

# How banks and fintechs create and capture value with mobile payment via their business value network: A value network case study of ING's Mobiel Betalen and WeChat Pay's Quick Pay.

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*Network value analysis of mobile payment solutions has shown that in order to deliver value and create the service, a network of partners is required. Solutions of different providers, banks and fintechs, have shown that both have similar network partners in place. Common partners among mobile payment solutions are banks or actors with a payment license, smartphone manufacturers, stores, merchants and generally places that accept mobile payments. Depending on the technology that got chosen by the payment provider, further actors are part of the network. All actors within the network receive their own individual value by being part of the network. Mobile payment solutions that make use of quick response (QR) codes for payments are easier to facilitate than payment solutions that make use of near field communication (NFC). This is due to that users and merchants simply need a unique QR code that is connected to their mobile payment account, while payment solutions that make use of NFC technology need payment terminals that facilitate contactless payments as well as a suitable smartphone. By limiting the payment solution to only certain smartphones, payment terminals and operating systems, providers limit their potential user base. Even though multiple network partners of the fintech and bank payment solution got distinguished, some value chain elements still remain, as the parent companies of both take on multiple task and functions of the network. Nonetheless, without the networks in place, banks and fintechs cannot deliver value as crucial parts that are needed for delivering the service and making the product work are done by other actors within the network.*

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## Keywords

Mobile payment, business value network, network value analysis, bank, fintech

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# 1. INTRODUCTION

## 1.1 Background

Prior research on mobile operators found that operators are not able to work isolated, without any partners, anymore, if they want to provide content and services that customers increasingly demand (Peppard & Rylander, 2006); (Li & Whalley, 2002)). This has changed the value chains of the telecommunication industry into value networks. In order to transition, it “requires that network operators embrace the value network concept and its implications” (Peppard & Rylander, 2006, p. 134). Within the value network, all functions occur simultaneously as opposed to in a chain, sequentially, within the value chain concept (Stabell & Fjelstad, 1998). In value chains, “The focal of the value chain is the end product and the chain is designed around the activities required to produce it” (Peppard & Rylander, 2006, p. 131). Every company in the network has a certain position within the chain, “Upstream suppliers provide inputs before passing them downstream to the next link in the chain, the customer” (Peppard & Rylander, 2006, p. 131). Value chains were used for portraying physical activities and linkages in traditional industries. Since services and products increasingly lose its physical dimension, the value chain becomes an obsolete concept for analyzing industries and value sources (Normann & Ramirez, 1994). Especially the digitalization of companies has resulted in value chains becoming multi-dimensional and increasingly more complex, which resulted into the transition to value networks (Bortenschlager, 2014). Actors within a network act rather autonomous and are managed independently, but work together towards a common goal and under the same service level agreements (Peppard & Rylander, 2006). Firms should try to engage in networks and only if there is a clear benefit for not engaging in one they should keep all their functions and activities within their own company (Hagel & Singer, 1999). The key to understanding how value gets created within a network lies in getting to know how value occurs within the relationships of the network partners (Blankenburg Holm, Eriksson, & Johanson, 1999). Firms need to have a network of partners, with whom together they create a product or service that adds value for the customers (Iansiti & Levien, 2004). When a network gets analyzed, its elements get put in their right context and it can be helpful for guiding how the business model should be developed or improved. All players must be included in the network, such as the customers, allies, complementors, suppliers, and competitors who are located within the network and have the power to influence the value creation (Peppard & Rylander, 2006).

Peppard and Rylander (2006) predicted 12 years ago that customers will be able to do banking and make purchases with a handheld device. They expected that mobile operators would not be the ones who would develop such products and services but multiple actors would build an ecosystem to co-create value and offer such services instead.

This thesis will focus on the mobile payment solutions by two case companies, ING's Mobil Betalen and WeChat Pay's Quick Pay. It will get analyzed whether the mobile payment sector of the banking industry has undergone the same changes to a value network as the telecommunication industry did in the past.

The payment market facilitates collaboration among various stakeholders, “where change frequently is achieved by consensus and joint efforts rather than an innovation arm race” (Hedman & Henningsson, 2015, p. 306). Therefore, it will be investigated whether there was also a change from a value chain to a value network with various actors being involved to create the ecosystem that facilitates a mobile payment solution. Mobile payment solutions emerged in the past few years. The quick

adoption of smartphones in the past decade has resulted in mobile applications for various tasks and industries across all sectors. The Netherlands has a smartphone penetration rate of 87% in 2016, with a tendency to rise even further (Deloitte, 2016). On top of that, the recent rise of disrupting fast-moving financial technology firms (fintechs), who focus on innovative technology to redefine the financial industry such as insurance and especially payments (PWC, 2016) shift the society from cash or card-based payments to mobile payments (Turvey, 2017).

“The introduction of mobile payments is one of many innovations that are changing the payment market” (Hedman & Henningsson, 2015, p. 305). Mobile payment is a way of payment where money gets transferred from one party to another via a mobile phone. The mobile payment application usually is connected to a bank account from which the money will get transferred (Staykova & Damsgaard, 2015).

Such mobile payment solutions enable the user to pay via their smartphone by e.g. scanning a quick response code (QR-code) in a store with a smartphone, a method that e.g. WeChat Pay Quick Pay employs, or via near field connection (NFC), by holding the smartphone close to the payment terminal, which is a technology that ING makes use of (PWC, 2016). NFC technology is often the technology of choice for mobile payment providers (Kazan & Damsgaard, 2013).

A study that was conducted at the end of 2017 among 21.000 Dutch citizens found that 49% would like to make use of payments by smartphone as soon as possible (Nu.nl, 2017). Mobile point of sale (POS) payments are expected to be adopted by 59.1% of the Dutch population in 2022 (Statista, 2018). In the United States of America, the number is predicted to get even higher, as 64% plan to use a mobile wallet by 2020. China is the leader when it comes to mobile payments. The country represents 61.2% of the worldwide user base. Proximity payments in Western-Europe lack the market as contactless payment by card is common and paying contactless by phone does not add much value compared to paying contactless by card (Anderson S. , 2018). Nonetheless, the adoption is on the rise due to the fear of mobile payment being less secure declining (banken.nl, 2018).

Many fintech companies have developed such mobile payment products, which disrupts the banking industry and challenges traditional banking institutions (Marous, 2017). The felt pressure leads to banks collaborating with fintech's and also flourishes own mobile payment innovations (Accenture, 2017). Via a partnership, a bank could seek the digital capabilities of the fintech and share their industry knowledge with them (Deloitte, 2014).

The payment platforms tend to have high development and low marginal costs. The operating margin increases with an increasing adoption of the platform (Eisenmann, 2002). This results to that as soon as the payment solution is developed, it costs very little when it attracts more customers due to being able to spread the costs among the growing revenue base from users (Staykova & Damsgaard, 2015).

A survey conducted by VISA found that 77% of their respondents claim that it would be difficult to get through the day without their mobile phone, and 50% do not want to carry cash anymore and want more electronic payment options. The respondents were twice as likely to carry their mobile phone with them rather than cash, and in the 18 to 24 age group even four times more likely (Becker, 2007). So far, it has shown in multiple studies that particularly younger generations are more interested and likely to use mobile payment (pewtrust.org, 2016). Generation Z is likely to be the first generation that will ditch the traditional wallet for a mobile wallet. In order to keep up,

traditional players, banks, need to offer mobile payment for their survival (Accenture, 2017).

Overall, prospects for mobile payment solutions are looking good with a decent adoption rate among younger generations, a rising demand for it and various applications that work with different technologies offered by fintechs and banks.

## 1.2 Research Goal

Li and Whalley (2002) suggested further research in the banking industry, in order to see whether it is undergoing or has already undergone the same change as the telecommunication industry.

This thesis will, therefore, be a further research on a part of banking, mobile payment, and will investigate whether the value chain has also been deconstructed into a value network with many actors involved who work simultaneously rather than sequentially, in the mobile payment industry. Next, it will explore whether Peppard's and Rylander's (2006) prediction of being able to conduct purchases through a handheld device that gets developed by an ecosystem of actors got fulfilled.

The focus of this thesis will be on the value networks of WeChat Pay's Quick Pay and ING's Mobiel Betalen, in order to find out how they create and capture value with their mobile payment solutions and to see whether they have a network. In order to keep focused, only customer to business (C2B) payments will be considered. In short, WeChat is a Chinese social media platform that incorporates e-commerce and mobile payment. ING, on the other hand, is a Dutch (digital) traditional bank that also employs mobile payment solutions among various other financial products.

The analysis and comparison will show how their payment solutions create and capture value via analyzing their value networks. From the analysis, actors within the network will be identified and similarities, differences, strength, and weaknesses will be distinguished. Lastly, recommendations will be given on how the two companies could learn from each other.

The research goal of this thesis is to investigate value networks of mobile payment solutions, in order to identify their value creation and capture mechanisms. Two different companies get analyzed and compared in order to show two sides, one of a bank and one of a fintech. This gives rise to the main research question which is:

### **How does the mobile payment solution of a traditional bank compare to that of a fintech?**

Next, to the main questions, several sub-questions will get analyzed:

- Who are the key partners of ING's Mobiel Betalen and WeChat Pay's Quick Pay?
- How do mobile payment provider facilitate the value network?
- What are the revenue streams of mobile payment solutions?

This paper is structured as follows. First, the academic relevance will get elaborated, followed by the methodology of this research. Next, a literature review is conducted that introduces the reader to the main theories that are expressed in this thesis. Afterwards, the case companies get introduced. It follows an analysis of the value networks of both case companies as well as a cross case analysis. Lastly, it ends with a conclusion, limitations and ideas for further research.

## 1.3 Academic relevance

This thesis is further research that got suggested by Li and Whalley (2002), who discovered that the telecommunication industry has undergone radical change by having transitioned

from a value chain to a value network. The research of this paper tackles the question how mobile payment solutions create value, along two cases, and whether the same transformation to value networks has happened to the financial industry, to be more specific, mobile payments. In Li's and Whalles's research they found that the incumbents are also challenged by new entrants. Therefore, this thesis is a cross case analysis of two case companies, one an incumbent, the bank ING, and one a rather new entrant, WeChat and their WeChat Pay Quick Pay. Next, to that, it shows whether Peppard's and Rylander's (2006) prediction that in the future it would be possible to pay via a handheld device that is not developed by a mobile operator but by multiple actors instead got fulfilled. Peppard and Rylander (2006), also found that mobile operators cannot work on their own isolated, anymore. They need a network around them with whom together they deliver a service and co-create value. This thesis will research whether it is the same case for banks and fintechs and whether their business models have transitioned to working with various partners in order to co-create a product or service. With this cross-case analysis, it will show the value creation, differences between both payment solutions, and show advantages and disadvantages that the companies have over each other. It will be interesting to see how the mobile payment solution of a bank compares to that of a fintech, and whether they involve different actors.

## 2. METHODOLOGY

In order to find an answer to the research question, this thesis will be a comparative case study of mobile payment solutions. Two case companies got selected, being ING's Mobiel Betalen and WeChat Pay's Quick Pay. Quick Pay represents a fintech and Mobiel Betalen a bank. This way, the two sides can be analyzed and will show how they create value and differentiate. Qualitative research will be conducted.

In order to collect data and information for the research, the information that is needed about the case companies is mostly collected from the company's websites, press releases and other websites that include information about the mobile payment solutions of ING and WeChat. For the literature review of the theoretical models, academic research paper about value networks, value chain, value network analysis, fintechs and banks got collected via the database of the University of Twente, Scopus and the search engine Google.

The theoretical framework of this thesis is based on the value network, and network value analysis by Peppard and Rylander (2006). Via a four-step approach, the value networks of both case companies will get analyzed and lastly drawn. This helps to distinguish the main actors, the value they receive by being part of the network and lastly the linkages that the actors have within the network. The value networks of both companies will get compared in order to show differences between banks and fintechs, as well as disadvantages and advantages that the companies have over each other. It will also show how the companies could adopt methods of the other company in order to attract more users and a wider reach.

## 3. LITERATURE REVIEW

### 3.1 From Value Chains to Value Networks

Research by Li and Whalley (2002), found that value chains within the telecommunication industry are increasingly being deconstructed and transformed into value networks which creates complexity among all players that are involved. The researcher propose that the value chain is changing into a value network with multiple actors that can adopt different business models. They noticed that the way the telecommunication industry was organized back then, as a value chain, was not sustainable for

long anymore. Companies would need to focus on just a few activities, which has led to increased quality, better service, lower prices, service innovations and an expansion of the network.

As the value chain of some products and services no longer has a physical dimension, the concept of the value chain increasingly becomes an inappropriate tool for analyzing the value creation (Normann & Ramirez, 1994). In many industries, it can be seen that firms co-operate (Nielsen, 1988) and establish inter firm relationships that play an increasingly important role (Madhavan, Koka, & Prescott, 1998). Old linear models do not play a role in the nature of alliances, complementors, competitors and various other members of the network (Normann & Ramirez, 1994).

Back in the 1990s, many companies have focused mainly on vertical integration. However, in the last decades, some changes have made collaboration among companies and distribution among operations over multiple companies easier (Iansiti & Levien, 2006). Next, aggressive actors entered the field, which had lots of impact on the industry. The value network has multiple entry points that make it easy for companies to enter the market which leads to many new actors. The way the companies interact with the end customer will depend on the chosen business model of the firm. Value networks have an impact on the market position, business models, strategies and revenue generation. Value networks “can be seen as a series of intertwined value chains where some nodes are simultaneously involved in more than one value chain” (Li & Whalley, 2002, p. 465).

The internet has eased the entry into the market. It has also set several standards which makes it easier for companies to introduce products that can function together. Due to more actors within the network, the relationships have changed. Relationships are more fluid which has also helped actors to enter new markets, which “have provided new entrants with a competitive advantage over incumbent players” (Li & Whalley, 2002, p. 455).

However, incumbents in the telecommunication industry have also invested heavily so that they can provide more services and target distinct markets that they want to enter.

Nonetheless, “It is no longer sufficient to talk about linear value chains, instead a more appropriate description is a value network that is composed of all the different actors drawn from a range of industries that collectively provide goods and services to the end user” (Li & Whalley, 2002, p. 456). The deconstructing changes in the industry have led to business models becoming obsolete. According to the transaction cost theory, a firm needs to decide whether they want to make products and services or buy them by engaging in a relationship with external firms. The decision should be based on whether they have an advantage of lower transaction costs by producing internal, or economies of scale and lower agency costs by purchasing the products and services. Deconstruction is happening in multiple industries. The new entrants split the common integrated service delivery into smaller components and then put their focus on just one part of the value chain rather than the whole in which they have a competitive advantage. If a company splits its activities into multiple companies, customers would benefit from increased service innovations, better quality, and a lower price. Unless there are clear benefits from keeping everything integrated, firms should deconstruct and focus on what they are best at. For the deconstruction, strong relationships will be increasingly needed between the actors in order to deliver value to their customers. “Given the enormous complexity involved, few players have all the skills required to offer ease of access, awareness, and valued services simultaneously” (Li & Whalley, 2002, p. 467). Therefore, it is necessary to have a network of companies where

everyone focuses on what they are best at so that they together provide successful services to the customers. The former value chain is increasingly deconstructed due to outsourcing and collaborations among companies. They have formed complex value chains that have transformed into networks. Every company needs to know its place in the value network and might need to re-evaluate their business model.

Nowadays, the telecommunication industry is characterized by a bundle of relationships where firms compete with a new set of competitors from other industries that are now also a member of the value network. The analysis of the two case companies further in this paper will show, whether the same is the case for mobile payment solutions.

### 3.2 *Fintech vs Bank*

In order to get familiarized with what the difference between a bank and a fintech is, the two forms will shortly get described.

“Fintech has been playing an increasing role in shaping financial and banking landscapes” (Jagtiani & Lemieux, 2018, p. 1). They are challenging and changing the way we consume and structure financial services, and “have defined the direction, shape, and pace of change across almost every financial services sector” (Deloitte, 2017, p. 3). Fintechs can offer what customers nowadays expect: quick loan approvals, seamless digital onboarding and free payments (Deloitte, 2017). Next, to that, they can impose a threat to the business model of banks. Banks generate value by combining elements of different businesses e.g. financing, investing and transactions to serve their customers (Dietz, Härle, & Khanna, 2016).

Fintech firms fulfill various tasks of traditional banks. They tend to use the non-traditional information to assess the credit worthiness of consumers and small businesses. This can be an advantage for people that do not have a credit history. Especially millennials are more comfortable with the technology and therefore, more likely to make use of fintechs rather than traditional banks (Jagtiani & Lemieux, 2018). Next, fintechs often create better customer experience by being easier to use at a competitive price in comparison to banks (PWC, 2016).

Transaction banks are often perceived as just focusing on improving their already existing solutions. This might not address the end consumers demand for technological capabilities and cost efficiency. Fintechs, who have noticed the shift in consumers demand early, are transforming the financial sector by offering solutions for the new digital landscape. Some offer disrupting new products while others enable customers to get more with less. Banks need to recognize the shift and need to act on it to be one of the early adopters. They need to invest in their digital agenda as their challengers have increased the capabilities significantly and get more powerful. Fintechs are “challenging the privileged access and relationships traditional transaction banks currently enjoy with their institutional clients” (Deloitte, 2014, p. 1). Nonetheless, it is important to note that most fintech companies do not want to be banks and do not want customers to switch all their accounts to fintechs. Instead, they are offering more targeted and convenient services. Therefore, fintechs seem to be less disruptive and more enabling than expected.

A study by McKinsey showed that some of the fintechs that got established in the past years are enablers that serve banks who want to improve their processes. Coopetition arises where banks and fintechs become partners in the traditional bank’s ecosystem. These fintechs rely on the banks because they need access to the balance sheets in order to fulfill loans and to provide payment backbones for credit cards or transactions (Dietz, Härle, & Khanna, 2016). Banks still have the advantage over fintechs that they have an existing infrastructure, industry knowledge, brand

reputation and an already existing customer base in place, “This is why banks and fintechs are better together than they are alone” (Accenture, 2017, p. 9). Mobile payment, the focus of this thesis, is something that gets exploited by both, banks as well as fintechs. Later in this paper, it will get investigated how the payment solutions of a bank and fintech differentiate regarding their value networks.

### 3.3 Network Value Analysis

“Value network analysis offers a way to model, evaluate, and improve the capability of a business to convert both tangible and intangible assets into other forms of negotiable value, and to realize greater value for itself” (Peppard & Rylander, 2006, p. 5).

As most companies cannot master all tasks on their own internally anymore and neither is it economically efficient, it has led to firms building networks (Möller, Rajala, & Svahn, 2005), (Kothandaraman & Wilson, 2001)). Several activities need to be combined by multiple actors and together form end-products that overall create value (Anderson & Narus, 1999), (Peppard & Rylander, 2006), (Cravens, Piercy, & Shipp, 1996)). The actors within the network can be regarded as the key partner that are described in the business model canvas by Osterwalder and Pigneur (2010). Firms do not focus on the industry nor their company but on the value-creating system, with multiple actors such as supplier, partner and customers, with whom together they co-create value (Iansiti & Levien, 2004). Network participants should be able to reach and get access to new markets. This creates an ideal environment for innovation and value creation. One key aspect is that the firm solely has to focus on its core competencies (Loss & Crave, 2011).

The network’s structure has a significant role in the performance of the firm (Madhavan, Koka, & Prescott, 1998). Firms get involved in business network value creation if the perceived benefits are greater than the costs of taking part. The business network can be regarded as stable if the participating organizations create value that is sustainable in the long term and results into profits that could not be achieved without operating in that network (Kauffman, Li, & van Heck, 2010).

While all firms can be part of the value-creating network, some can play roles that are more important and have more influence in forming the network, whereas other firms only play minor roles and get shaped by the overall network (Kothandaraman & Wilson, 2001).

It is of high importance that firms create better value than their direct competitors. In order to create value, their managers must make use of the firm’s core capabilities, so that the firm delivers a product that satisfies customer needs at a competitive price which results in a high value for their customers. Furthermore, value creation is dependent on the firm’s abilities to deliver something of high performance that is desired by customers (Kothandaraman & Wilson, 2001).

The result of a value network analysis lies in the gained comprehension of a model that shows how the firm connects and relates to its rivals in the environment. It can give insights on the firm’s position within the network and propose strategies that can enrich the current position, shows where flaws lay and how they could overcome these. Such analysis challenges the organization and its business model (Kothandaraman & Wilson, 2001).

Pepper and Rylander (2006) propose five steps for a value network analysis. Their framework got selected because it gives clear steps for the analysis of business networks and helps identify the actors. It aims to help grasp where value lies within the network and how the actors within the network connect.

*Step 1:* Is about defining the objectives of the network in order to create a description of where the value of the network gets

created. It defines the network and creates boundaries for the analysis. The focal of the network is the firm or business unit that relies on the network for their business model.

*Step 2:* Is about identifying the participants of the network from the standpoint of the focal. Here, actors who have an influence on the value of the network get identified. These could be e.g. suppliers, competitors, vendors.

*Step 3:* Is about identifying the value that the network members desire. The overall objective is to capture the value that is perceived by various participants who are part of the network. It also about finding out why certain members want to be part of the network. The perceived value is what directs people’s and organization’s willingness to pursue or not pursue something.

*Step 4:* Is about identifying the linkages nature among the members of the network. The linkages can be called network influences. The amount of influences is an important indicator of how much attention the providers need to give to the network participants when creating their business model. As an influence counts anyone that has an impact on the perceived value or behavior of a participant.

*Step 5:* The mapped value network gives a clear overview of the network and makes it possible to draw quick conclusions about the various roles and participants within the network and shows where the value is created. Moreover, it shows how every participant is interlinked.

### 3.4 Introduction to case companies

#### 3.4.1 WeChat

**Table 1 Characteristics of WeChat Pay Quick Pay**

	WeChat Pay Quick Pay
Country of origin	China
Established in year	2014
Amount of user	WeChat has about 1 billion monthly users and it is estimated that 80% have tested the mobile payment service.
Available in	15 countries
Mobile payment technology	Quick-response code

WeChat is a mobile platform that connects people via calls, chats and more. It has its own mobile payment solution, WeChat Pay, that is built into the Chinese social media application, owned by Tencent. The application has about 1 billion monthly users (Brennan, 2018). A study found that 33.9% of the users spend four or more hours on WeChat per day (emarketer.com, 2017).

A big feature of WeChat is its own payment solution. Its payment service gained popularity since 2014 and has quickly become the most used transaction methods for small payments in China. If the user connects their bank account with the app, they gain the opportunity to pay via the application in millions of stores and even at small street food shops. Since 2017, they also facilitate payments overseas, so that Chinese customers can pay in 13+ countries via WeChat in stores (Ipos, 2017). WeChat Pay has multiple payment products, however for the scope of this research, its payment method “Quick Pay” will get the main



**Figure 1 Quick Response Code**

focus. With this method, the user can either pay by scanning a quick response code (QR code) of the vendor or the vendor scans the QR code of the customer. Another method e.g. is to pay within the application for in-app or in-app Web-based purchases (Tenpay, nd). WeChat Pay has an outstanding adoption rate of 93% in Tier one and two cities in China such as Beijing and Shanghai (Brennan M. , 2017). Moreover, Zhang Yu, an analyst at iResearch, estimates that 80% of all WeChat users have tested their payment service already (Wang & Armstrong, 2018). Users need to pay withdraw fees if they exceed a certain limit and merchants have to pay payment method fees of usually 0,1-2% (Aveni & Roest, 2017).

### 3.4.2 ING

**Table 2 Characteristics of ING Mobiel Betalen**

	ING Mobiel Betalen
Country of origin	The Netherlands
Established in year	2015
Amount of user	About 33 million customers world-wide. Mobiel Betalen application gets used about 115.000 times per week.
Available in	The Netherlands
Mobile payment technology	Near field communication chip

ING is a Dutch bank with a strong European base that serves 33 million customers across 40 countries (ING, 2018). They have noticed early that customers do not visit branches anymore and therefore incorporated most of their services digitally via their website or mobile phone application (Vilar, 2017). They started mobile payment as a pilot project together with two other Dutch banks in 2013 (banken.nl, 2013). Since 2015, ING has their own solution in place.

Their mobile payment application works for Android-operated smartphones with the operating system Kitkat 4.4 or newer and needs to have a build in NFC-chip, therefore, it does not work on any Apple or other smartphone operating systems yet. The first six months of usage are free, afterward, the user needs to pay €0,50 per month. However, it is free for 16 and 17-year old teenagers as well as customers who have a student bank account at ING. Payment can be done at any payment terminal that offers contactless payment, therefore, it works at any payment terminal where customers could pay contactless with their bank card, which is very common in the Netherlands. About 140.000 stores in the Netherlands already facilitate contactless payments such as most supermarkets, retail stores, gas stations and more. The payment can be secured via a pin code. Payments under €25 do not require a pin code, however, it is optional. For payments over €50, it is mandatory to use a pin code. ING claims that their mobile payment method is as safe as any other payment method (ING, 2018). In order to stay innovative, ING has a venture

capital fund of €300 million to fund and invest in fintechs that could potentially help ING by working with them (ING, 2017).

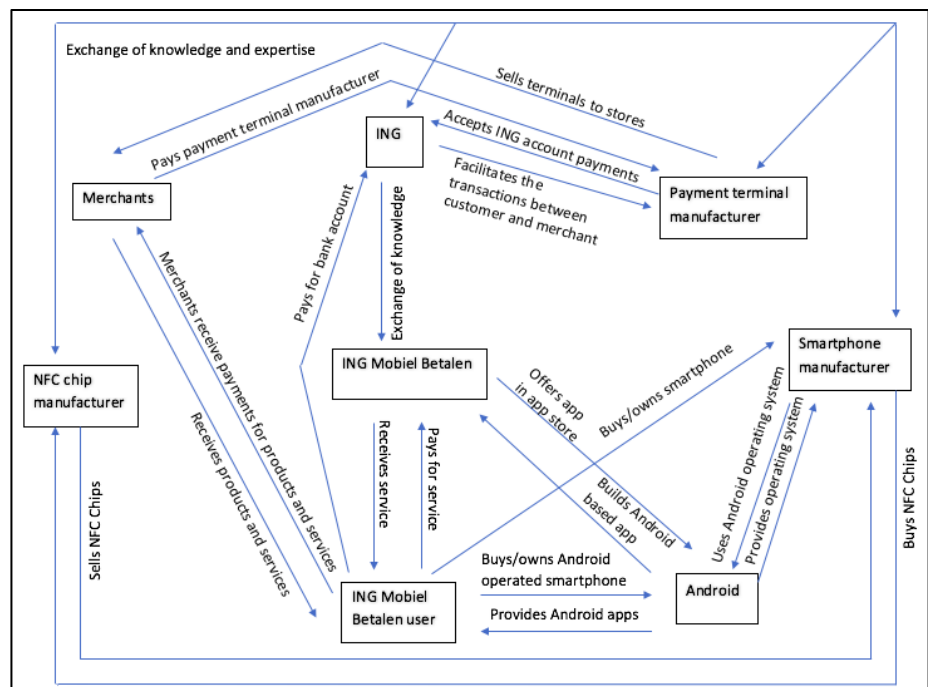
### 3.4.3 Reasons for selection of the case companies were

For the comparison, it was decided to use two mobile payment solution provider, one of an incumbent, a financial institution, and one of an internet company. As ING's Mobiel Betalen and WeChat Pay both have a rather high adoption rate and use different technologies for their solutions, it is interesting to compare their networks as well as analyze their strengths and weaknesses and how they could learn from each other. Both companies seem at first glance very different as WeChat is a social media platform with about one billion users that have achieved to build a whole ecosystem around their users and its payment function, while ING is a traditional bank. WeChat Pay got selected because they can be regarded as a fintech that has changed the way people pay in China and offers a targeted financial service (Dietz, Härle, & Khanna, 2016) without having a banking license, while ING is a traditional bank with a banking license, saving accounts, bank cards, mobile payment, banking solutions, and more. ING got selected as a case company due to their striving digitalization and recognition that fintechs could be a valuable partner. They have opened a capital fund of 300 million Euro in order to invest and cooperate promising fintech companies (hollandfintech.com, 2017).

Therefore, it will be interesting to find out more about their business value network, and see how they connect with other stakeholders in creating value for their services and products.

## 4. ANALYSIS OF THE VALUE NETWORKS

### 4.1 Business network value analysis of ING Mobiel Betalen



**Figure 2 Business Value Network ING Mobiel Betalen**

**Step 1:** The focal of this analysis is ING's Mobiel Betalen.

**Step 2:** Network participants around the focal are ING, ING's customers, ING Mobiel Betalen user, payment terminal



manufacturer, smartphone manufacturer, Android, NFC-chip manufacturer and lastly supermarkets and stores.

**Step 3:** Each member of the network gains value by being part of it. For ING, they offer diversified payment options where their clients can select the way they want to pay. Next, they also secure a part of the total market share for mobile payment solutions within the Netherlands. It is a new revenue stream as the users need to pay 0,5€ per month after their first six months being for free. Lastly, they are going with the trend of a cashless society.

ING's customers gain that they have a new payment option next to the various card payments that ING offers. ING Mobiel Betalen users are clients of ING and gain that they can do payments via their Android smartphone when having downloaded the app and connected their bank account. 208.000 ING customers have downloaded and activated its mobile payment solution so far. ING claims that on average the app gets used 115.000 times per week to make a payment (Bright, 2018). This way of payment can be quicker than traditional payments such as cash, as there is no need to find the right amount of coins or bills anymore when paying, and entering a pin code is not always necessary. Next, this payment method is widely available to users as many supermarkets and stores in the Netherlands nowadays accept contactless payments. For payment terminal, smartphone and NFC-chip manufacturer the new payment trend has led to a rise in demand for their products. Payment terminals that accept contactless payments, and smartphones that enable mobile payment by having a built-in NFC Chip are getting increasingly popular. As an example, in Russia, mobile payment has increased the demand for NFC phones between 2016-2017 by 60% (Clark, 2018). Therefore, it is benefiting the smartphone and NFC-chip industry. In 2016, 40% of the total number of payment terminals in the Netherlands offered NFC enabled contactless payment (De Nederlandsche Bank, 2016). Due to the increased demand for products that facilitate contactless payment via near field communication, the demand for NFC chips is on the rise too (Kumar, 2015). The market is expected to grow by 22,59% in the period 2018-2026 (Market Insider, 2018).

Android is the only operating system that supports ING Mobiel Betalen and therefore, has an advantage over its competitors, e.g. Apple. Other operating systems such as IOS and new iPhone's have an NFC chip built-in too, however, Apple does not allow extern app developer to make use of the chip to protect their own payment solution, ApplePay (Cook, 2014). However, there are currently speculations that Apple may allow external developers to access the NFC chip within the near future (Campbell, 2018). In order for an ING user to be able to make use of Mobiel Betalen, they require a smartphone that has one of the newer Android operating systems starting at KitKat 4.4 installed as well as a built-in NFC chip (ING, n.d.). This can also lead to a rise in demand for these kinds of Android-operated smartphones. The last actor that gains value by being part of the network are supermarkets, merchants and other places that accept contactless payments. All big supermarket chains across the Netherlands such as Albert Heijn, Jumbo, Lidl and Aldi accept contactless payment, and therefore

also enable mobile payment via NFC. In May 2017, 33% of all supermarket payments were conducted contactless (Statista, 2017). These places can benefit from a quicker check out of their customers as paying via the smartphone can be quicker than paying by e.g. cash. This will also lead to their customers being more satisfied as their shopping and payment experience at check-out will be quicker.

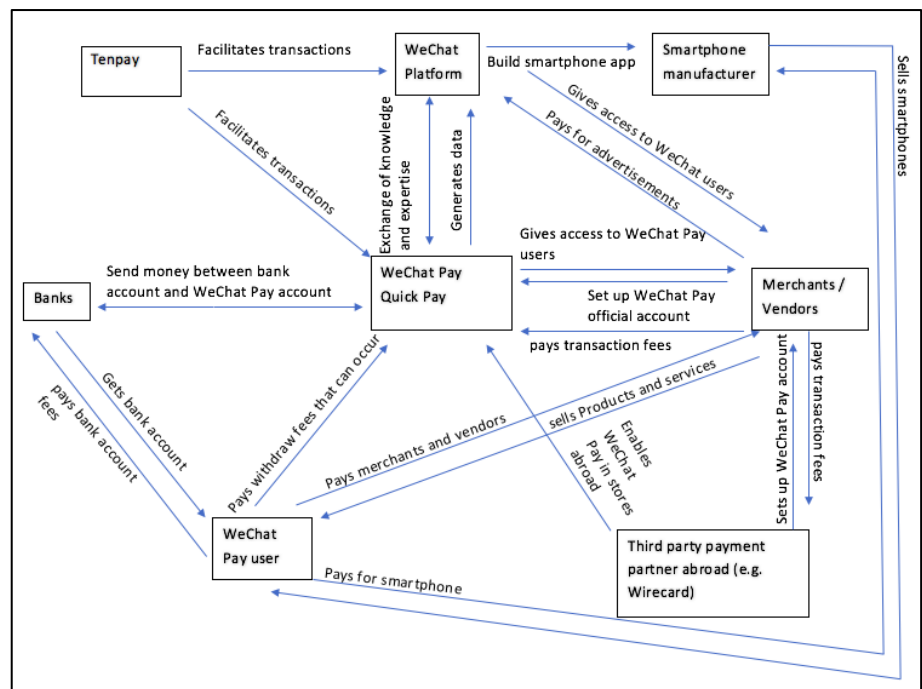
**Step 4:** The value linkages among the network participants are as follows. The Mobiel Betalen user owns an Android operated smartphone that has an integrated NFC chip and the software KitKat 4.4 or newer in order to make the application work. Next, to that, Mobiel Betalen users need to be clients of ING and have to pay for using Mobiel Betalen. ING has developed the application and it is available in the Android app store.

NFC chip manufacturer sell their chips to payment terminal manufacturer. Payment terminal manufacturer sell their terminals to stores and places where the products and services are for sale. The users then can pay at these places for products and services in case the terminal accepts contactless payment by ING bank accounts.

NFC chip manufacturer, payment terminal manufacturer and ING share knowledge and expertise so that the application works for payments. ING generates data via the app in order to improve it for the users.

**Step 5:** The mapped value network is depicted in Figure 3.

#### 4.2 Business network value analysis of WeChat Pay Quick Pay



**Figure 3 Business Value Network WeChat Pay Quick Pay**

**Step 1:** The focal of this analysis is WeChat Pay's Quick pay.

**Step 2:** The actors within the network are merchants and vendors, WeChat, WeChat Pay user, smartphone manufacturer, Tenpay, third-party payment provider abroad, and banks.

**Step 3:** All network partners get value by being part of the network. Merchants, Vendors and places that accept Quick Pay as a payment method benefit from gaining access to WeChat users as WeChat Pay is integrated into WeChat. They can send them information about offers, promotions and advertisements via WeChat. The seller only needs to have a printed- or digital

unique QR code that is linked to their WeChat Pay account that the customer then scans with their smartphone. The vendor or merchant does not require a payment terminal anymore (Rob, 2017), which also gives vendors and merchants more safety as they do not need to have large amounts of cash that could potentially get stolen. Paying via Quick Pay has no fee for the customer, however, the merchants who have an official WeChat Pay business account incur a transaction fee of 0,1-2% (Aveni & Roest, 2017). Person to Person transfer is free which has led to some informal merchants and vendors to use P2P payment, instead of having a business account, in order to not have to pay a transaction fee (Aveni & Roest, 2017).

WeChat profits from having another service built-in their app for everything. By having many services integrated in their app, they can increase the stickiness and loyalty to their users, they may then spend an increased amount of time within the app and make more purchases. By facilitating payments, they take a big chunk of market share from their competitor AliPay. WeChat Pay has gained a market share of about 40% while AliPay has about 53% in 2018. Over the past years, WeChat caught up a lot with AliPay because back in 2014, AliPay still had a 70% market share (Wang & Armstrong, 2018).

The WeChat users profit that they have one app that can do a lot such as messaging, gaming, and booking a cab. On top of that, WeChat users who have their bank account connected to WeChat can make use of all the payment function. It is built into the same app and therefore, easy to access and within the app that they know how to use. The payment method is widely accepted, especially in big cities within China. The mobile payment usage in China report, published in August 2017, did samples across whole China to research the mobile payment acceptance. In China, almost all dining places nowadays accept mobile payments ranging from fast-food chains to cafés and restaurants over to fruit vendors and food stands. In the retail sector, the penetration varies across retail sectors. 68% of the sampled convenience stores accept mobile payment and 63% of medium and large supermarkets. Mobile payment has also reached the entertainment sectors where customers can purchase their cinema tickets or karaoke via WeChat Pay. Most Taxis, hotels and touristic attractions offer this payment solution too (Tencent Research Institute, 2017). This way of payment is quicker than traditional payments such as by cash, as the user just needs to scan the QR code of the shop instead of counting coins and bills. Due to WeChat having partnerships abroad, WeChat Pay users who travel outside of China can pay in some airports and shopping malls in foreign currencies with their trusted payment method, WeChat Pay (Essential Retail, 2018), (Le Point, 2017)).

Smartphone manufacturers benefit from an increasing demand for smartphones, as the device is necessary to download and use the WeChat app and therefore, also WeChat Pay. Tenpay is owned, just like WeChat, by Tencent. Tenpay has a cross-border payment license and can therefore, conduct transactions between the payment issuer and payment receiver. They earn money by having a transaction fee when users withdraw money from WeChat Pay that is above RMBY1000. The user then pays a fee of 0,1% (Brown, 2017). Even though Tenpay has a cross border payment license, partners abroad are helpful for them. WeChat Pay has international business partner in 15 different countries, ranging from Asian countries to European ones, America and Oceania (WeChat Pay, 2018). These partners help local businesses set up a WeChat Pay account. Companies that are not registered in China can either set up an account via Tencent directly or make use of one of the local partners, which is the most popular option (Meir, 2017). An example for a partner is the firm Wirecard, which makes paying with WeChat Pay in

stores in Europe possible. Chinese customers can pay as usual via WeChat Pay while Wirecard acts as the acquiring bank and bundles all the transactions for the retail store. The orders then get processed via a collecting model (Wirecard, 2017). Research among Chinese travelers found that they are likely to spend more abroad if mobile payment is accepted (Nielsen, 2018).

The next network member are banks, as a to WeChat connected bank account is necessary for WeChat Pay users. Banks will profit by making their clients pay for having a bank account at the bank. On top of that WeChat has two Chinese partner banks, China Construction Bank and China Citic Bank, who are facilitating the currency exchange for WeChat payments outside of China (WeChat Pay, n.d.). The users can move money between their bank account and WeChat Pay account.

Lastly, Tencent, who owns WeChat, are part of the network. They have developed the WeChat platform. For them, WeChat Pay is not really a profit center but a way to keep the WeChat user within the application where Tencent profits mostly from games and advertising (Rob, 2017).

**Step 4:** The linkages between the network member are as follows. First of all, the WeChat user needs to have a smartphone, on which the by Tencent owned WeChat-application is installed, and an account needs to be made. Then, the WeChat user needs to have a bank account that they can connect with their WeChat account in order to enable WeChat Pay. Whenever the user wishes to withdraw their WeChat Pay balance back to their bank account and it exceeds a certain limit, they will encounter transaction fees that get paid to WeChat. The user can buy products and services at stores, vendors or any place that offers WeChat Pay as payment methods. In order to offer WeChat Pay as payment method, they either need to have an official WeChat Pay account that is set up by WeChat or if they are an informal store, they would use their private WeChat Pay account. With every payment that is made at their store, they have to pay a fee to WeChat which is usually between 0,1-2% (Aveni & Roest, 2017). WeChat's international partner abroad help stores outside of China to set up an official WeChat Pay account so that they can serve Chinese travellers. The stores abroad incur depending on their chosen partner a processing fee and the user a payment method fee. The partners take fees for their services. Adyen, a partner of WeChat, takes e.g. \$0,12 processing fees and 3% payment method fees for every payment in the Asia Pacific area (Adyen, 2018).

Tenpay, who have a cross-border payment license and is also owned by Tencent, facilitates the transactions that the payment issuing and payment receiving party generate. The stores get access to WeChat user by offering the payment method. They can send them information about offers and promotions within the app. WeChat and WeChat Pay generate data about their user's behaviour and can use it for improvements or personalized offerings.

**Step 5:** The mapped value network is depicted in Figure 4.

## 5. CROSS-CASE ANALYSIS

Through the analysis of both companies, it quickly showed that both have value networks in place, as multiple actors got distinguished. Via the network, it can be seen how the various actors are connected and how they receive value. Some actors are the same or very similar for both companies, such as smartphone manufacturers, a bank or company with a payment license, merchants, stores and generally places that accept mobile payments. Via their actors, they make the payment solution accessible because without e.g. vendors and merchants having a WeChat Pay account or payment terminals facilitating contactless payment, and stores facilitating these terminals, the



payment solutions would not be accessible and widely available for consumers. Next, both firms do not build their own smartphones, therefore, they require smartphone manufacturers to build smartphones that can facilitate their applications. A bank account is by both apps required, which is less of a challenge for ING as the customers who would like to use Mobiel Betalen are most likely already ING clients, they need to enable online banking in order to make use of the Mobiel Betalen app and require a phone with certain specifications. It is interesting to see that WeChat Pay still needs to have partner banks, who facilitate their currency exchange, even though they have access to a payment license due to Tenpay. Here, it shows that fintechs still need to cooperate with banks and cannot offer financial products without one.

The two case companies both have different revenue models. While ING has a monthly usage fee of 0,5€ for their customers, WeChat Pay generates revenue by having a withdraw transaction fee of 0,1% that is only applicable when the withdrawn amount is over a certain limit, and they charge merchants a transaction fee of 0,1-2% (Aveni & Roest, 2017).

ING limits themselves by only offering their solution within the Netherlands, while they are present in about 40 countries worldwide. Here, waiting for too long to spread their solution abroad could be a risk because other mobile payment operators might get popular in countries where ING could have had a good chance of a successful adoption rate. WeChat Pay is available in 15 countries, nonetheless, their offering abroad is mainly addressed to Chinese travelers rather than customers from other countries. Both companies could try to focus more on reaching potential users abroad. ING could introduce their app in other countries, where ING has a strong basis already, and WeChat could try to appeal to people other than Chinese or foreigners working in China.

Merchants and vendors who offer WeChat Pay as a payment benefit by getting access to the WeChat users and are able to send them information about offers and promotions. Merchants and stores in the Netherlands do not get any personal information about their customer and cannot send them personal offers just because they made a payment at the shop via the app. The main benefit that Dutch stores get is that they give their customers more payment options, and they can check out more customers in the same time due to it being quicker than paying by e.g. cash.

While WeChat Pay can have an influence on which vendors or merchants offer Quick Pay due to setting up business accounts for them, ING does not have this privilege as they do not have power over which payment terminal gets used in stores.

WeChat Pay has a lot more users than Mobiel Betalen and also a higher adoption rate in China rather than Mobiel Betalen in the Netherlands. First of all, this is due to China having a larger population and due to that contactless payment by a bank card is quite popular in the Netherlands. Whether a client swipes their card at the payment terminal or their smartphone does not make that much of a difference regarding time saving for the users. This could be a reason why contactless payment by card is more popular than the contactless payment by smartphone. Proximity payments in Western-Europe generally still lack the market as contactless payment by card is more and more common and paying contactless by phone does not specifically add more value to the customer than paying by card (Anderson S. , 2018).

Both applications need to have smartphone manufacturers as network partner. Here, WeChat Pay has an advantage over ING's solution, as the app is available and works for most smartphones while ING requires an Android smartphone with a built-in NFC chip with the operating system KitKat 4.4 or newer. This limits their potential user base a lot, as it only works with a fraction of

all smartphones on the market. With the speculations that Apple might open up their in iPhones built-in NFC chip to developers, ING could also target Apple users in the near future, which would open a larger market for them. Another potential target group could be the same application for other operating systems such as for Windows phone user. The wider they make their application accessible, the more users they could attract.

By having chosen NFC technology for their payment solution, ING benefits that they do not need to promote payment terminals to offer contactless payments as due to the popularity of NFC enabled bank cards, many stores in the Netherlands already facilitate contactless payments. WeChat on the other hand, requires stores and merchants to set up a WeChat Pay account in order to facilitate payments.

The role of the WeChat platform could be compared to that of ING as both are the ones that have the payment solutions integrated. While the WeChat platform has about 1 billion users, ING has about 33 million users. The 33 million ING customers are however, spread over many countries, and therefore, just a fraction of them can currently make use of Mobiel Betalen, while the 1 billion WeChat users could make use of WeChat Pay if they wanted to.

Next, while WeChat Pay has the advantage of being included within the WeChat app, Mobiel Betalen is an app on its own. ING could try to include their app in everyday apps or platforms in order to increase its adoption. ING has actually announced in 2017 that they vision ING to be a financial platform that could join with other partners to become part of a worldwide ecosystem. They strive to become 'The WeChat of banks'. They want to make banking personal, innovative, offer the same products worldwide, develop an open platform and make use of advanced analytics (ING, 2017). This could set ING apart from other banks and mobile payment solutions, it also shows that they want to grow and offer their products worldwide instead of focusing on the Netherlands.

WeChat Pay has lots of potential by increasing their number of partners abroad. By having partners in many countries, they can offer Quick Pay for Chinese travelers in all popular destinations.

WeChat Pay's Quick Pay does not really impose a threat on ING's Mobiel Betalen due to WeChat mainly focusing on the Chinese market and Chinese traveler abroad rather than trying to make WeChat Pay a payment option for everyone anywhere. Therefore, the fintech does not impose a threat on the bank currently.

WeChat Pay, the fintech of this analysis, has access to a payment license due to Tenpay being part of Tencent. This is a big advantage for them compared to other fintechs who usually need to cooperate with a bank in order to get access to a payment license and to facilitate transactions.

Both value networks can be regarded as stable networks because their value seems sustainable in the long run. With the prospects of mobile payment being on the rise, it is unlikely that they will lose their user base, and instead rather grow.

## 6. DISCUSSION AND CONCLUSION

As Peppard and Rylander (2006) have predicted 12 years ago, nowadays, banking and purchases can be made via a handheld device, a smartphone. Their second expectation, that it gets developed by an ecosystem of actors instead of mobile operators also holds true as the two analyzed companies are not mobile operators, but instead a bank and an online company.

In the past, value chains were used for rather physical activities and linkages in traditional industries (Normann & Ramirez, 1994). The banking industry, on the other hand, has become

increasingly digital, therefore, it was expected that the value chain concept for mobile payment services has become obsolete.

The value network analysis of the two mobile payment solutions, of a bank and a fintech, conducted with Peppard's and Rylander's four steps approach (2006) has clearly shown that what has already been seen in the telecommunication industry, has also happened in the mobile payment sector. Firms, fintechs and banks, in the mobile payment industry have value networks in place, in order to make their service and product work. By having partners, they can keep their focus on their main tasks and activities (Loss & Crave, 2011). Nonetheless, it could be said that both networks still have slight concepts of value chains as ING has developed their mobile payment application, takes care of their clients and facilitates the transactions, and WeChat has developed their payment function, takes care of their users and sets up merchant's accounts.

However, they could not deliver the full service of their product without having other network partners that take over the remaining functions and tasks. If both companies would do all the tasks that the value network facilitates on their own, it would be too complicated and too much to handle. By focusing on what they do best and specializing in just a few tasks, they overall increase value for the network and customers. Therefore, Peppard's and Rylander's (2006) as well as Li's and Whalley's (2002) prediction that also parts of the banking industry, mobile payment, will transform to value networks, is proved. Both firms remain having the key position within the network as they own the customer relationship with their users. Without the help of the network, e.g. ING would need to create their own smartphones, payment terminals, build NFC chips and make contracts with stores so that they use ING's payment terminals and accept their payments. This is most likely not feasible and it is more convenient to have network partners who do activities where they are best at, and work together to make a product or service work. This way, every network member gets the value they desire (Iansiti & Levien, 2004).

Both case companies showed the same number of actors, seven. Common network partner that got distinguished through the analysis were banks or partners with a payment license that can facilitate the transactions, users who make use of the application, merchants, vendors and generally places that accept mobile payments and lastly smartphone manufacturers. Further actors depend on the kind of mobile payment solution and the technology that it makes use of for the payments. Banks who have a mobile payment solution have a banking license and therefore, do not need a partner to help them facilitate the transactions. Fintechs however, need a partner that has a banking or payment license. Here, WeChat Pay partners with Tenpay, who has a payment license and is also part of the Tencent group. For the exchange of currencies, they partner with two Chinese banks.

It has also shown that the value networks of the banks and fintech are actually not that different, they have similar networks with a few same actors in place. Nonetheless, Quick Pay has quite a few advantages over Mobiel Betalen due to its easier set up, many users and many stores that accept the payment and being able to use it when travelling abroad. Quick Pay is easy for merchants and stores to employ, as they only require to print a QR-code, rather than have a certain payment terminal.

Next, Mobiel Betalen is at a disadvantage as it only works on smartphones with certain specifications. They therefore, limit their potential user base significantly while WeChat Pay, on the other side, works with most smartphones.

While mobile payment is already widely used in China, it is slowly on the rise in Europe, which could lead to more adoption

for Mobiel Betalen within the next months and years. Especially the prospect of being able to make the application work for other smartphone operating systems, such as Apple's IOS or for e.g. Windows phone, could be a significant chance for ING's solution to gain more users. Depending on whether WeChat Pay decides to be more open for non-Chinese users, it could grow worldwide in the countries where they already have partners in place and countries where they will gain new additional partners. If they try to acquire non-Chinese users too, the fintech could impose a threat on the bank's solution and various other mobile payment providers worldwide in the future. If Mobiel Betalen wants to stay competitive, they should strive to enable their mobile payment application in other countries where ING has a strong basis already in the near future.

## 6.2 Practical relevance

The findings of this thesis give fintechs and banks who have mobile payment solutions an insight in which network partners are necessary, in order to co-produce value and create the service. It also shows advantages and disadvantages of two case companies and therefore, shows what to avoid when developing a mobile payment solution. Next, it shows two examples of different kinds of companies, one mobile payment solution of a bank and one of a fintech. They are likely to be able to learn from each other's networks and actors on how to build a relationship with their customers, generate revenue, which key partners are needed and how they overall can generate value. By making people aware of the strengths and weaknesses and giving recommendations to mobile payment solutions, other mobile payment solution companies could seek improvements by changing their business model and value network accordingly.

## 6.3 Limitations and suggestions for further research

As with most research, this thesis has its limitations. There is the risk and likelihood that the two analyzed companies might not represent all mobile payment solutions and just because these two have value networks it might not be the case that all mobile payment solutions have value networks. Next, mobile payment does not reflect the whole banking industry. There needs to be more research on the value chain to value network transformation in other parts of banking, e.g. lending. In order to validate the findings of this thesis, it is recommended to replicate the analysis with a bigger sample of mobile payment solution provider from various countries and backgrounds. Next, it would be interesting to analyze more solutions by banks and fintechs, especially fintechs who do not have immediate access to a payment license in order to see whether they need different actors within their network than the ones found in this analysis.

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