and that they like it. This shows that they have responded positively and adopted the use of mobile payments.

#### 4.3.3.3 Settlement time

Settlement time is a response that was key in the findings and it was also key in the barriers to adoption of mobile payment methods. Despite most of the respondents being satisfied to a greater extend with ViPPS some also stated that they wanted transactions to be faster especially on weekends and across banks. Less settlement time will increase convenience to the users and guarantee 100% satisfaction as also mentioned under the barriers. This was captured in the below responses;

**U2:** *"Make transactions clear quicker and if possible get the money immediately if it is from another bank."*

**U18:** *"Better cooperation with other banks."*

Both U2 and U18 mention the problem of settlement time across banks whereby funds take a little longer when transferring from different banks.

#### 4.3.3.4 Application

Some of the responses were also related to the application design, highlighting to the design and certain function. As also mentioned a barrier the users responded that ViPPS could make some improvements for smooth usage. The following comments were captured in light to this;

**U8:** *"Make the Split bill function easier."*

**U16:** *"Better engineers for ViPPS."*

Application design responses were noted from U8 and U16 who want to make some functions faster as well as having better engineers respectively.

#### **4.4 Summary of results**

The chapter reported on the key findings on drivers, barriers and responses of users to mobile payment systems in Norway. Different sub-themes were identified from the interviews with the users and are summarised below.

##### **4.4.1 Drivers of mobile payment systems**

The respondents reported that the innovation, convenience, social influence, cashless society and customer expectations were the key drivers to the adoption of mobile payment systems. Under innovation, the users reported that ViPPS was new and most of them preferred to use it rather than the 'old' way of online banking which was found to be time-consuming. Convenience played a big role in how users preferred to do their payments, mostly highlighting how it was faster in making payments or sending someone smaller amounts of money. Therefore being able to do everything on mobile phones played a pivotal role in the convenience for users. The shift of people from using cash to cashless transactions was also noted. The respondents did not shy away from the fact that they despise to use cash as it is 'old' and they emphasized how it was boring to go to the ATM machine to withdraw cash. Lastly, customer expectations also highlighted how the users believed that they played an important function for the success of mobile payment systems. It was clear that they believed strongly in being customers that support the providers of mobile payment systems. The other drivers that we can note as enablers of mobile payment systems were also identified in the findings and these were branding, technology, risk and flexibility of the applications that are adopted by the mobile payment systems.

##### **4.4.2 Barriers of mobile payment systems**

The key barriers that were identified in the users' reports were risk and security, transaction and settlement time, ease of use and the application design. Risk and security were concerns of the users as they thought it plays an important role in the adoption of the mobile payment systems. Issues of theft and cyber security were reflecting in most of the responses. Despite the fact mobile payment methods being the favourite today, most users showed how it was important for the transactions to

be cleared faster especially across banks and on the weekends. The users also expressed their concerns about the flexibility of the application. The application was said to have been slow in some of the functions for payment as well as issues like fewer options on language and international transactions. This was a barrier also under the ease of use. The other barriers that were also identified were the flexibility of the application, whereby the ability to carry out international transaction was expected of by a user.

#### 4.4.3 Responses to mobile payment systems

Application design, settlement time, value and easiness were identified as the main responses or strategies that can be implemented to facilitate the adoption of mobile payment systems in Norway. Another response that was identified was the issue of risk and security. Despite the drivers and the barriers of mobile payment systems, the overall response was on application design. The users stressed that the birth of the mobile payment systems is the future as it has provided a huge value in their day to day life. It has rather made life easier and convenient for them because it is easy to use despite expressing concerns about the birth of new problems that may arise. Settlement time still remained a concern in the responses as the users would like to have a rather instant payment or transfer across different banks and the weekends.



## **CHAPTER 5: DISCUSSION OF FINDINGS**

This chapter discusses the findings presented in Chapter 4. The discussion is based on the areas covered by the interviews according to the three major themes that are the drivers, barriers and responses of banks to the use of mobile transaction systems. This chapter links to the different theories and literature across themes with the findings from the interviews.

### **5.1 DRIVERS OF MOBILE PAYMENT SYSTEMS**

The study shows that disruptive innovations like mobile banking has drivers, barriers and needs appropriate responses to address the barriers if it is to be successfully adopted and diffused within the market. This is consistent with Roger's theory on diffusion of innovation and this view is also supported by (Everett, 1995; Fichman, 2000; Wonglimpiyarat & Yuberk, 2005). This has been a development from the work of De Tarde (1903) who did work on how technology spreads across the population and also across organisations. Recently, in light of disruptive innovation, the role of the market has been emphasise (Christensen & Raynor 2003). They say that the market segment for new technology is important as it defines the product type, price point as well as demographics. These will help in understanding the clear objectives that drive the customers in what they buy and when they buy a product and services. This rationale on the market framework led to some of the following drivers of users to the adoption of mobile payment systems.

Having a successful implementation of these gives an edge to the successful take off in the adoption of mobile payment systems which is important according to Christensten & Raynor (2003). They say that the market segment for new technology is important as it defines the product type, price point as well as demographics. These will help in understanding the clear objectives that drive the customers in what they buy and when they buy a product and services. This rationale on the market framework led to some of the following drivers of users to the adoption of mobile payment systems.

The results of the interview show that innovation, convenience, social influence, cashless society and customer expectations drive the adoption of mobile payment systems. On the market level most of the users of ViPPS which is the only mobile transaction system in Norway today. The first driver of was innovation which is strongly supported by literature on how it supports the adoption of mobile payments. According to literature innovation has enabled users to have different applications on

their mobile phones for payments (Fung et al., 2012). This actually ensures that the users can have all the information that they like to use on their mobile phone which has provided that shift from the traditional banking. Bolt (2012) mentions how innovation has provided a passage from the past to the future by the birth of new payment methods which is also supported by (Ślązak, 2014). The results showed that most of the users found the old system of getting to the bank or logging in the internet banking boring and time consuming hence they preferred the new mobile payment method (ViPPS). Today most of the users of ViPPS enjoy the new system making payments or transferring funds which is also quite a brand from the old way of logging in the system and entering a lot of information. This is supported by (Carton & Dennehy, 2011), that in the previous decade, innovation was known as something new but today it also encompasses new service offerings and market prices this is also supported by the definition of innovation by Marcelle et al (2013) and Schumpeter (1932). These new processes are the ones also bringing about the disruption of the status quo (Nicolaisen, 2017; Sharma, 2017). Leaving only the elderly and the less privileged members of the society to still enjoy the trips to a banking hall whilst the rest would rather do everything on their own devices (DANISH PAYMENTS COUNCIL, 2016). According to the interviews innovation has brought about easiness on how to do banking compared to the older ways of banking as well as a method which suits a the new generation Y or millennials which has a become a trending market for innovative products (Dyb, 2016; FICO, 2014; Kurian, 2017; Nicolaisen, 2017; Villiers & Codrington, 2016).

The interviews revealed that convenience is important when it comes to mobile payment systems (Kim et al., 2010). The findings showed that some of the users did not mention themes related to convenience. Of those that had something about convenience, they mentioned how it ViPPS was fast in terms of making payments as well as transferring money to friends and family. One of the major themes which was reflected in the responses was how it was easy to this of payment systems comparing it to using the other forms of payment like cash and the previously offered App as well as the online banking Apps. Some of the users expressed how they despised the use of ATMs but rather preferred to do everything on their mobile phones. This is supported by the literature that a good payment system needs to convince the user of its attractiveness whilst offering a value that was not previously not offered(Ślązak, 2014). Barroti (2014) also adds that the consumer demands added convenience especially in the modern day where young people are always on the run and they prefer to do everything on their phones. This is also supported by Oaks who gives an example of buying

coffee in Australia which is the same for literally everywhere, no one wants to stand in a queue or waste a lot of time doing such (Kim et al., 2010; Oaks, 2016).

Literature review points out how social influence plays a very important role in the drive for adoption of technology acceptance. Social influence involves how people, in general, are influenced by the peers around us and how our communication affects our buying decisions and this mostly happens with friends and family (Koenig-Lewis et al., 2015). They also revealed how many people are most likely to make a certain buying decision from the word of mouth recommendations from their peers. Under this, the social environment represents an indirect medium for the adoption of mobile payment systems as such services are normally promoted by opinion leaders which is very important of diffusion of these technologies. The literature is supported by the findings of the research in these regards. The interviews showed that most of the participants were using mobile payments so as their families and friends. It was also evident that all the generation Y had adopted the use of ViPPS and some noted that their grandparents also used it which slightly deviates from the literature of (DANISH PAYMENTS COUNCIL, 2016) which suggested that the senior citizens did not use mobile payment systems. The results showed that even the international students who come to Norway were also quick to adopt the use of mobile payments as they are coming from developing countries in Africa.

Parallel to the literature the cashless society is also driving the adoption of mobile payments systems. It is reported that the Nordic countries are fast moving away from using cash. The use of cash is seen to be costly for banks and retailers that have to hold the cash, the expense moreover arises in the transportation and security (DANISH PAYMENTS COUNCIL, 2016; Nicolaisen, 2017; Ślęzak, 2014; Wheatly, 2017). Wheatly (2017) also reports that 'Cash is Dead' which is seeing the era of cashless society moving at an alarming rate leading continuous talks between the Danish and Norwegian governments. Oaks (2017) adds on that the move from the using of cash is inescapable as most people today find it easy to complete a transaction within less than 15 -30 seconds faster than before and having the ability of doing it on a mobile device is the greatest move by the mobile payment systems (Novatii Innovation for payments, 2015). The results showed that the local people have adopted ViPPS as they do not have to ever go to the ATMs to get cash. Some users stated that they simply do not have the space for cash in their wallets. The drive by the cashless society also means that the users of mobile payments systems have been saved time to go and stand at an ATM to get cash, nevertheless they also feel like cash is hard to manage as one is not able to track their spending (George et al., 2013, p. 19). Often many times one gets a receipt that they can always throw away

but with mobile payment systems like ViPPS one has a one-touch access to their spending history and they can always reconcile with their budgets. On the other hand, it is still important to note that there remain a population whom a paper trail is still extremely important (p.19).

The results in of the interview also showed that customer expectations are a driver to mobile payment systems which is supported by the literature. There are constant expectations rising in the needs of the customers. There is the influence of peers mentioned in literature (Koenig-Lewis et al., 2015; Novatii Innovation for payments, 2015), as people are learning of trends across the globe they feel the need to catch up with the rest of world which simplifies life and bring satisfaction on not only consumer products but in the banking sector as well. Therefore, we see that according to the literature these expectations have opened up opportunities on the banking world as well and in order to stay competitive and retain customers, banks are constantly addressing these needs (Barrotti, 2016; Ruotsila et al., 2015). Addressing these needs, in turn, sets a rough terrain for entrants with similar products and offerings, this is a threat that usually comes from start-ups and local banks have mastered this art by addressing needs as soon as a trend has shaken the globe (FICO, 2014; Pearson, 2016).

## **5.2 BARRIERS OF MOBILE PAYMENT SYSTEMS**

Literature has addressed how the benefits of online banking a decade ago is similar to how mobile payments is viewed today as much as it is bringing a change from the traditional banking in the Norwegian system (Gupta, 2013). In as much as this is a growing trend literature also clearly shows some problems that it is coming along with as well as some barriers that decreases the adoption (Sharma, 2017). Some of these challenges are related to how the market structure is changing as well as some vulnerabilities and risks. The Norwegian market is regarded as digitally savvy therefore a pressure posed on the banks to keep the customers satisfied and at the same time safeguarding the DNA of what banking is, at the same time creating a good customer experience (Lirtsman, 2016). Hung & Chou (2013) state that the common external barriers include the market and technology turbulence is are dependent on the size of the firm.

The interview findings showed that the users were mostly satisfied with mobile payment systems but had concerns regarding the how their personal information was safe. The users also expressed their fears when it comes to theft and fraud which they felt it is likely to be common with such technological services. On the contrary, they had trust with their banks as they thought it tries to

provide a shield against such. This is all supported by literature according to (Hanif et al., 2013; Ślęzak, 2014; Tellez & Zeadally, 2014), that the issue of security in new technology will never be ignored as all new innovations bring about challenges related. Technology as a driver of innovation also becomes a barrier with what it brings. In as much as it is a barrier, it has provided security with its likelihood to decrease fraudulent POS transactions.

Transaction and settlement time is also another barrier that was learnt from the interview of mobile transactions users. A number of users expressed the need of a quicker time when it comes to transactions reflecting the recipient as well as a faster processing time when one is making a payment using the mobile payment system. In cases where one is facing an emergency as well as during weekends when someone cannot necessarily go to the bank. The literature states that as the landscape of banking is changing at an alarming rate, there are regulations in place to protect the DNA of the bank. Unfortunately, problems regarding settlement and transaction will likely to surface as they are also common in other mobile payment systems in other countries like Switzerland, Germany and South Korea (de Albuquerque et al., 2016; Gannamaneni et al., 2015; World Bank Group, 2016). The laws regarding the movement of money from one person to the other remain unchanged and will also get stringent as there is the risk of fraud and theft of the laws are not in place and followed accordingly. The users find this as a barrier as they expect for transactions to be quicker but the fact is that they are being protected by financial systems.

According to scholars, a critical factor when it comes to adoption of mobile payments is ease of use. It is highly impossible that users will not compare a new system to what they were using before which is complemented by psychological issues like trust and security (Arvidsson, 2014; Zhou, 2013). A seamless service and a user-friendly handset are two dimensions that facilitate ease of use for customers, and a challenge to these can easily bring about a barrier to adoption of mobile payments (Thakur & Srivastava, 2014). Adding on to that the users' social network plays a pivotal role in readiness to adopt a new innovation as a word of mouth strongly affects buying decisions. Ease of use was also studied by Kim et al (2014), whereby mobility, convenience and reachability played an important role in the readiness to adopt mobile payment systems. This is supported to a great extent by the findings from the interviews as most of the users found that ViPPS was very easy to use and they did not find any difficulties in using it. It is also supported by the literature that most of the users used this platform with their friends and families. Some users also expressed the need to have ViPPS

sending money to other countries as well as to be able to send larger amounts of money which are rather regulated by the law.

The results of the interview showed that application design was a barrier to adopting mobile payment system. Similar to ease of use from the latter section, some of the features of ViPPS did not work properly as expected. The 'split bill' function is one that some users mentioned to be slow and somewhat complex. This is supported by the literature to a great extent as the design of an application is important for adoption of mobile payments. A mobile payment should be able to have all the functions working with no hitches when it comes to transactions. It is important for convenience as well as satisfaction according to customer expectations. A user finds no need to find alternatives or make efforts to make adaptations (Al-Jabri & Sohail, 2012; George et al., 2013; Thakur & Srivastava, 2014). The results are satisfied by the literature an overall satisfaction was expressed by the users.

### **5.3 RESPONSES TO MOBILE PAYMENT SYSTEMS**

The overall result of responses to mobile payment systems has been positive in Norway due to the drivers addressed in this chapter. According to literature, the innovation in the banking system has been very successful due to the interaction with the end user. Investments and R&D have been of importance as well as collaboration with software houses and technology firms to bring the best for the users in the mobile payment systems (Arnaboldi & Rossignoli, 2015; Fitjar & Rodríguez-Pose, 2014; Iakovleva, 2013, p. 21). Furthermore, studies have shown that innovating banks hold an average larger market share. Adding on to that there is an increase in the number of financial institutions that offer homogenous services. The emergence of sophisticated mobile payment methods have disrupted the banking industry (Nyathira, 2012), and simultaneously an increase in competition through rapid technology.

The interviews showed that users have accepted the use of mobile payments and they are satisfied with settlement time, application design, value and ease of use being the themes that customers feel need to be addressed to a certain extent. One of the questions that the users were asked is what they wanted to be changed from the ViPPS that they are using and very few had the need of seeing any changes. They managed to express how mobile payments provided value to them and it was the future of the banking industry and payments concerns. Users also expressed how ViPPS was easy to use meaning that they had adopted it successfully. The theme of settlement time was also raised as

users responded to the general adoption of mobile payment systems. Lastly, there was the need for some slight improvements in the application design of mobile payment systems.

According to Ślęzak (2014), security stays important in the banking sector as users are concerned with attacks from malicious attacks and information theft when they use mobile devices for banking. Therefore the banks have a responsibility to ensure and teach customers on how to stay protected and safe from such. Graham (2017) suggests that banks must be prepared to fight or go along with the wave of new developments where fighting is accepting them and embracing the new and flight where banks continue to stay to what they know best.

#### **5.4 SUMMARY**

At the market level, the findings also show that disruptive innovation has been embraced by millennials as there is a huge of the influence of peer influence in the adoption of mobile payment systems. The findings show that the drivers of mobile payment systems in Norway are innovation, convenience, social influence, cashless society and customer expectations. These have driven the adoption of mobile payment systems like ViPPS. Furthermore, the study shows that social influence has a huge impact on the adoption of mobile payment systems, particularly peer influence on millennials. Thus technological advancements brought by disruptive innovation and its core evolution with the savvy millennials is driving this shift from traditional banking system to a more digital and cashless society. There are also barriers that have been identified that remain concerns of the users in how they have been responding to the adoption of the mobile payment systems. The barriers addressed are risk/security, transaction and settlement time, and difficulty and application design. The responses from the market included application design, settlement time, value and easiness. These showed that millennials responded to the introduction of mobile payment systems positively. The next chapter proceeds to look at conclusions, recommendations, limitations and areas for future research.

## CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

### 6.1 INTRODUCTION

The study explored how disruptive innovation is changing the banking sector in Norway. Mobile payments systems are the form that was studied in this research using ViPPS as an example. The purpose of this chapter is to summarise the findings and conclusions that can be reached based on the literature and interviews with the users on three main themes that are drivers, barriers and responses.

#### 6.1.1 Main Question

In light of the research problem identified in Chapter 1, this study explored the following main research question:

*What is the extent to which mobile payment systems are changing the banking industry in Norway?*

#### 6.1.2 Research Issues

In exploring the main research issue, the following sub-questions were addressed:

1. What are the drivers of mobile payment systems?
2. How has the banking industry changed because of mobile payment systems?
3. What is the response of the market to mobile payment systems?

As discussed in Chapter 3, semi-structured interviews were conducted involving 20 users of ViPPS. In the next sub-section, the findings of the study are presented. This section summarises findings of the interviews and review of the literature and provides the basis on which conclusions and recommendations for this study are made.



## 6.2 MAJOR FINDINGS

The findings from the study show that millennials have fast adopted mobile payment systems. The changes in time have driven this adoption. The change has been brought about by innovation. Disruptive innovation has shifted the users from the traditional banking methods towards the use of new methods of banking. Mobile payment systems have had a huge impact on the millennials as they prefer to do everything on their mobile devices. According to the results of the research doing banking and making use of mobile devices is convenient for users. It has also been said to be more exciting than the older way of using online banking where you will need to enter a lot of information.

The main drivers for mobile payments identified from the research where innovation, convenience, social influence, cashless society and customer expectations. The findings confirm that social influence played a big role in the influence of users to adopt mobile payment systems. All the users highlighted that friends and family are also using the mobile payment systems. Everyone was using Vipps making it very popular in Norway, it is dominating on the market as the majority of people are using it with no other alternatives. The use of ViPPS has definitely driven the cashless society as the majority of people see no need to have cash with them.

The main barriers identified by the research are risk/security, transaction and settlement time, and difficulty and application design. Generally, the users where satisfied with mobile payment systems in Norway but there were some concerns regarding security and risk. The issue of transaction time surfaced as the users expected faster transactions.

The general response to mobile payment systems has been positive as the users highlighted more benefits than challenges. Despite having concerns about security and flexibility on the application design users trust and feel that mobile payments vendors have surpassed expectations of the customers. The availability of restrictions to send larger amounts by regulations has not been understood by some users but nevertheless, there is value in the use of mobile payment systems.

In conclusion, mobile payment systems have changed the Norwegian banking system to a large extent. To a lesser extent, we still have the older generations who prefer going to the bank as well as the ATMs for banking and cash, respectively (DANISH PAYMENTS COUNCIL, 2016). The dominant use of ViPPS shows how millennials are now shying away from the traditional way of banking to a more innovative modern way. Banks have also provided the best infrastructure to meet the high demands

of customer expectations. The banks have also gained trust from users as they feel the systems are efficient and they can worry less. Users are the targets of new innovative products and services. Therefore, their satisfaction is of importance to the banks and this has been the case they were happy with the mobile payment systems.

### **6.3 RECOMMENDATIONS**

Based on the findings, the following are some of the recommendations;

- Banks should provide more assurance and educate customers on issues of security and risk
- Banks should continue to interact with the customer to get more information on needs and desires that can be translated into innovative ideas
- Policy makers and the government should maintain the position on settlement and transfer regulations to ensure less money laundering and crime
- The government should provide more platforms that support innovation

### **6.4 LIMITATIONS**

The limitations of the study are highlighted as follows

- The study was cross-sectional. It was limited to 20 users of ViPPS due to time limits posed by the nature of the study and is therefore not representative of all users.
- Response from ViPPS was unsuccessful. I intended to get key informants from DNB and/or ViPPS to get more information from the product developers and marketing team on the same things studied on users.
- The research is a qualitative study and is limited to some elements of theory building, specifically to explore the nature adoption of mobile banking apps
- The interviews were only carried out with students from UiS for convenience.
- The research only focused on Norway

### **6.5 FURTHER RESEARCH**

This research focused on the market perspective of disruptive innovation, future research can also look at the firm's perspective of innovation.

Future research should consider a wider demographic profile and other countries and regions of the world.

Future research could consider wider cross-sectional studies involving many banks and participants to allow for generalisability of the findings.

Future research could expand to understand how this happens through an explanatory case study. In addition, a quantitative research could test theory and help uncover the effect of drivers, barriers and responses on mobile banking apps.

## LIST OF REFERENCES

- Adractas, M., Bruno, P., Denecker, O., Gazarian, V., Miura, K., & Rajgopa, K. (2011). The road to mobile payments services. Retrieved from [https://www.mckinsey.com/~media/mckinsey/dotcom/client\\_service/financial%20services/latest%20thinking/reports/the\\_road\\_to\\_mobile\\_payments\\_services.ashx](https://www.mckinsey.com/~media/mckinsey/dotcom/client_service/financial%20services/latest%20thinking/reports/the_road_to_mobile_payments_services.ashx)
- Akhavein, J., Frame, W. S., & White, L. J. (2005). The diffusion of financial innovations: An examination of the adoption of small business credit scoring by large banking organizations. *The Journal of Business*, 78(2), 577-596.
- Al-Jabri, I., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory.
- Amith, C., Amit, K., & Avinash, S. (2017). Top 10 Trends in Banking. *Top 10 Trends in Banking – 2017 :What You Need to Know*. Retrieved from Top 10 Trends in Banking – 2017 What You Need to Know website: [https://www.capgemini.com/wp-content/uploads/2017/07/banking\\_trends\\_2017\\_web\\_version.pdf](https://www.capgemini.com/wp-content/uploads/2017/07/banking_trends_2017_web_version.pdf)
- Arnaboldi, F., & Rossignoli, B. (2015). Financial innovation in banking. In *Bank Risk, Governance and Regulation* (pp. 127-162): Springer.
- Arnold, C., & Hamilton, M. *Disruptive Innovation*. Retrieved from <http://thecis.ca/wp-content/uploads/2016/05/Disruptive-Innovation.pdf>
- Arvidsson, N. (2014). Consumer attitudes on mobile payment services—results from a proof of concept test. *International Journal of Bank Marketing*, 32(2), 150-170.
- Barrotti, A. (2016). Mobile Payments: Innovation For Improved Efficiency And Customer Convenience. *Tech*
- Beccalli, E. (2007). Does IT investment improve bank performance? Evidence from Europe. *Journal of banking & finance*, 31(7), 2205-2230.
- Bech, M. L., & Hobijn, B. (2006). Technology diffusion within central banking: the case of real-time gross settlement.
- Bell, J. (2010). *Doing Your Research Project* (5th ed.). England: Open University Press - McGraw Hill.
- Benner, M. J., & Tushman, M. L. (2015). Reflections on the 2013 Decade Award—“Exploitation, exploration, and process management: The productivity dilemma revisited” ten years later. *Academy of management review*, 40(4), 497-514.
- Bernard, R. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage publications.
- BNY. (2015). *Innovation in Payments: The Future is Fintech* Retrieved from <https://www.bnymellon.com/global-assets/pdf/our-thinking/innovation-in-payments-the-future-is-fintech.pdf>
- Bolt, W. (2012). Retail payment systems: Competition, innovation, and implications.
- Booth, P., Cabrillo Rodríguez, F., Castaneda, J. E., Chown, J., Dannhauser, J., Dowd, K., . . . Minford, P. (2013). The Euro—The Beginning, the Middle... and the End?
- Boston Consulting Group, & Google India. (2016). *Digital Payments 2020*. Retrieved from India [http://image-src.bcg.com/BCG\\_COM/BCG-Google%20Digital%20Payments%202020-July%202016\\_tcm21-39245.pdf](http://image-src.bcg.com/BCG_COM/BCG-Google%20Digital%20Payments%202020-July%202016_tcm21-39245.pdf)
- Carton, F., & Dennehy, D. (2011). Value proposition and innovation in financial services: the case of mobile payments.
- Chesbrough, H. (2010). Business model innovation: opportunities and barriers. *Long range planning*, 43(2-3), 354-363.
- Christensen, C. (2012). Disruptive Innovation. Retrieved from <http://www.claytonchristensen.com/key-concepts/>
- Christensen, C. M. (1997). *The Innovator’s Dilemma*. Business (Vol. 1). Harvard Business School Press.
- Christensen, C. M., & Raynor, M. E. (2003). The innovator’s solution: Using good theory to solve the dilemmas of growth. *Harvard Business School Press, Boston*.

- Corley, K. G., & Gioia, D. A. (2004). Identity ambiguity and change in the wake of a corporate spin-off. *Administrative science quarterly*, 49(2), 173-208.
- Courchane, M., Nickerson, D., & Sullivan, R. (2002). Investment in internet banking as a real option: theory and tests. *Journal of Multinational Financial Management*, 12(4-5), 347-363.
- Creswell, J. W. (2009). Mapping the field of mixed methods research. In: SAGE Publications Sage CA: Los Angeles, CA.
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*: Sage Publications.
- DANISH PAYMENTS COUNCIL. (2016). *REPORT ON THE ROLE OF CASH IN SOCIETY*. Retrieved from [https://www.nationalbanken.dk/en/bankingandpayments/danish\\_payments\\_council/Documents/Report\\_on\\_the\\_role\\_of\\_cash\\_in\\_society.pdf](https://www.nationalbanken.dk/en/bankingandpayments/danish_payments_council/Documents/Report_on_the_role_of_cash_in_society.pdf)
- Danneels, E. (2004). Disruptive Technology Reconsidered: A Critique and Research Agenda. *The of Product Innovation and Management*, 21, 246–258.
- Das, P., Verburg, R., Verbraeck, A., & Bonebakker, L. (2018). Barriers to innovation within large financial services firms: An in-depth study into disruptive and radical innovation projects at a bank. *European Journal of Innovation Management*, 21(1), 96-112.
- de Albuquerque, J. P., Diniz, E. H., & Cernev, A. K. (2010). Mobile payments: A scoping study of the literature and issues for future research. *Information Development*, 32(3), 527-553.
- de Albuquerque, J. P., Diniz, E. H., & Cernev, A. K. (2016). Mobile payments: A scoping study of the literature and issues for future research. *Information Development*, 32(3), 527-553.
- Dearing, A. (2010). Sustainable Innovation: Drivers and Barriers. *World Business Council for Sustainable Development*. Retrieved from <https://www.oecd.org/innovation/inno/2105727.pdf>
- Deloitte. (2015). *Real-time payments are changing the reality of payments*. Retrieved from
- DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of personality and social psychology*, 93(5), 880.
- Ding, M., & Hampe, J. F. (2003). Reconsidering the challenges of mpayments: A roadmap to plotting the potential of the future mcommerce market. *BLER 2003 Proceedings*, 49.
- Dyb, P. O. (2016). *Innovation Norway in 2016*. Retrieved from Oslo: [https://www.unglobalcompact.org/system/attachments/cop\\_2017/406471/original/MyReport.pdf?1501168611](https://www.unglobalcompact.org/system/attachments/cop_2017/406471/original/MyReport.pdf?1501168611)
- EEA Grants. (2018). THE EEA AND NORWAY GRANTS. *Who we are*. Retrieved from <https://eeagrants.org/Who-we-are>
- Everett, R. M. (1995). Diffusion of innovations. *New York*, 12.
- Fichman, R. G. (2000). The diffusion and assimilation of information technology innovations. *Framing the domains of IT management: Projecting the future through the past*, 105-127.
- FICO. (2014). *Millennial Banking Insights and Opportunities*. Retrieved from <http://www.fico.com/millennial-quiz/pdf/fico-millennial-insight-report.pdf>
- Finanstilsynet. (2018, 21 February 2018). Finanstilsynet. Retrieved from <https://www.finanstilsynet.no/en/about-finanstilsynet/>
- Fitjar, R. D., & Rodríguez-Pose, A. (2013). Firm collaboration and modes of innovation in Norway. *Research Policy*, 42(1), 128-138.
- Fitjar, R. D., & Rodríguez-Pose, A. (2014). The geographical dimension of innovation collaboration: Networking and innovation in Norway. *Urban Studies*, 51(12), 2572-2595.
- Fung, B. S., Huynh, K. P., & Sabetti, L. (2012). *The impact of retail payment innovations on cash usage*. Retrieved from
- Gannamaneni, A., Ondrus, J., & Lyytinen, K. (2015). *A post-failure analysis of mobile payment platforms*. Paper presented at the System Sciences (HICSS), 2015 48th Hawaii International Conference on.
- Garret, O. (2017). The 4 Best P2P Lending Platforms For Investors In 2017 -- Detailed Analysis. *Investing* Retrieved from <https://www.forbes.com/sites/oliviergarret/2017/01/29/the-4-best-p2p-lending-platforms-for-investors-in-2017-detailed-analysis/#77fab05a52ab>
- George, M., Lennard, L., & Scribbins, K. (2013). *Mobile Payments: Problem or Solution?* Retrieved from Surrey [https://www.finextra.com/finextra-downloads/featuredocs/mobile\\_payments\\_report.pdf](https://www.finextra.com/finextra-downloads/featuredocs/mobile_payments_report.pdf)

- Government.no. (2015). The Central Bank of Norway (Norges Bank). Retrieved from <https://www.regjeringen.no/en/dep/fin/about-the-ministry/etater-og-virksomheter-under-finansdepartementet/Related-Institutions/Central-Bank-of-Norway/id213276/>
- Graham, A. (2017). Fintech and Banks: How Can the Banking Industry Respond to the Threat of Disruption? Retrieved from <https://www.toptal.com/finance/investment-banking-freelancer/fintech-and-banks>
- Gupta, S. (2013). The mobile banking and payment revolution. *European Financial Review*, 2, 3-6.
- Hanif, R., Masood, A., & Azhar, S. (2013). Adoption Barriers for Disruptive Technology-B. Framework.
- Hannan, T. H., & McDowell, J. M. (1984). The determinants of technology adoption: The case of the banking firm. *The RAND Journal of Economics*, 328-335.
- Hannan, T. H., & McDowell, J. M. (1990). The impact of technology adoption on market structure. *The Review of Economics and Statistics*, 164-168.
- Hung, K.-P., & Chou, C. (2013). The impact of open innovation on firm performance: The moderating effects of internal R&D and environmental turbulence. *Technovation*, 33(10-11), 368-380.
- Iakovleva, T. (2013). Open innovation at the root of entrepreneurial strategy: A case from the Norwegian oil industry. *Technology Innovation Management Review*, 3(4), 17.
- Integrated Reporting. (2017). *Innovation in banking are we communicating the value created?* Retrieved from [http://integratedreporting.org/wp-content/uploads/2014/09/Innovation-in-banking.IR-NETWORK.Final\\_April2017.pdf](http://integratedreporting.org/wp-content/uploads/2014/09/Innovation-in-banking.IR-NETWORK.Final_April2017.pdf)
- KEMP, S. (2017). DIGITAL IN 2017: GLOBAL OVERVIEW. *We are social*. Retrieved from SIMON KEMP
- Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310-322.
- Koenig-Lewis, N., Marquet, M., Palmer, A., & Zhao, A. L. (2015). Enjoyment and social influence: predicting mobile payment adoption. *The Service Industries Journal*, 35(10), 537-554.
- Kurian, S. (2017). *Meet the Millennials*. Retrieved from <https://home.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/Meet-the-Millennials-Secured.pdf>
- Lazonick, W., & Mazzucato, M. (2013). The risk-reward nexus in the innovation-inequality relationship: who takes the risks? Who gets the rewards? *Industrial and Corporate Change*, 22(4), 1093-1128.
- Leedy, P. D., & Ormrod, J. E. (2005). *Practical research*: Pearson Custom.
- Lirtsman, A. (2016). Navigating disruptive innovation in financial services. *Mobile PAYMENTS TODAY*, (34). Retrieved from <https://www.mobilepaymentstoday.com/articles/navigating-disruptive-innovation-in-financial-services/>
- Markides, C. (2006). Disruptive innovation: in need of better theory. *Journal of Product Innovation Management*, 2, 19-25.
- Mazzucato, M. (2013). Financing innovation: creative destruction vs. destructive creation. *Industrial and Corporate Change*, 22(4), 851-867.
- Merbecks, A., & Bruck, C. (2017). *Who will be the winners in the mobile payments battle?* Retrieved from <https://www.bearingpoint.com/files/BEI002-Who-will-be-the-winners-in-the-Mobile-Payments-battle.pdf&download=0&itemId=388629>
- Mobgen. (2015). THE MOBILE PAYMENTS LANDSCAPE AND ITS OPPORTUNITIES. *MOBILE PAYMENTS: THE FUTURE OF PAYMENT*. Retrieved from [https://www.accenture.com/t20160708T043705\\_w\\_us-en/acnmedia/PDF-25/Accenture-Acquires-Mobgen-Expand-European-Mobile-Payment-UK.pdf](https://www.accenture.com/t20160708T043705_w_us-en/acnmedia/PDF-25/Accenture-Acquires-Mobgen-Expand-European-Mobile-Payment-UK.pdf)
- Muringani, J. (2015). *Innovation strategies of small firms in South Africa*.
- Nagy, D., Schuessler, J., & Dubinsky, A. (2016). Defining and identifying disruptive innovations. *Industrial Marketing Management*, 57, 119-126.
- Nickel, D. (2015a). Mobile Payments. *Life in Norway*. Retrieved from <https://www.lifeinnorway.net/mobile-payments/>
- Nickel, D. (2015b). Norway's DNB was inspired by Danish bank for new app. Retrieved from <http://www.computerweekly.com/news/4500248821/Norways-DNB-look-to-Denmark-with-new-payments-app>
- Nicolaisen, J. (2017). *CHALLENGES FOR THE PAYMENT SYSTEM*. Paper presented at the Finance Norway's payments conference, Oslo.

- Nordic. (2017). Vipps, the Norwegian payment service owned by DNB, gets spunoff, owned by 106 banks. Retrieved from <https://nordic9.com/news/vipps-the-norwegian-payment-service-owned-by-dnb-gets-spunoff-owned-by-106-banks-news8904750487/>
- Novatii Innovation for payments. (2015). Mobile Payment Drivers Retrieved from <http://www.novatti.com/mobile-payment-drivers-8-05-2015/>
- Nyathira, N. C. (2012). Financial innovation and its effect on financial performance of commercial banks in Kenya. *Unpublished MBA project, University of Nairobi*.
- O'Sullivan, D., & Dooley, L. (2008). *Applying innovation*: Sage publications.
- Oaks, J. (2016). The Future of Mobile Payments and a Cashless Society. Retrieved from <https://www.socialmediatoday.com/technology-data/future-mobile-payments-and-cashless-society>
- OECD. (2002). *Peer to Peer*. Retrieved from Paris:
- Parida, V., Sjödin, D. R., Lenka, S., & Wincent, J. (2015). Developing global service innovation capabilities: How global manufacturers address the challenges of market heterogeneity. *Research-Technology Management, 58*(5), 35-44.
- Pearson, M. (2016). *Innovation in Retail Banking*. Retrieved from file:///C:/Users/238276/Downloads/efma-innovation-report-2016.pdf
- Raina, V. (2014). Overview of mobile payment: technologies and security. *Banking, Finance, and Accounting: Concepts, Methodologies, Tools, and Applications: Concepts, Methodologies, Tools, and Applications*, 180.
- Rajasekar, S., Philominathan, P., & Chinnathambi, V. (2006). Research methodology. *arXiv preprint physics/0601009*.
- Ramezani, E. (2008). Mobile payment. *Lecture E-Business Technologies, BCM1*.
- Reinstaller, A. (2013). *An evolutionary view on social innovation and the process of economic change*. Retrieved from
- Ritchie, J. (2003). The applications of qualitative methods to social research. *Qualitative research practice: A guide for social science students and researchers, 24*, e46.
- Ruotsila, I., Ekdahl, P., & Vitali, D. (2015). Digital disruption in Nordic retail banking. Retrieved from [https://www.accenture.com/t20150924T055551\\_w\\_/se-en/acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy\\_7/Accenture-Digital-Disruption-Nordic-Retail-Banking-Study.pdf](https://www.accenture.com/t20150924T055551_w_/se-en/acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy_7/Accenture-Digital-Disruption-Nordic-Retail-Banking-Study.pdf)
- Sargeant, J. (2012). Qualitative research part II: Participants, analysis, and quality assurance. In: The Accreditation Council for Graduate Medical Education Suite 2000, 515 North State Street, Chicago, IL 60654.
- Sharma, V. (2017). 2017 Year of Digital Payments. Retrieved from <https://www.finextra.com/blogposting/13501/2017-year-of-digital-payments>
- Ślązak, E. (2014). Adoption of Innovation in Mobile Payments-Financial Viability Prerequisites for Banks. *Studia Ekonomiczne, 186*, 138-149.
- Stähli, M. (2017). What do millennials in Europe want from digital banking? Retrieved from <https://www.linkedin.com/pulse/what-do-millennials-europe-want-from-digital-banking-marc-st%C3%A4hli/>
- Statistica. (2016). Number of smartphone users in Norway from 2014 to 2021 (in millions). Retrieved from <https://www.statista.com/statistics/494647/smartphone-users-in-norway/>
- TCS. (2018). DNB Revolutionizes Payments in Norway. Retrieved from <https://www.tcs.com/vipps-enabling-dnb-to-enhance-branding-laying-foundation-for-future>
- Tellez, J. I., & Zeadally, S. (2014). Secure Mobile Payment Systems. *IT Professional, 16*(3), 36-43. doi:10.1109/MITP.2014.40
- Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research, 24*(3), 369-392.
- The Nordic Page Norway. (2017). Norway Could Be The World's First Cash-Free Country. Retrieved from <https://www.tnp.no/norway/economy/5464-norway-could-be-the-worlds-first-cash-free-country>

- Tidd, J. (2010). From models to the management of diffusion. *Gaining momentum: Managing the diffusion of innovations*, 3-45.
- Tidd, J., Bessant, J., & Pavitt, K. (2005). *Managing innovation integrating technological, market and organizational change*: John Wiley and Sons Ltd.
- Tidebrant, P., Arvidsson, N., & Laestadius, S. (2013). *Disruptive innovation in the Swedish payment market: A supply-side perspective*.
- Turner III, D. W. (2010). Qualitative interview design: A practical guide for novice investigators. *The qualitative report*, 15(3), 754.
- Villiers, R. d., & Codrington, G. (2016). *FinTech & The Disruption Of Banking*. Retrieved from [http://www.richmondevents.com/getattachment/news/June-2016-\(1\)/FinTech---The-Disruption-of-Banking/Fintech---The-Disruption-of-Banking,-TomorrowToday.pdf.aspx%3B.txt%3B.html%3B](http://www.richmondevents.com/getattachment/news/June-2016-(1)/FinTech---The-Disruption-of-Banking/Fintech---The-Disruption-of-Banking,-TomorrowToday.pdf.aspx%3B.txt%3B.html%3B)
- ViPPS. (2018). Terms Privacy / Terms and conditions. Retrieved from <https://www.vipps.no/vilkar/vilkar-privat>
- Webster, I., & Pizzala, J. (2015). *Fintech: Are banks responding appropriately?* Retrieved from
- Wessel, M., & Christensen, C. M. (2012). Surviving disruption. *Harvard Business Review*, 90(12), 56-64.
- Wheatly, A. (2017). *CASH IS DEAD, LONG LIVE CASH*. Retrieved from <https://www.imf.org/external/pubs/ft/fandd/2017/06/pdf/wheatley.pdf>
- Windh, J. (2011). Peer-to-peer payments: Surveying a rapidly changing landscape *Federal Reserve Bank of Atlanta*.
- Wonglimpiyarat, J., & Yuberk, N. (2005). In support of innovation management and Roger's Innovation Diffusion theory. *Government Information Quarterly*, 22(3), 411-422. doi:<https://doi.org/10.1016/j.giq.2005.05.005>
- World Bank Group. (2016). *Payment aspects of financial inclusion* Retrieved from <https://www.bis.org/cpmi/publ/d144.pdf>
- Yin, R. K. (2003). Applications of case study research. Applied social research methods series. *Thousand Oaks: Sage Publications*.
- Yu, KH (2013). *Institutionalization in the context of institutional pluralism: Politics as a generative process*, *Organization Studies*, 34(1), 105-131.
- Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems*, 54(2), 1085-1091. doi:<https://doi.org/10.1016/j.dss.2012.10.034>



# APPENDIX

## APPENDIX 1: PROJECT PLAN

Figure 5 below is the project plan for the thesis. It shows the task and the expected time for the task to be finished. It also shows the final date for submission of the thesis.

Figure 5

| THEESIS TIME PLAN                    |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
|--------------------------------------|---|----|----|----|----------|----|----|----|-------|----|----|-----|-------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|--|
| ACTIVITY                             |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Month                                | January   |    |    |    | February |    |    |    | March |    |    |     | April |     |     |     | May |     |     |     | June |     |     |     |     |     |     |  |
| Week                                 | W1  | W2 | W3 | W4 | W5       | W5 | W6 | W7 | W8    | W9 | W9 | W10 | W11   | W12 | W13 | W14 | W15 | W16 | W17 | W18 | W19  | W20 | W21 | W22 | W22 | W23 | W24 |  |
| Background Reading                   | █   | █  | █  | █  | █        |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| First Meeting                        |   | █  |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Thesis Proposal                      |   |    |    | █  | █        | █  | █  | █  | █     | █  |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Literature Review                    |   |    |    | █  | █        | █  | █  | █  | █     | █  |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Research Methods Planning            |   |    |    |    |          |    |    |    |       |    | █  | █   | █     |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Data Collection                      |   |    |    |    |          |    |    |    |       |    |    |     |       | █   | █   | █   |     |     |     |     |      |     |     |     |     |     |     |  |
| Supervisor update on Feedback        |   |    |    |    |          |    |    |    |       |    |    |     |       |     | █   |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Data Analysis                        |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     | █   | █   | █   |     |      |     |     |     |     |     |     |  |
| Submit Draft work                    |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     | █   |     |      |     |     |     |     |     |     |  |
| Discussion of Findings               |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     | █   | █    | █   | █   |     |     |     |     |  |
| Final Draft Write up                 |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     | █    | █   | █   | █   | █   |     |     |  |
| Submit Draft for update and feedback |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     | █   | █   |     |  |
| Print and Binding                    |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     | █   | █   |  |
| Final Submission                     |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     | █   |  |
| Comments                             | Consultation with the supervisor was done when needed               |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
|                                      | Initial contact with supervisor was done prior to the first meeting |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Key                                  |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Planning phase                       |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |
| Execution                            |   |    |    |    |          |    |    |    |       |    |    |     |       |     |     |     |     |     |     |     |      |     |     |     |     |     |     |  |

The key activities for the thesis according to the plan are:

- Meeting with the supervisor to discuss the topic and approach (Done)
- Research proposal (Done)
- Literature Review (In progress)
- Data collection (Scheduled for March)
- Data analysis (Scheduled for March)
- Final write up and Submission (scheduled from April – May)
- Consultation with the supervisor in between all the activities

## **APPENDIX 2: INTERVIEW GUIDE FOR USERS**

Interviewer(s): Vincent Muzondo

Interviewee: Name of Student

NB: Your name will NOT be part of any publication here – and I will use this information in a way which does not allow identification of them!

Date and time:

### **Protocol**

1. My name is Vincent Muzondo
2. The purpose of this interview is an academic research to investigate *the extent to which mobile payment systems are affecting the banking sector today in Norway*. It is part of my thesis to complete *Master of Science in Business Administration at UiS*.
3. This interview will be completely anonymous.
4. I will record the interview for content analysis.

### **Drivers**

1. Have you heard of ViPPS and do you use it?
2. Before ViPPS what were you using?
3. Suppose you did not use ViPPS would they lose anything and why?
4. Do you have any other alternatives for ViPPS? And what are they?
5. Why do you not use cash instead of ViPPS?
6. Have you considered that it might be unsafe in some way to use ViPPS?

### **Barriers**

1. What is it that you find difficult about using ViPPS?
2. What can be done/changed to improve ViPPS?
3. Do you know any other people in your circles using ViPPS? What is the relationship with this people?

### **Responses**

1. What can be done to address the challenges you face using ViPPS?

2. Why do you say so?
3. Are there challenges you face related to ViPPS?

Do you have any questions to ask?

Is there anything else you would like to add regarding ViPPS and mobile payments?

***Thank you very much for your time***