POTENTIALLY SUCCESSFUL STRATEGIES FOR DISRUPTIVE PLAYERS IN THE MOBILE PROXIMITY PAYMENT MARKET
A case study approach to Google, PayPal and A Handset Manufacturer

Master Thesis

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Foreword

With this occasion I would like to address my sincere appreciations to the members of my graduation committee, for guiding me, the interviewees, for accepting to be part of the survey, and the client that commissioned this research, for the support and guidance it showed during the graduation process. Last but not least, I would like to thank all my friends and family members that manifested support during this extremely demanding learning and working process.

This research has limited use for a given period of time and can be consulted only by the graduation committee of Delft University of Technology, the client and the interviewees that contributed to it. The client is anonymously referred to in the report, as well as all the respondents to my interviews. Thus, the client is referred to as “THE CLIENT” and interviewees under different generic names, according to their position. In addition, following the client’s position, the third component of the analysis is referred to as “A Handset Manufacturer”, instead of its real name.

The paper should be treated as the personal opinion of the researcher based on different points of view from the market. It should be noted that this graduation project does not by any means reflect the position of the client that commissioned the research.

Throughout the report, I will refer to myself as “the researcher”. When I formulate the text structure under this manner it should be noted that I do not refer to another researcher, but to my own person. Other scholars that published academic materials are usually referred to as “the authors”.

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Best regards,

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Abstract

The worldwide mobile in-store payment market, enabled by proximity technologies such as Near Field Communication (NFC), is growing at a fast pace, with many players fighting for success in a dynamic and uncertain environment. In this context, the battle started to involve players that come from different areas of activity than that of mobile payment. These so called “disruptive players” such as Google, PayPal and A Handset Manufacturer are or might be considering launching in this field. The current paper proposes a comparative case study analysis between the value proposition of the new comers and to what is considered the collaborative model, the cooperation between banks and mobile network operators allied to deploy mobile proximity payments services. The outcome of the analysis is a list of potential successful network strategies that these players might deploy in relation to the most important actors in their ecosystems. The assessment is based on the supposition that the more support an owner of a mobile proximity payment proposition has in its network, the higher chances of its success are, as success is defined following the value delivered to the network. As possible next steps of this research, the author proposes to apply the current theoretical framework to a specific national, regional, local context and thus also include exogenous factors in the analysis such as market behavior, technology change or regulation.

Figure 1: Mobile Payments with Near Field Communication Technology, retrieved from (Kraaijvanger Tim, 2011, para.2)
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List of abbreviations

Inside the report, I have made use of several abbreviations. In most of the cases I have first made use of the extended names and then indicated the abbreviations in brackets. Afterwards, I used only the abbreviations. The whole list is displayed below, so that the reader can search the words efficiently. The corresponding explanation of these words is not subject to the current list, as it can be found in the text.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>NFC</td>
<td>Near Field Communication</td>
</tr>
<tr>
<td>CPT</td>
<td>Card present transaction</td>
</tr>
<tr>
<td>CNP</td>
<td>Card not present transaction</td>
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<tr>
<td>mpayment:</td>
<td>mobile payment</td>
</tr>
<tr>
<td>MNO</td>
<td>Mobile Network Operator</td>
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<td>SP</td>
<td>Service Providers</td>
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<tr>
<td>SMS</td>
<td>Short Message</td>
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<tr>
<td>POS</td>
<td>Point of Sale</td>
</tr>
<tr>
<td>GW</td>
<td>Google Wallet</td>
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<tr>
<td>MC</td>
<td>MasterCard</td>
</tr>
<tr>
<td>TSM</td>
<td>Trusted Service Manager</td>
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<tr>
<td>SE</td>
<td>Secure Element</td>
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<td>SEI</td>
<td>Secure Element Issuer</td>
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Executive summary

The worldwide mobile payments market is expected to have reached “$171.5 billion as a total in 2012, with a 61.9 % increase compared to 2011” and a constant annual forecasted growth of 42% until 2016 according to (Christy, 2012, para.1). In this fast growing market, there are two major categories identified, according to (Clucy, 2011, p.1) : proximity and remote payments. For the mobile proximity case, NFC is a technology that has seen a tremendous hype in the last years. However, barcode and QR code are also relevant and are addressed in the analysis section as well.

NFC is a set of wireless standards based technology, that functions in short distance radio frequency identification (RFID) of approximately 4 inches and that can be applied in areas from simple data transfers to payments, by replacing credit card, according to (Hasoo, Lee, & Heekuck Oh, 2013). The same source mentions that the protocol is extremely secure, by granting privacy of the user and in the same time enabling personalized services, fact seen as very suitable for its usage in mobile payments services. Thus, in mobile proximity payments, NFC is a set of standards that enable device-to-device communication between mobile phones and other pieces of equipment, such as POS terminals.

The thesis focuses mainly on NFC “self-organized” phone-based schemes, (J. Ondrus & Pigneur, 2005, p.2), owned by players such as Google, PayPal and A Handset Manufacturer that are looking forward to enter the market from outside and thus cause disruption in relation to the already existing initiatives, the “operator-driven ones” (J. Ondrus & Pigneur, 2005, p.2), where the banks and MNOs take the lead together. In the current thesis, the concept of the operator-driven models is extended to that of collaboration models(Smart Card Alliance, 2008), referred here as the collaborative models. These type of models are already working according to the functional standardized “four corners card payment working model” (LLC, 2010, p.1) and have the banks as leaders in network in charge of payments, and the mobile network operators, responsible for storing the payment credentials in the mobile handsets. According to (LLC, 2010), the four corners card payment model links the buyer and the merchants through their issuing and acquiring banks, by making use of the card schemes companies (ex. Visa, MasterCard, Maestro). Thus, these so called “disruptive or insurgent players” (Jan Ondrus & Lyttinen, 2011,p.2) have different organizational models compared to what is considered the traditional, reference one, in their attempt to step in the in-store payment by making use of NFC or other proximity payments technologies. Thus, companies such as Google, PayPal, and A Handset Manufacturer might find themselves in a position to exploit at maximum their resources and chose suitable strategies in relation to the other actors to gain support for initiatives and so reach success, by giving a high value for the network they are part of.
Taking into account this problem, the research question to be answered is the following:

**What kind of network strategies should new-coming players in the mobile proximity payment market Google, PayPal and A Handset Manufacturer deploy in relation to the most relevant actors in their networks, in order to ensure their successfulness in the international market?**

For answering the research question, the author has created a theoretical framework that is applied to reach the research objective. It is important to emphasize that when referring to strategies, the researcher refers to certain manners the owners of the three disruptive ecosystems should treat the relation with the most important actors in their network in order to obtain support and obtain “multiple sourcing” for their models (Bruijn & Ten Heuvelhof, 2008, p.41). That is why he names them “network strategies”. For this, it should be noted that the researcher considers that the more support in the network an owner of a certain value proposition has, the higher the chances for reaching success are. That is because he views success mainly from the perspective of the value delivered inside the value network. That means that certain “blocking parties” or parties with “diffuse power position” (Bruijn & Ten Heuvelhof, 2008, p.40-41) should be dealt with in such a manner that more support is built with them and blockage is avoided. On the other hand, parties with “production power” should be kept close to the value proposition and involved in key decisions and benefits sharing.

In order to measure the potential success of the disruptors and, based on that, derive the degree of successfulness of the strategies, the researcher has created a successfulness indicator, based on a network approach. This indicator measures success by taking into account the roles of the most important actors in the network (ex. how many supporters, blockers). The research approach taken to solve the problem is that of comparative analysis, between the roles that the most important actors (ex. banks, MNOs, card payment scheme) have in the new entrants’ ecosystems (Google, PayPal and A Handset Manufacturer) vis-à-vis their considered, static roles in the collaborative, traditional, operator-centric model. The latter is used as a reference, because it is considered in this research as the traditional, established model of performing mobile payments, as being based on the already standardized four corners model. In addition, all the critical parties seem to align their interests and thus increase the value for the all network in this case, thus labeling this model as *Highly* successful. As this latter model is considered a reference, it is the change in roles for the most important actors in the three disruptive networks compared to it that is relevant for giving insights regarding successfulness and then right network strategies that should be recommended. In order to be able to gather information about the case studies analyzed and then clarify the roles of the parties and then also quantify success, the researcher makes use of a business model based on platform theory called VISOR. For the collaborative model, the researcher uses a simple stakeholder analysis.

As a manner of gathering data, the researcher has performed two sets of interviews. The first set was focused on gathering information about the business models of the disruptors and of the collaborative case. For this, he retrieved information from 7 consultants working for THE CLIENT, as well as consulting specialized materials about mobile payments. The second set of interviews was used in order to clarify the roles of the most important actors (ex. banks,
card payment schemes and banks), by involving 7 experienced experts belonging to the entire mobile payments field. This set of interviews was recorded, transcribed and coded.

The conclusions of the research are that Google scores “Low” as successfulness potential, PayPal “Low towards Medium”, whereas A Handset Manufacturer’s model is labeled as “High”. This is placed in the context where the reference, the collaborative model, is also labeled as High. That justification of these results is given by the fact that whereas Google has 3 major blockers and no supporters in its network on its Google Wallet’s product and PayPal has only 2, but still no major supporters, A Handset Manufacturer’s model is backed by 3 strong parties and 2 that seem possible to be activated. Thus, the researcher argues that the network strategies of A Handset Manufacturer’s are potentially more successful than Google’s and PayPal’s. Google is advised to bring banks and card payments schemes closer to the Google Wallet initiative, PayPal to strengthen the relationship with the banks for its close loop mobile in-store payment model, whereas A Handset Manufacturer’s should continue to focus on the relationship with the banks and build scale.
1 Introduction

The following section aims to set the project context, the objective and research problem of the current research. Thus, the place of the paper between the mobile payment and the standardized card payment field is clarified. Furthermore, the author argues the reasons for which the research is relevant from an academic and practical perspective and ends up with presenting the general theoretical framework constructed in order to fulfill the research objective.

1.1 Project context: A positioning in the NFC mobile payments, as component of the mobile proximity payments

The payment market is following a virtualization process, by gradually converging from the extensive use of physical payment cards towards the use of the mobile handsets for payment purposes. Different organizational models involving the use of the mobile device, as an interaction tool between customers and sellers placed physically in the same room, are being pushed in the market. The status quo situation, or what the researcher names the traditional model, refers to the case where the long used standardized payment model, known in industry as the “four corners payment model” (LLC, 2010, p.1) is being used as the background scheme for constructing a mobile payments model, with the MNOs as responsible for storing the payment credentials in the mobile handsets. Besides (LLC, 2010), information from (Client, 2012) are used in explaining the reference model.

The four corners model (this is how is referred furthermore) in card payment assumes a direct relation between merchants and cardholders (their clients), facilitated through the cooperation with financial institutions, the acquiring and the issuing banks. The payment is facilitated by the presence of the card payments schemes (ex. Visa, MasterCard, American Express and others), which have the role of managing the acceptance process of any payments between banks subscribed to them. The payment schemes are looking forward to continuously promote their brand as a tool for offering world-wide acceptance in the payment value network, thus they license both acquirers and merchants to act inside the payment scheme. The proposition is advantageous for all the players as each of them retains a fee, when the cardholder transfers money through the payment scheme. On top of this model, banks and Mobile Network Operators build their own in-store, proximity mobile payments services, enabled by the standardized Near Field Communication (NFC) radio communication protocol (Smart Card Alliance, 2007). Thus, the four corners model, as the background organization scheme, with the MNOs included as parties that enable the presence of the phone factor, represent the reference model in the current research. That is furthermore referred as the collaborative model, as will be explained below. For the fact it is also used as the starting point of the analysis, the model is referred to as the “traditional” one as well.
When talking about the worldwide overall mobile payment market we are referring to a value transferred of "$171.5 billion in 2012, with a 61.9% increase compared to 2011" and a constant annual growth by 42% until 2016 according to (Christy, 2012, para.1). In this fast growing market, there are two major categories identified, according to (Cluckey, 2011, p.1): proximity and remote payments. More specifically, the mobile remote payments refer to the situation when the customer is not physically in the same place where the payment is made and the transaction is performed from distance by making use of the internet or the mobile network operator’s (MNOs) network. In this case, examples of remote payments are message-based payments (SMS), browser-based payments and respectively application-based payments. On the other hand, proximity mobile payments refer to the case when the two parties involved in the transaction are placed physically close to each other. The payment is performed through interaction between the mobile device and the Point of Sale (POS). More specifically, (Cluckey, 2011) identifies three large categories in the mobile proximity payment: Near-Field Communication (NFC), Bar–code payments and respectively Numeric-code payments. To be more specific, NFC is a set of wireless based standards, that functions in short distance radio frequency identification (RFID) of approximately 4 inches and that can be applied in areas from simple data transfers to payments, by replacing credit card, according to (Hasoo et al., 2013). The current research focuses on proximity payments and here, more specifically, to NFC as the principal technology. However, other technologies such as barcode or QR-code are also referred as part of the when needed.

Furthermore, in a mobile payment market expected to reach $617 billion by addressing a number of 448 million users worldwide in 2016 (Christy, 2012), the number of NFC transactions is expected to grow as well. This type of payment is expected to reach almost $50 billion value transaction worldwide in 2014, following (JuniperResearch, 2011a). Also, the same source mentions that until the end of 2013 there will be 20 more countries
expected to launch this type of payment service on their territorial boundaries. In addition, as (Yankee Group, 2011) identified there will be a sharp increase in the number of smartphones enabled with NFC technology (chip, antenna) by 2015, to a number of 203 million compared to only 7 million in 2011. More precisely, that will be that almost 1/5 from the overall existing smartphones of that this time referencing again to (JuniperResearch, 2011b). Thus, the general expectancy is that in a market where more and more mobile handsets are used, proximity technologies such as NFC will grow substantially in the near future. In addition, according to the already mentioned (NFC World, 2013) there are already around 150 NFC enabled handsets on the market. Examples of handsets supporting NFC at the moment are Google Nexus S, Samsung Galaxy SIII and IV or HTC OneX. In addition, as a comparison, the smartphone market penetration of has gone above 29% globally in 2011, with 2011 sales reaching 486 million units (Kauffman, Liu, & Ma, 2013, p.4168), whereas the predictions for 2015 evoke that 53%(David, 2011) of the smartphones will be enabled with NFC. Thus, it seems that there is at least a common opinion about the fact that the handset market is moving towards NFC, even if different analysts see the growth tendency under different levels of magnitude.

The organization and roles in this growing market are diverse and follow various patterns. For instance, in terms of the existing players for the electronic payment market (Jan Ondrus & Pigneur, 2006) identified 4 different models: two models involve the physical card, the other two, the phone factor as interface for transaction for enabling mobile payments. Regarding mobile payment in general, the authors identify the presence of mobile operators, banks, large payment corporations (Visa, MasterCard and American Express) and application developers as the parties with the most important roles. Accordingly, there are two separate models to be followed: the operator driven and the self-organized schemes. In their “operator driven model” (Jan Ondrus & Pigneur, 2006, p.3), they see the MNOs and financial institutions as having the leading, or “keystone” position, as referred to in (Iansiti & Roy, 2004, p.2), in the ecosystem. However, as a possible disruption of this model, they see the possibility that “newcomers and intermediaries” or “self-organized schemes” (Jan Ondrus & Pigneur, 2006, p.3) can offer their own mobile payment services. This is exactly what Google, PayPal, A Handset Manufacturer, players that are subject of the currently analysis, are currently planning to do. Thus, the researcher identifies what he labels as the traditional, operator driven mobile payment model, based on the four corner model, which he labels as the collaborative model and a potential disruptive model in relation the first. Again, the traditional model is taken in this research as the collaboration between MNOs that are in charge of storing the payment credentials in the handsets and the banks, functioning under standardized four corners payment model. What is referred to as disruption is viewed in the current research as any model that causes a severe shift in the roles of the players from the traditional model. Currently, there are many references of initiatives which give banks and MNOs a central role, such as Project Oscar in the UK or Sixpack in the Netherlands (Balaban, 2012a). As for the disruptive case, according to (Balaban, 2012b) Google and PayPal, promoters of self-organized payment schemes are afraid that the large MNO and bank partnerships will monopolize the market and leave no room for competition. For this, they had made appeals towards regulatory institutions to take guard the free competitive environment, such as the action at the European Commission, against Project Oscar, as mentioned again by (Balaban, 2012b).
Thus, the market shows a situation in which the collaborative model, based on the standardized four corner payment model of banks in collaboration with the MNOs, meet growing initiatives of insurgent players. Neither the banks nor the MNOs want to be displaced from the NFC mobile payments market, as banks find payments one of their core business and MNOs find payments a good manner to get extra revenues. Thus, these parties should treat the new comers with attention, as also resulting from (Jan Ondrus & Lyytinen, 2011). In this context, what the researcher argues is that at the moment it seems that the mobile payment market is characterized by multiple actors that make use of various strategies to promote their interests. The researcher considers that besides the exclusive and original value added brought by the payment product or model, it is the manner the owners of mobile payment ecosystems are handling the relation to other actors that can lead to higher acceptance and success. Thus, the researcher considers that the quest towards success is mainly based on enhancing the value delivered to the whole network involved in the value exchange for the mobile payments service.

In a network context, there are different types of strategy models that can be used by various actors with the aim of reaching their objectives. One may notice that players are using struggling strategies or muddling through according to (Lindblom, 1989) or at most taking small steps towards their fundamental goal of deploying mobile proximity payment services (Etzioni, 1989). What the researcher considers is the fact that the fundamental direction always changes and in the end there is not a clear winner, the decision being taken always a result of a long negotiating process. In this manner value is guaranteed in the whole network and thus success is reached. Thus, reaching the objectives of both the players working following a traditional model, as well as the disrupters, “self-organized” schemes (Jan Ondrus & Pigneur, 2006, p.3), seems also to be a result of a political game as well, where players fight for obtaining “multiple sourcing” (Bruijn & Ten Heuvelhof, 2008, p.41) in the multi-actor networks that they are placed in. In this game, players are making use of their strategic resources to negotiate a strong position in their network and take appropriate actions in relation to other actors so that they can be placed in a position from where they can reach their objectives. Thus, they should be able to deploy the right strategies in networks, as referred to in (Bruijn & Ten Heuvelhof, 2008), besides strategic choices applied to the value proposition they propose in the market, in order to reach success.

1.2 Research Objective, Relevance and Research Question

Before addressing the objective, the relevance, as well as the research question and the research design for the current research, the researcher introduces some important definitions. These definitions will be argued in some cases more thoroughly in Section 2, using sometimes extra theoretical materials. For now, the researcher only aims to introduce them for practical reasons, so that the reader can fully and undoubtedly understand the content of this section.

**Multi-actor network**: The researcher refers to a space where the owner of a certain value proposition interacts with different parties that have various levels of power and sometimes non-aligned objectives.
**Value-network:** The researcher uses this term based on (Allee, 2008, p.2), that looks into the exchange of “tangible and intangible assets” that facilitates a higher value obtained for the parties involved in a multi-actor network. When the researcher refers mainly to interactions between certain actors in the network, he refers to strategies aimed towards collaborations that enable value exchange between the parties, so that they all feel of benefiting to the model. The interaction is the result of generating strategies under a process approach in a multi-actor network (Bruijn & Ten Heuvelhof, 2008, p.34). When no possibility of exchange derives logically in the researcher’s reasoning, the interactions can also refer to the refusal of exchanging any type of benefits between the involved actors.

**Disruption:** The term refers to the manner in which two important aspects change in the models of the three research objects Google, PayPal and A Handset Manufacturer compared to the case illustrated for collaborative model, taken as a reference. First, the researcher calls a player as disrupter if the organizational model behind the value proposition is not based any more on a single “four corners payment model” (LLC, 2010, p.1), but on a different type of organization. Thus, the researcher labels a player as disrupter if any of the roles of the most important parties involved in the collaborative model such as banks or the MNOs for instance, are drastically changed. For instance, even in the case when the four corner model is respected, but the MNO is not in charge of storing the payment credentials, the researcher views the model as disruptive.

**Success:** In the current research, the objective followed is that of generating a list of potential successful strategies. For this, the author needs to measure the success of the analyzed mobile proximity payments initiatives. In this paper, success is measured by focusing on the level of “multiple sourcing” (Bruijn & Ten Heuvelhof, 2008, p.41) the owner of a mobile payments proposition benefits of in its multi-actor network. The working hypothesis refers to the fact that the more support this party benefits from, the higher the chances in reaching its objectives it has. That is because, success in mobile proximity payments is defined as the extent to which a certain model first brings value to the components of its network and then to the consumers, thus as a consequence capturing the market. In Section 2, the author refers more specifically of certain factors that enable success.

**Strategies:** When talking about strategies, the researcher refers to network strategies (Bruijn & Ten Heuvelhof, 2008) that illustrates the manner in which certain parties should act in relation to other actors in their ecosystem, in order to reach success. Success here is mainly defined as enhancing the overall value in the network. Thus, these strategies can also be seen as part of the political process that involves obtaining as much support as possible for the value proposition.

**Research Objective:** The road towards successful strategies in a network, through the role shift

The current research does not aim to go wider from the boundaries of the value networks (Allee, 2008) identified for Google, PayPal and A Handset Manufacturer. The paper does not focus on any specific local, regional and national market, but takes an international view of the three ecosystems. Through the work, the researcher has sometimes included examples from different markets to support his attempts to identify a generic approach to the roles in
the network. However, the specific localization was not taken into account as important for the line of reasoning of this research. The researcher has taken into account that certain factors such as market behavior, regulation or social perception can influence the results of the analysis, as it is shown in Section 2. However, including these factors in a generalized approach would have extended the dimension of the research under unmanageable dimensions. In the limitation and future research part of Section 8, the researcher recommends how to extend the current work by taking into account the factor mentioned above as well.

The objective of the current research can be formulated like below:

Identify a list of potential successful network strategies that Google, PayPal and A Handset Manufacturer might deploy in relation to the other players in their ecosystem, by analyzing and clarifying the interactions in their value network and defining success from the perspective of enhancing the value delivered in the network.

Relevance of the research: Original theoretical framework, value to the client

The following research objective respects the most important criteria that allow it to be considered as sufficient in terms of quality and relevance for the paper. The research is relevant due to:

- the new conceptual model developed by the author for identifying potential successful network strategies in the mobile payment area
- the value given to the commissioning client of the research
- the academic relevance of the study
- the social relevance of a research in a fast growing industry such as that of mobile payments

First, the research proposes a conceptual model that takes an original approach in identifying the strategies aimed towards success in the international mobile proximity payment ecosystem. The conceptual model combines multiple scientific areas of research such as platform theory, business model theory and strategy in networks theory. These theories and their relevance to the final objective will be introduced further is Section 1.3.

Secondly, it is useful because the client who commissioned the project is going to use the report to have a better understanding of the disruptive propositions in the international market. A special department from THE CLIENT might use the knowledge gained from the research in supporting its consultants for solving cases for their clients. In addition, the commissioner was also interested in understanding the manner in which a researcher would approach the assignment. That is because the company wanted to learn more about relevant theoretical models that could be applied in the area of mobile payments.

The research is valuable from an academic point of view, due to its uniqueness in this area by focusing on a network oriented aspect for NFC mobile payments, both for the collaborative and the disruptive models. For a start, (Dahlberg et. al 2008a) made a review of the most relevant papers regarding the technological and security part of the NFC mobile payments, on one hand and on consumer oriented studies based on this technology, on the
other hand. In the following years after 2008, the researcher identified in the current master thesis, an increased number of publications around this type of mobile payments. For instance, when typing “NFC mobile payments”, Scopus.com database generated 97 publications after 2008 from a number of 122. The rest of 35 were dated as before 2008, when the study of Dahlberg was issued. On the other hand, few results were generated regarding Google, PayPal and A Handset Manufacturer with regards to mobile payments (not only restricted to NFC): typing “Google Wallet” generated 8 findings, all from 2012, “PayPal mobile payments” also 8 findings, whereas “A Handset Manufacturer mobile payments” only 1. From this, the general perspective of the researcher is that there is no massive and relevant work regarding NFC mobile payments for, what he names in this paper, disruptive players. That is the place where the current research aims to bring a contribution. Thus, from an academic perspective, the paper brings a unique added value by identifying the roles, assess the successfulness and coming up with network strategies for these types of new actors in the mobile proximity payments market.

Last but not least, the research is relevant as it addresses a topic that is important from a social perspective, apart from the academic value or practical value for the client. For instance, NFC mobile payments brings added value to the payment industry, by ensuring flexibility, easiness of making a payment and reducing the transaction time between the customer and the merchant, following (Jan Ondrus & Pigneur, 2008).

Research Question: When roles take a shift, strategies in relation to other players should adapt to that

In order to fit the objective and its relevance illustrated above, the researcher has formulated the following research question:

What kind of network strategies should new-coming players in the mobile proximity payment market Google, PayPal and A Handset Manufacturer deploy in relation to the most relevant actors in their networks, in order to ensure their successfulness in the international market?

In order to serve the main research questions, several research sub questions have been designed. By responding to them, the research advances sequentially and in the end manages to provide a rigorous and relevant deliverable. Under each research sub question, there is a short explanation regarding the manner in which each of it contributes to the research objective and thus why it is relevant to be answered:

- What is the collaborative (traditional) model view in NFC mobile payments? (Ex. give some brief examples of existing or planned initiatives) What are the main characteristics of this model? What are the roles of the actors in collaborative model?

The collaborative model is taken as a reference for the analysis. First, because the researcher considers that this model is based on the already standardized four corner model of payment. Secondly, because as it will result from the successfulness evaluation, the model scores as High on the success scale, as it benefits from support from the most important actors in the network. Thus, it can be seen as a reference for the way the actors
interact. The sub questions have the purpose of clarifying the manner in which value is produced in this model and what the roles of the most important actors are, so that they furthermore serve as reference for comparison in the disruptive cases.

- What are the business models of the disruptive players in the NFC mobile payment market? (Address value, technical architecture, organization and revenues)?
  - What is the business model of Google in the NFC mobile payment market?
  - What is the business model of PayPal in the NFC mobile payment market?
  - What is the business model of a Handset Manufacturer in the NFC mobile payment market?

Understanding the manner in which value is produced in the three considered disruptive models is relevant, as this is seen as the first step used for clarifying the roles of the most important actors in these three ecosystems and open the way towards the list of strategies to be recommended. Furthermore, before assessing the successfulness of these models, the researcher finds it relevant to understand the manner value is produced, as he is able to fill in the framework for success developed and contribute to the role evaluation.

- What are the roles of the relevant actors from the three networks?

Understanding the roles of the most important actors (ex. banks, card payment schemes, MNOs and others) in the three disruptive networks enables the researcher to understand the manner in which these actors are positioned around the proposed model. Taking that into account, he can then proceed to recommend Google, PayPal and a Handset Manufacturer, network strategies aimed to obtain multiple sourcing of their models or aimed to soften the blocking position of certain parties when collaboration is hard to achieve.

- In which manner do these roles change in the disruptive model compared to the collaborative model?

This comparison is made, as the collaborative model is seen as the reference case for this research. Besides being the starting point, based on the already standardized four corners model, the collaborative model is also seen as successful due to the facts that the parties involved seem to align their interests to each other. Clarifying the role change gives the researcher insights in what goes different in the three disruptive models, compared to the reference model. This step is considered a base for generating strategies that aim to cover the gap formed as the collaborative characteristics of the disruptive propositions modify compared to the traditional model.

- How successful are the disruptive initiatives according to the success indicator developed?

The final objective of the assignment is to determine the list of potential successful strategies for the three disruptive cases. The level of successfulness of these strategies is labeled, by taking into account the level of success for these value propositions, which is given by the degree of support these initiatives benefit of, in their multi-actor networks. Thus, the higher
potential of success an initiative has, the more successful the potential network strategies are considered. The successfulness of the strategies also takes into account the extent to which an actor is more critical than another. The researcher finds the link between these two categories, as both are based on the multiple sourcing principle from (Bruijn & Ten Heuvelhof, 2008, p.41)

- **What strategies should Google, PayPal and A Handset Manufacturer deploy in their attempt to be successful considering their relation with the other actors in the ecosystem?**

The final list of potential successful strategies is taken as the objective of the research. The degree of successfulness of the value propositions analyzed illustrates, in the end, the degree of successfulness of the strategies. The insights gathered regarding the roles of the most important actors in the three disruptive ecosystems and the manner these roles change compared to the traditional model are used for recommending strategies based on collaboration and multiple sourcing.

1.3 Research design: A theoretical perspective through the role identification towards collaborative strategies

The research design is intended to be structured starting with the main research question so that it meets the objective of the research. In addition, the research design makes use of the sub questions determined above in order to address the most important points for the assignment. The purpose and relevance of the sub questions are used as important steps for building the theoretical framework.

As part of the research design, the researcher has performed two major steps in order to comprehensively manage to meet the objective proposed. First, he developed an original theoretical framework that is constructed as the theoretical glasses he makes use of, in order to resolve the case. Secondly, he applied the developed theoretical framework to the three disruptive research objects (Google, PayPal and A Handset Manufacturer), as well as to the collaborative (traditional) NFC mobile payment model. In this way, he managed to perform the actual analysis that culminates with identifying the roles of the main actors and in the end with listing the potential successful network strategies. The degree of success of these strategies is measured by assessing the level of successfulness of the value propositions analyzed. In addition, it is also the level of criticality of the actors the strategies are orientated towards that matters as well.

**Step 1: Building the theoretical framework:** The theoretical framework is built with by considering four crucial aims:

- First, the framework aims to provide a list of potential successful strategies that the disruptors should make use of in order to be successful in the mobile proximity payment market. The strategies should be seen as of network type, that are used in a process, thus they specifically refer to the manner in which the research objects interact with other parties in the multi-actor network (Bruijn & Ten Heuvelhof, 2008).
- Secondly, in order to identify these strategies, the author needs to identify the roles of the most important actors in the mobile payment ecosystem (banks, the MNOs, the
card payment scheme owners and others) and to which extent they change in the disruptive ecosystems compared to the traditional, collaborative one. That comparison is useful as the collaborative model is used as reference for cooperation between actors.

- Third, another role of the theoretical framework is that of assessing the successfulness potential of the three disruptive cases. That is because taking into account the degree of success of the research objects, the network strategies are labeled themselves as more or less successful. Thus, the researcher extends an existing successfulness indicator developed by previous researchers, so that it suits the needs for his analysis. In addition, he assesses the strategies’ level of successfulness, by prioritizing the actors, taking into account their level of criticality.

- However, in order to reach the insights for the roles, success evaluation and finally strategies, the researcher needs a model through which he is able to explore in an organized manner the value proposition of the disrupters, as well as the value proposition of the collaborative (traditional) model. That can be viewed as the fourth and the final aim of the theoretical framework. The categorization and labeling of the acquired information in a structured, organized manner is done using the business model VISOR for the disruptive cases and through a stakeholder analysis of the collaborative model.

**Step 2: Applying the theoretical framework:** After creating the theoretical framework, the researcher applies it to the case studies. The chosen research objects for the case are Google, PayPal and A Handset Manufacturer, from their perspective of delivering mobile proximity payment services. The initial proposal was that of analyzing Facebook and Apple as well, while not taking A Handset Manufacturer into account. However, the final choice of Google, PayPal and A Handset Manufacturer was chosen given the fact that the three cases represent different organizational models of deploying mobile in-store payments and more information is available about them. They are diverse, but in the same time similar, as they represent a threat for what the author considers the traditional, collaborative model. Banks and MNOs are also considered research objects for the current paper, although their case is analyzed not following the detailed model of VISOR, but by a stakeholder analysis backed by the illustration of several working examples. This approach is taken because there is no need of applying a very detailed analysis, as the roles are considered quite clear and established for this group. They are the reference for the analysis.

**1.3.1 Various theoretical concepts that combined create the theoretical framework**

In order to place the research in the academic context of the mobile payments area, the researcher starts with, by referring to the notion of disruption. There is a lot of literature in this field, starting with (Christensen, 1997) who stresses the meaning of disruptive technologies and then (Markides, 2006) that makes a distinction between technological innovation and business model and product innovation. What is more is that (J. Ondrus & Pigneur, 2006) come up with a clear illustration of the disruption concept in the mobile payment market. The researcher makes use of the latter two sources as bases for defining disruption in the report. The working definition of disruption can be checked in Section 1.3. This is detailed more in Section 2.
In addition, in order to position the research better in the academic world, the researcher uses the model framed by (Dahlberg, Mallat, Ondrus, & Zmijewska, 2008b) that combine and adapt the contingency theory of (Fahey & Christensen, 1986) with the 5 forces model of (Porter, 1979) to address the level of competition in the industry of mobile payments. The current research takes a position in clarifying the notion of success in a competitive mobile payment environment, where disruptors come up with an innovative business model and product. However, the researcher delimitates himself from the holistic perspective of (Dahlberg et al., 2008b) and focuses only on the perspective retrieved from (Porter, 1979) of the competitive factors that influence the level of competition in the mobile payments field. In Furthermore, this subsection aims to go into more details about how each of the four aims of the theoretical framework (strategies identification, role change identification, successfulness evaluation and classification of information) is met through the theoretical framework.

1. Potential Successful Strategies Identification- Theory of network strategies: The current research focuses on the perspective brought by (Bruijn & Ten Heuvelhof, 2008). The authors recommend various ways of response depending on the position of an actor in a network and as a response to other parties involved into the decision making process. The strategies targeted here are viewed as a perspective of interaction with other actors, labeled as “a process” (Bruijn & Ten Heuvelhof, 2008, p.35) and not “operational strategy”, as referred to in (Chambers & Johnston, 2009, p.36O45). In the named book, the authors mainly refer to the operational strategy as the firm’s internal operational response of creating unique capabilities, so that it can respond to market demands. That can refer to specific choices regarding the quality, quantify or price of the service or product offered. In the current thesis, however, the strategies focus on the interactions inside the multi-actor network and do not target the composition of the mobile payment product itself. These network strategies aim to generate responses of the analyzed actor(s) mainly in relation to the other members of their business ecosystem. Thus, the strategy section consists less advice regarding the manner in which Disruptor 1 should only modify its service, but rather in which manner Disruptor 1 should manage the relation with the other actors. In order to operationalize these strategies towards the strategic management area of mobile payments (Iansiti & Levien, 2004) was consulted. The result of the research does not take into account however, the relation between the three business ecosystems to each other and refer to strategies only in terms of actions that the three disruptors Google, PayPal and A Handset Manufacturer have to take in relation to the actors from their own value network. The list of strategies is given as potentially successful, as it is hard come up with an absolute statement in an international context, following a network oriented approach. The level of success of the strategies is measured by considering the level of success of the analyzed initiatives. In addition, a prioritization is made by taking into account the level of criticality of the actors the network strategies are directed towards.

2. Role change Identification-Agent Perspective, role shift indicator: The second aim of the theoretical framework is to identify the roles of the most important actors in the mobile payment ecosystem (banks, the MNOs, the card payment scheme owners and others) and the extent to which they change in the disruptive ecosystems compared to the traditional, collaborative one. For this, the role of each actor is assessed by making use of a multi-actor analysis (Enserink et al., 2010), operationalized for the strategic management field according (Iansiti & Levien, 2004) and (Moore, 1993). The actor analysis is based on a three pillar
model when it comes to clarifying the role of a certain actor: the power of that actor in the ecosystem (resources and dependency), the attitude of the actors towards the disruptive ecosystem (positive, negative and neutral) and the dedication of the actors towards the disruptive proposals. In order to adapt the model to the mobile payments field, the resources are customized in this direction. Some examples of the identified roles are: Saviors (actors that are extremely supportive, extremely dedicated and extremely powerful), Saboteurs (actors that are opposing the initiative, are extremely dedicated and powerful) and other six roles emerging from the combination of the six dimensions. In the end, the shifts in roles (ex. from Savior towards Saboteurs) for an actor (ex. the MNOs) in the disruptive ecosystem compared to the traditional model are the insights that are important for the researcher. This shift in roles is measured using a role shift indicator. Based on the roles of the most important actors, the researcher recommends process, collaborative network strategies. This is the input that the role identification and role change brings to the final goal of the thesis.

3. Successfulness evaluation- Successfulness indicator: The issue of success for mobile payment initiatives has also been addressed before. For instance, (Verschuur Edgar, 2012,p.51), created an indicator for assessing the successfulness of NFC mobile payments in the Netherlands, by combining elements from the business model STOF and platform theory. Based on that, but mainly focusing on the need of finding a manner of assessing the degree of success for a certain initiative, the researcher extends the concept of evaluating success. Thus, he came up with a successfulness indicator through which he aims to quantify the potential of success for the research objects. The successfulness indicator is built by making use of two sets of critical factors:

- The first set is related to the position other actors in the multi-actor ecosystem have over the initiative
- The second set is derived from a specific business model (VISOR) that also includes concepts from platform theory

The successfulness indicator is built with the aim of assessing the success potential of the three disruptive cases, compared to the traditional model. This is a core part of the theoretical framework. The critical factors emerging from the multi-actor analysis theory are the most important in order to assess success potential. The successfulness indicator scores very well in the traditional model, as it is viewed in this paper benefiting from a lot of network support. That is why the example is used as a reference case for collaboration in the current research. It scores however differently on the three cases analyzed ranging from Very Low (Lowest degree of success potential) to Very High (Highest degree of success potential). The successfulness indicator is used as a mean to assess the potential of success for the disrupters. The connection is that the higher a disrupters scores on the success indicator, the more support it already has in the network, thus it should only manage the existing support accordingly as a strategy. On the other hand, in case a disruptor scores “low” at the successfulness indicator, it means it also has more blockers than supporters, thus the enhancing or creating support in its network is more difficult to achieve. That is why the researcher considers that the more successful a certain value proposition is considered, the higher the level of success for the strategies, directed towards components from its value network, is. The success of the strategies, internally for a certain disruptive ecosystem (ex. Google), is assessed by prioritizing the actors taking into account their level of criticality.
4. **Classification of information-Theory of business models:** In order to classify and organize the information about the disruptive ecosystem, the VISOR (Value, Interface, Service, Organization and Revenues) developed by (El Sawy & Pereira, 2013, Section 3), is used. The model gives strong insights about the five dimensions presented and also about platform theory, as the model is constructed on various platform theory concepts. In addition, the key concepts and descriptors of VISOR represent an important input for defining the *successfulness indicator* and the *role shift indicator*.

Below, the reader is able to consult a synthetic representation on how the theoretical framework is structured by making use of the theoretical pillars from above. In short, the final goal of reaching network strategies in the disruptive multi-actor network is facilitated by the role identification and the successfulness evaluation. The role change through the role shift indicator is used as an extra insight for generating a list of strategies, as the initial roles in the traditional, collaborative model are viewed as a reference for this analysis to reach multiple sourcing. The level of success for the initiative labels directly the level of success of the potential strategies, as the researcher considers. The research’s place in the academic world is set by considering the theory of disruption innovation and Dahlberg’s model, as shown in the first light blue blocks.

The manner the research framework has been concluded followed interactions with researchers such as Jan Ondrus (Assistant Professor at ESSEC Business School), Consultant 7 (former researcher, now consultant at THE CLIENT) and Narciso Cerpa (Visiting Researcher at Delft University of Technology).
1.3.2 Methodology section: Analyzing Google, PayPal and A Handset Manufacturer

The choice taken is that of a comparative case study approach applied on the four research objects (the three disruptors and the one general case of the operator-driven model). The reasons standing behind this choice are the actual factors that distinguish the case study strategy from the other existing ones: it explores specifically in a given domain, by considering a small, selective number of research units, using a more depth rather than a breadth approach and makes use of qualitative data and research methods.

The case study implementation follows the exact steps described in the theoretical framework. The traditional model is used as a reference for success in this paper, as the most important actors (the banks, MNOs, card payments schemes, technology vendors and clients) cooperate. The researcher acknowledges that despite the multiple sourcing, in reality the model numerous implementation and organizational issues. The model is also easy to use as a reference, as it is based on the standardized four corners payment model. Here is the order in which the sub questions are answered; providing the same perspective as given by the theoretical framework:

- Explore the proximity mobile payments value propositions of Google, PayPal and A Handset Manufacturer by making use of VISOR business model;
- Use the information gathered using VISOR to identify the roles of the actors from the disruptive networks and then understand the shift, labeled as role shift indicator;
- Apply the successfulness indicator for Google, PayPal and A Handset Manufacturer to evaluate the potential of success of the value proposition and thus in the end derive the level of success for the potential strategies
- Identify the list of network strategies that the disruptors should make use of in order to reach success, based on the principle of multiple sourcing;

The drawback of applying the case study method for the current research is that data is collected mainly using content analysis and only some interviews, but not using on-site observation or group interviews in either Google’s, PayPal’s or A Handset Manufacturer’s headquarters. The manner in which data is gathered and analyzed is detailed in the following section.
The above picture represents a schematic representation the manner the theoretical model is implemented in the current paper. As it can be seen, the theoretical model is applied exactly in a reverse manner compared to how it was presented in Section 1.3.1.

1.3.3 Data gathering and data analysis

In order to fit the comparative case study strategy, a large amount of qualitative data is gathered. This type of data is extracted in order to fit the larger theoretical framework proposed. Only in some cases, quantitative data is also extracted to serve producing explanatory knowledge in complement with the qualitative information.

There are three main important milestones when the researcher relied on gathering data as part of his work:

a Research design and case study exploration

In the first two months of the assignment data was gathered with the aim of understanding and clarifying the value propositions of both the disruptors and the collaborative model. This stage corresponds to the first step of the application of the theoretical model, as presented in Figure 4. The retrieved information was organized using VISOR. The researcher used for this stage specialized industry reports and mobile payments targeted publications such as NFC World, The Paypers, MobilePaymentToday and many others. In addition, the researcher has performed an extensive literature research with the aim of building the research framework and research perspective. He has consulted 4 main databases: Scopus, WebOfScience, IEEE and Google Scholar and used mainly search indices or the same snowballing effect in finding out the right information. In the end, he managed to consult around 50 sources from academic journals.
The most relevant part of retrieving data at this stage was that of interviewing 7 consultants from THE CLIENT, in order to gather information about the mobile payment market and the way the value proposition of the three disruptors is structured. The snowballing effect was used in this stage, as each interviewed person indicated towards another colleague that might give valuable information to the researcher. Most of the interviews were coded during the actual discussion. No recordings have been performed during the discussions. The interviews were usually conducted at THE CLIENT’s office. After the interviews, the information was transferred into electronic format from the notes. The usual duration of one interview was around 30 minutes. The interviews were structured as an open discussion, as the researcher wanted to get as much information from the consultants and did not have enough experience to ask precise closed questions. There was not a standard interview form, but during the discussion with the general structure of the interviews included the points from Appendix 1.1. The researcher has all the interviews in electronic format in his possession and can agree to hand them in if needed.

Table 1: List for first phase interviews using with consultants from THE CLIENT

<table>
<thead>
<tr>
<th>Consultant</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant 1, from THE CLIENT</td>
<td>Functionality of NFC mobile payments ecosystem</td>
</tr>
<tr>
<td>Consultant 2, from THE CLIENT</td>
<td>Google Wallet, PayPal</td>
</tr>
<tr>
<td>Consultant 3, from THE CLIENT</td>
<td>Google Wallet</td>
</tr>
<tr>
<td>Consultant 4, from THE CLIENT</td>
<td>General view of the disruptive initiatives in mobile payment</td>
</tr>
<tr>
<td>Consultant 5, from THE CLIENT</td>
<td>Regulation around NFC mobile payment</td>
</tr>
<tr>
<td>Sales Executive 1 from THE CLIENT</td>
<td>NFC Market behavior</td>
</tr>
<tr>
<td>Consultant 6, from THE CLIENT</td>
<td>Weve project in UK</td>
</tr>
<tr>
<td>Consultant 7, from THE CLIENT</td>
<td>MBN project in NL</td>
</tr>
</tbody>
</table>

b  Case study exploration and multi-actor analysis

During the third month, the researcher started to organize the information in the newly defined framework and thus generate knowledge. This stage corresponds to the second building blocks from the analysis section, the identification of roles and assessment of successfulness for the disruptive cases of Google, PayPal and A Handset Manufacturer. The main insights gathered from the interviews referred to clarifying the roles of the banks (as acquires and issuers), MNOs, card payment schemes, merchants, buyers, handset manufacturers and POS terminals suppliers. These are considered the most important actors present in the both the collaborative and the traditional case. As it can be seen from Figure 6, the 9 interviewees agreed to contribute to this research. These people belong to 5 professional groups: the card payment schemes, the banks, the MNOs, senior consultants and specialized mobile payment press. Due to confidentiality issues, their names as well the institutions they come from are not mentioned in the report. The researcher used instead generic names, as it can be seen in Table 2. What made them knowledgeable is the fact that the respondents are very active in the Dutch mobile payment environment as representatives of their institutions or companies. Some of them also had connections with the previous Dutch NFC mobile payment project Travik or the currently planned MBN. The Senior Consultants have at least 15 years of experience in the field of card or mobile payment. The
Newspaper editor is the chief editor of a specialized NFC mobile payment publication, whereas the two academic representatives are reputed researchers in the area of electronic commerce and mobile payments.

Table 2: List of interviews of second first of interviews, during analysis, which experts in mobile payments area

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Payment Schemes</td>
<td>Card payment scheme 1, <em>Sales Expert</em></td>
</tr>
<tr>
<td>Service Providers (Banks)</td>
<td>Bank 1, <em>Senior Executive</em></td>
</tr>
<tr>
<td></td>
<td>Bank 2, <em>Senior Executive</em></td>
</tr>
<tr>
<td>Mobile Network Operators</td>
<td>MNO 1: <em>Senior Manager</em></td>
</tr>
<tr>
<td>Senior payment consultants</td>
<td>Senior Consultant 1, <em>senior consultant from the client</em></td>
</tr>
<tr>
<td></td>
<td>Senior Consultant 2, <em>senior consultant from the client</em></td>
</tr>
<tr>
<td>Academic experts</td>
<td>Technical University Delft: <em>Narciso Cerpa, Vising Researcher</em></td>
</tr>
<tr>
<td></td>
<td>ESSEC Business School: <em>Jan Ondrus, Assistant Professor</em></td>
</tr>
<tr>
<td>Specialized publications</td>
<td>Newspaper editor 1: <em>chief editor</em></td>
</tr>
<tr>
<td>Disruptive players</td>
<td>Google: <em>decline interview due to confidentiality issues</em></td>
</tr>
</tbody>
</table>

Following the purpose of clarifying the roles of the critical actors, the interviews were mainly based on a format that is similar to that of determining the role shift indicator: power, attitude and interest of the analyzed actors regarding the analyzed value proposition. In addition, during the discussions, the research has also been able to extract information regarding critical factors for the successfullness indicator and even some ideas regarding strategies. The manner in which the questions were asked depended on the type of respondent the researcher was interviewing. For instance, the banks representatives were asked in which manner they position the role of their institution regarding the three disruptive propositions. In addition, they were asked to assess the manner in which their clients (merchants and buyers) position themselves as well, taking into account their strong relationship with their customers. The standard interview form, as well as the exact topics the respondents answered can be consulted in Appendix 1.1.

The main method of retrieving data consisted here of another stage of interviews. The interviews were organized into various locations in the Netherlands and on Skype, in the period May 6th- May 24th. The locations chosen varied from THE CLIENT’s headquarters, the respondents’ offices, even a bar in Utrecht and the on-line environment. The interviews lasted in general between 60-90 minutes, were recorded so that furthermore the researcher could make use of the exact words of the respondents in his analysis. The researcher has stored all the recordings on his mobile handset and can make these files available in the case confidentiality does not represent an issue. Furthermore, the researcher transcribed the results following the framework useful for identification of the roles of the most important actors. During this part, also the notes taken during the actual interview were used in order to depict the non-verbal language. In addition, the researcher also coded the interviews by following the second set of critical factors (VISOR, platform theory) from the successfullness indicator. He tried to detect the opinion of the interviewees about topics such as the chicken...
and egg problem, the network effect, multi-sidedness characteristic of the market and many others.

As a general remark, the researcher identified a lot of enthusiasm and dedication of the respondents towards his questions. In addition, it was very interesting to identify various perspectives for the same issue when interviewing different parties, such as banks, MNOs or card payment schemes. One can note the inherent bias the interviewees had shown when questioned about the international NFC payment market, as all of the respondents are activating in the Dutch industry. The researcher has taken these answers into account and tried to ask the question again in case he realized that the answer could not be used for the worldwide perspective of his research. In the cases he received the answers for a specific national context, but the answer could have been given the same for a different context, the researcher generalized the findings. The interviews may also be seen as biased, as the respondents gave answers regarding the position of a category they are not part of. (ex. the banks on behalf of the merchants). The researcher had to proceed in this manner, in the cases when he could not access a certain category.

c Reflection on the list of strategies

The final month of the research was designed on directing the information retrieved in the previous second stages through the theoretical framework towards the final list of network strategies. Thus, all the remaining part of the data analysis was based on the conceptual model developed. Furthermore, the researcher reflected together with THE CLIENT on the strategies proposed, during an internal presentation on June 21st.

1.4 Conclusion: The manner the sections build up

The introductory section placed the current research in the mobile proximity payment international context, right in the battle between disrupters and the incumbent players grouped under the collaborative model. The collaborative model is taken as a reference in the paper and is considered as an organization model based on the standardized four corners model that places the banks as the keystones and the MNOs as supportive, dominating actors. The three disruptive cases analyzed are Google, PayPal and A Handset Manufacturer. For answering the research question, the researcher has developed an original conceptual model based on successness indicator specifically designed for a mobile payment case and a role shift model based that has the roots in a multi-actor analysis. Before pursuing to the role identification of the actors, the authors make use of the business model VISOR, to categorize the information about the disruptors. For the traditional model, a simple stakeholder analysis is used. Following that, the shift in the roles of the actors in each of the three networks is assessed compared to the traditional model and the level of success of each of these three models is assessed. In the end, the conceptual model proposes a list of strategies in relation to other actors in the network that would steer the disruptors towards success. In the end, the current paper aims to bridge the knowledge gap that exists regarding NFC mobile payments and new coming initiatives that aim to disrupt the market in an international environment.

The research design is based on a stepwise response to these sub questions. The responses mainly emerge one from each other, however in some cases two sub questions
were answered in parallel (ex. Parallel business model exploration of PayPal and Google). Following this structure, Section 2 presents in more detail the theoretical framework applied to this case, by elaborating on the theoretical materials used as input and by clarifying each of the steps taken. Section 3 starts with section 3.1 that explores into more detail the value proposition of the collaborative model, by applying a stakeholder analysis that already makes use of information regarding the position and role of each actor. Section 3.2 matches the information about the roles in the framework proposed, while Section 3.3 applies the successfullness indicator to the collaborative model, with the aim of taking it as a reference for the disruptors. Furthermore, Sections 4, 5 and 6 focus on applying the theoretical framework on the case studies of Google, PayPal and respectively A Handset Manufacturer. The first three out of the four major goals, meaning the role shift, successfullness evaluation and information gathering are reached in these sections. Thus, Sections 4.1, 5.1, 6.1 apply to business model VISOR on the three disruptive propositions. Sections 4.2, 5.2 and 6.2 determine the manner in which the roles of the different actors change in the three cases compared to the collaborative model, by applying the role shift indicator. In the end, Sections 4.3, 5.3 and 6.3 focus on determining the success potential of the three case studies, by applying the successfullness indicator. The analysis part of the research ends with Section 7, which identified potential successful strategies for Google, PayPal and A Handset Manufacturer. In the end, Section 8 concludes the findings of the research, but also critically reflects on its findings and the results.
2 Theoretical framework towards potential successful network strategies

The following section clarifies the manner in which the theoretical framework is built by the researcher, with the aim of being a tool of reaching the research objective proposed. The manner in which the framework is applied has been narrowly sketched in Section 1 and is detailed in Sections 3-6.

2.1 The place of the research in the area of mobile payments

The model developed by (Dahlberg et al., 2008b), is viewed as the starting point of framing the theoretical model for the current research. The choice is made as the model is extremely useful for the researcher to position himself in the mobile payments area and focus on the “competition between service providers” (Dahlberg et al., 2008, p.3). For this research, the service providers are seen on one hand, as the disrupters and on the other hand, as entities that follow the collaborative model. The model is used rather as an introductory milestone before the other analysis steps towards the final network strategies. The value of it emerges from the fact that, the authors propose a comprehensive and extensive literature review in which the competition in the mobile payments industry is assessed as a cumulating effect between the five competitive factors adapted from (M.Porter, 1985) and the contingency theory factors adapted from (Fahey & Christensen, 1986).

![Figure 5: The focus on competition between m-payment service providers, retrieved and adapted from (Dahlberg et al., 2008, p.3)](image-url)
Following the picture from above, the authors adapt the five forces model of (Porter, 1979), into a four forces one, following these “competitive factors”: “power of the consumer”, “the power of the buyer” (instead of that of the supplier), “the traditional payment services” (competitive rivalry), the “new e-payment services” (new entrants), according to (Dahlberg et al., 2008, p.9-13). It is based on these four dimensions that the conceptual model of the current research is based on. This current paper, however, makes a small step ahead and focuses on a more specific segment of the mobile payment market, the proximity part of it with an important focus on NFC. “The traditional payment services” (Dahlberg et al., 2008, p.12) are in this work represented by the operator-driven, collaborative model. That is the organizational structure in which banks and MNOs have a keystone role in enabling mobile payments, while maintaining their standardized role, based on the four corners model of making a payment. The “new e-payment service” (Dahlberg et al., 2008, p.12) are in the current work the parties defined as the disruptors, more specifically the three research objects Google, PayPal and A Handset Manufacturer. The other parties such as consumers, merchants, but also banks, card payment schemes and MNOs are all influencing the level of competition by making use of their power and interests. As it will be seen, they are extremely relevant for the analysis.

Regarding the “contingency factors” from (Dahlberg et al., 2008, p.5), they do not represent a core focus for the current research. The current paper takes these external dimensions only at the level of future research direction. In the current report, the focus takes solely a “research based for creating strategic alliance” view of (Das & Teng, 2000, p.1) applied to the mobile payment industry. This choice is taken following the impossibility of assessing network strategies in a given market context, due to the international focus of the paper and thus difficulty of taking a generalized approach of these factors. That could add too much complexity to the current paper which cannot be manageable at a master thesis level and does not fit the objective. However, the researcher at least mentions these factors, so that he gives the reader a good perspective to the exact spot his research is focused on.

The disruption as business model and not as technological innovation

Regarding disruption in general, there is a multitude of research being performed in the area of disruptive innovation. For instance, (Christensen, 1997) focuses on disruptive technologies and how they surpass existing technologies in the market and thus provide a competitive advantages for the disruptors in relation to the incumbents. The limitations of taking the technological approach is evoked in (Markides, 2006) that makes a distinction between a technology innovation and business-model or a product innovation perspective. In the same paper, the author identifies strategies used by new entrants such as offer a low cost and differentiation when he talks about business model innovation or shifting away competition from technical performance towards the cost in case of the product innovation model. In this master thesis, the researcher takes the latter definition about disruption, by naming disruptive those organization schemes that are not based on one single four corners model as in the collaborative model. Thus, the researcher considers disruptive the cases when the roles of the most important actors, for instance that of the banks, or the MNOs, change from a leadership position towards a more secondary one.
The collaborative model as the reference model that suffers disruption in the mobile payment ecosystem

For the purpose of applying disruption more specifically to the mobile payments area, (Jan Ondrus & Pigneur, 2006, p.6) introduced a so called “Classification Matrix”, in which they distinguish four big directions determined by the payments technology and payment service providers. Thus, they refer on one hand, to cards based and mobile based payment services from a technological point of view and, on the other hand, to “operator-driven” (ex. financial institutions/MNOs) or “self-organized payment schemes” (ex. Public transport companies, merchants, sports events organizers), from a service provider point of view. In addition, according to them, disruption occurs in two main directions. The first would be a change in the technological point of view (a migration from card to mobile), while keeping the service providers as either the financial institutions or MNOs. The second type of disruption and the most relevant for this research is the one when technology remains constant as interface for payment (ex. mobile handset), whereas the switch occurs from the service provider point of view. Thus, in this case instead of financial institutions or MNOs, the keystone players are the self-organized schemes, also known as “intermediaries” or “new comers”, players such as independent payment schemes brought by PayPal and Google and even initiatives lead by handset manufacturers (ex. A Handset Manufacturer).

![Classification Matrix](https://example.com/classification_matrix.png)

Figure 6: Classification Matrix illustrating disruption for card-based and phone-based models, retrieved as adaption from (J. Ondrus & Pigneur, 2005, p.2)

When referring to the Phone-based and Operator-driven type of players, (J. Ondrus & Pigneur, 2005) consider all types of initiatives lead by MNOs and financial institutions. Thus, the authors remark that in this case the mentioned parties can either work independently or together. The latter is referred to as the collaborative model. This aspect is made even clearer in the case of consulting (Smart Card Alliance, 2008), which gives a more detailed information regarding “potential business model scenarios” in mobile payment. The document identified specific organizational models such as: operator-centric model, bank-centric model and in the end the collaborative model, in which either MNOs, banks or respectively both are taking the lead. It is the collaborative model that is taken as reference for the traditional model in this research. The collaborative model is considered in this case as the traditional four corners card payment model (LLC, 2010) with the MNOs being in the
control of the phone factor. Thus, for instance when the MNOs lose control of handling payment information in relation to other parties, the card payment scheme lose their role of intermediating payments, or banks the leadership in payments, then the researcher talks about disruption. Whether one of these conditions occurs, the researcher labels the newly self-organized initiatives as disruptive.

2.2 A four step exploration of the theoretical model

After clarifying the academic context, it is important to restate the main goals of the theoretical framework are. This can be seen in the list below:

- Identification of potential successful network strategies for the disrupters in the new proposed mobile in-store payments ecosystems
- Clarifying the shift in roles for the most important actors in the disruptive ecosystems compared to the collaborative(traditional) model; the roles of the actors are important as the owner of the value proposition can assess the level of support it has in its multi-actor network; the shift is relevant as the collaborative model is seen as the case where the owners have the highest amount of support from the other parties;
- Assessing the successfulness of the three cases seen as disruptive and, through that, assess the level of success of strategies that these players should deploy;
- Organizing the already gathered information about the value proposition of the case studies

Thus, the conceptual model aims to come with an approach to cover all these four dimensions. For this, the researcher integrates several existing theoretical blocks starting with the VISOR business model exploration, used for classifying the information and ranging until the network strategies perspective retrieved from (Bruijn & Ten Heuvelhof, 2008). When applying it into the analysis section, the researcher starts with the last goal listed above and ends with the objective, the strategies. It is in this manner, that the researcher choses to take a detailed approach on the composition of the theoretical section below.

2.2.1 Getting the most important insights using VISOR

The business model part will be used to describe the models of the four players subjected to analysis Google, PayPal, A Handset Manufacturer, but also the baseline case (the operator driven model). There are many choices for business models exploration such as VISOR (El Sawy & Pereira, 2013), Canvas (Osterwalder Alexander, 2010), STOF (Reuver, Bouwman, & Haaker, 2009) and also many others. The main criteria the researcher has taken into account when choosing a certain business model was: suitability for the answering the research question of the thesis, fitness to the mobile project context and novelty. The choice for using VISOR is argued with the fact that this model has not been applied at a large scale in academic work, thus the researcher wanted to experiment a bit more in his paper. In addition, by the fact that VISOR is includes a strong component of platform theory, by using concepts such as value network that includes the exchange of tangible and intangible goods (Allee, 2000), give insights on the network and the manner actors interact which each other. This is an important step that leads towards the network strategies in the end. Last but not
At least, it is the structured manner of articulating the components of a digital business model that is extremely useful for classifying the information.

VISOR is a flexible model, designed specifically for digital business contexts. It includes as an important part a major platform theory base. As its main components, the framework consists of Value proposition, Interface, Service Platform, Organizing Model, and Revenue Model (VISOR). Moreover, as another advantage of its suitability to the mobile proximity payment case, VISOR also includes user experience and interface factors through its basic descriptive structure. Thus, the researcher can organize the new features of mobile proximity payments in a structured manner. As a disadvantage, the researcher considers the fact that because the framework has been recently designed, thus it did not have time to be applied at a large scale. Comparisons to previous works where it was applied are hard to be made because of this aspect. In addition, concepts from platform theory such as value network, network externalities and building a critical mass from recognized scholars such as (Jarvi & Pellinen, 2011), (Allee, 2000), (Cusumano, 2010) or (Eisenmann, Parker, & Van Alstyne, 2008) are included in the structure of the model.

Regarding business model VISOR, this serves to analyze the current status of a platform based business model, but also study from a more theoretical approach the “effects of disruptions and game changers” (El Sawy & Pereira, 2013, p.21) on the future development of the analyzed business models. It can be viewed as a conceptual framework for designing digital business models, both as designing a product or a process. VISOR can go deep into notions such as “meta-requirements”, “meta-design”, “kernel theories” or “testable design product hypothesis”, according to (El Sawy & Pereira, 2013, p.21-15). In the current research, the purpose of applying VISOR is that of clarifying and classifying under several categories the different business model propositions that are analyzed, but do not focus on design issues. By using it with the aim of generating descriptive knowledge, VISOR is used to give a complete image about the business models described. In addition, the manner in which success is seen by VISOR is extremely helpful for clarifying the objective of this thesis. According to (El Sawy & Pereira, 2013) success of a value proposition is addressed from two perspectives. On one hand, from the user’s side, that should “maximize their willingness to pay” (El Sawy & Pereira, 2013, p.24) and in this way spend more on the proposition. On the other hand, it is about the manner in which the components from the value network are able to exchange tangible and intangible benefits in the most efficient manner for each other. Thus, one can see success referring either to the consumer or to the multi-actor network that produces value. In his manner of evaluating success, the researcher concentrates on the latter aspect more, as it measures the level of support the disrupters benefits of in their networks.

VISOR addresses the digital business model proposition from five descriptive dimensions: Value, Interface, Service, Organization and Revenues. Each of these five dimensions is elaborated on using several more detailed descriptors and generates knowledge, clustered in the key concepts column. The information is retrieved from (El Sawy & Pereira, 2013, p.29-35)
<table>
<thead>
<tr>
<th>Value</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer understanding, Customer value, Customers, Customer Relationship, Lock-in effects</td>
<td>Compelling, Cohort, Complementarity, Co-creativity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interface</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value interfaces, Customer interfaces, Services and linkages</td>
<td>Functionality, Form factor, Fluidity, Forgiveness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Platform</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key resources, IT infrastructures, Logistic stream, Technology, Core technology investments</td>
<td>Architecture, Agnosticism, Acquisition, Access</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organization Model</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key partnerships, Organizational characteristics, Channels, Value network, Connected activities, Stakeholder network</td>
<td>Processes, Partnerships, Pooling, Project Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Revenue model</th>
<th>Descriptor</th>
</tr>
</thead>
</table>

Retrieved from: (El Sawy & Pereira, 2013, p.29-35)

VISOR is applied for each of the three disruptive case studies, following the five central dimensions Value, Interface, Service, Organization and Revenue. When it is needed, the researcher makes use of more detailed descriptive indicators. In addition, for Service Platform, the researcher uses the technological and organizational openness defined by (Eisenmann, Parker, & Alstyne, 2008). For the Organizational model, he relies also on the value network concepts of (Allee, 2000), that depict the level of exchange of tangible and intangible assets in a network, with the aim of enhancing the network's value. Moreover, for the Revenue mode, the researcher makes use as applying VISOR of the multi(sided markets (Jarvi & Pellinen, 2011) and network effects (Rochet & Tirole, 2003)

The exploration using VISOR represents the modality in which information is grouped in a clear and structured manner in such a way so it can serve as an input for clarifying the roles of the most important actors in the analyzed cases. In addition, the VISOR exploration is also used as an input for the second group of critical factors for the successfulness indicator. Thus, the research considers that the VISOR exploration is the first step towards the targeted network strategies.

2.2.2 Role identification and the role shift compared to the collaborative model

The identification of roles of the actors in the present in the multi-actor networks of the research objects three dimensions. The first is the power, which is based on resources. The other two, the attitude and the interest of the actors, are also extremely important. The role mapping is performed according to the following model, developed by (Hillson & Simon, 2007, p.41). There are eight roles to be identified from the analysis, as shown in the image.
the figure, the resources together with the level of being replaced in network are then summed up in the power indicator.

Figure 7: Roles of actors in a network depending on Power, Attitude and Interest, retrieved from (Hillson & Simon, 2007, p.41) as cited in (Bosch-Rekveldt, 2012)

The final goal of this theoretical block is to reach towards the roles of the most relevant actors that have an influence on the successfulness of the value propositions. As stated in Section 2.2.1, success is evaluated in this thesis more from a network perspective. The researcher considers that the more support an owner has in its network, the higher the chances for success are, through a collaborative approach. Because the entire research considers the level of multiple sourcing from the traditional, collaborative model as a reference, the researcher aims to see in which manner the roles of the actors shift in the disruptive models compared to the initial case. That is what the researcher calls the role shift indicator. This gap will be then the base of recommending alternative network strategies that aim a collaborative approach. Thus, reaching to the final roles and then to the gap is done in 4 steps:

Step 1: List the most relevant actors from the standardized model of making a payment for assessing their role in the ecosystems chaired by the disruptors (Google, PayPal and A Handset Manufacturer). Identify the position of each of these actors judging from the perspective of the disruptive value proposition.
Table 4: Research design: The value added of each actor in Disrupter's 1 (ex. Google) multi-actor network

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude/Position [Rate from --,--,-/,+,++,++]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruptive player (owner of ecosystem)</td>
<td></td>
</tr>
<tr>
<td>Actor 1</td>
<td></td>
</tr>
<tr>
<td>Actor 2</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
</tr>
<tr>
<td>Actor n</td>
<td></td>
</tr>
</tbody>
</table>

**Step 2:** Identify the level of power of each of the actors, by assessing the level of dependency of the actors from the point of view of the disruptor's network. The dependency is assessed as high, medium, high, depending on the combination between resources and replaceability (limited, easy based on indicators such as “valuable, rare, non-imitable”), (Barney, 1991, p.103)

Table 5: The level of dependency, thus the power of each actor in a Disrupter's network

<table>
<thead>
<tr>
<th>Actors</th>
<th>Important resources (limited, great) importance</th>
<th>Replacebility (limited, easy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruptive player (owner of ecosystem)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actor 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actor 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actor n</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Retrieved and adapted from (Enserink et al., 2010, p.98)

The manner in which the researcher calculates the level of power is displayed in the Appendix 2.3.

According to (Das & Teng, 2000), strategic decisions of the firm should be judged first by considering internal characteristics, derived from a specific firm’s resources and not on the exogenous environment. The authors argue that while in general the accent is placed more on the competitive environment, it would be maybe more indicated to focus on a “resource-based rationale” (Das & Teng, 2000, p.36) when it comes to making alliances for instance. This point of view is based on (Barney, 1991, p.106) that identifies that resources have to be “valuable, rare and non-imitable” for creating competitive advantage. In addition, the researcher uses (Bruijn & Ten Heuvelhof, 2008, p.41) argument of “multiple sourcing”, that justifies alliance building, as an important indicator for success. Thus, the researcher aims to identify the most valuable resources for each of the players in the ecosystem, that contribute to the level of power of these actors, as a further input used for identifying the network strategies. In order to create a structure customized for the current research, the researcher has identified a list of resource specific for the mobile payment area from the larger e-business domain. The creation of the following list has been facilitated by concepts from
platform theory and business model VISOR, but also on the general list extracted from (Enserink et al., 2010, p.96). In addition, some of the resources were included in the list following their recurrent presence in the opinions of the interviewees from the second set. All the list can be viewed below:

**List of resources for the mobile payment ecosystem:**
- Position in the network, access to customers
- Reputation, brand value
- Control of the embedded Secure Element
- Position in the network, access to merchants
- Financial potential
- Control of the Secure Element in the UICC
- Position in the network: Authority/Formal Power
- Knowledge (skills in a certain area)
- Technological resources: building payment infrastructure
- Position in the network: Support from actors
- Organization: ability organize resource efficiently
- Technological resources: ability to build payment terminals

**Step 3: Clarify the role/ value added of the actors in the three disruptive networks:**

Table 6: Roles as combination of power, attitude and interest

<table>
<thead>
<tr>
<th>Actors (Power included)</th>
<th>Attitude</th>
<th>Dedication Activation: 1...5</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruptive player (owner of ecosystem)</td>
<td>++,...,--</td>
<td>1...5</td>
<td>Savior... Saboteur</td>
</tr>
<tr>
<td>Actor 1</td>
<td>++,...,--</td>
<td>1...5</td>
<td>Savior... Saboteur</td>
</tr>
<tr>
<td>Actor 2</td>
<td>++,...,--</td>
<td>1...5</td>
<td>Savior... Saboteur</td>
</tr>
<tr>
<td>...</td>
<td>++,...,--</td>
<td>1...5</td>
<td>Savior... Saboteur</td>
</tr>
<tr>
<td>Actor n</td>
<td>++,...,--</td>
<td>1...5</td>
<td>Savior... Saboteur</td>
</tr>
</tbody>
</table>

The roles identified can be the ones from (Hillson & Simon, 2007), but also operationalized towards a more strategic perspective, by making use of (Iansiti & Levien, 2004). That helps the researcher in illustrating the strategic positioning of some certain actors in a business ecosystem. For instance, the owners of a value propositions are Saviors, as they all the interests of sourcing their own initiative, but have also a keystone/dominator position as they have a leadership role.

- *keystone* for the actors that are leaders in the platform and create value; they are encouraging change and diversity of the network;
• *dominators* for the actors that are leaders in the platform but only want to take away the benefits; they are reluctant to change and diversity as they feel threatened;
• *niche players* for actors that contribute for the value proposition, but not as core elements in the platform.

The various colors of the actors represent that the specific actor is powerful (*Highly critical*), which is colored in red, medium powerful (*Medium Critical*), which is colored in orange or less powerful (*Easily critical*), which is colored in blue.

**Step 4: Comparing the roles of the actors in the disruptive cases with the reference model**

This last step clarified the roles/value added of the actors in the networks of the disrupters. The roles of the most relevant actors in the disruptive networks are compared to their roles in the collaborative model. The different roles are displayed into different colors (green-red). This shows that those types of actors are disrupted, as they role change. This is in line with the definition of disruption which is seen in the current research as any change in role occurring from the collaborative model (four corners models with the MNOs in charge of the phone factor).

**Table 7: Various roles in different scenarios**

<table>
<thead>
<tr>
<th>Actor</th>
<th>Value Added/Role in the traditional four corners model/NFC payment</th>
<th>Value Added/Role in disruptive ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruptive player (owner of ecosystem)</td>
<td>Role disrupter</td>
<td>Role disrupter</td>
</tr>
<tr>
<td>Actor 1</td>
<td>Role 1</td>
<td>Role 1</td>
</tr>
<tr>
<td>Actor 2</td>
<td>Role 2</td>
<td>Role 2</td>
</tr>
<tr>
<td>...</td>
<td>Role …</td>
<td>Role …</td>
</tr>
<tr>
<td>Actor n</td>
<td>Role n</td>
<td>Role n</td>
</tr>
</tbody>
</table>

Retrieved as personal contribution of the researcher

The roles and the extent to which they got further away from the collaborative approach in the traditional model are the input the researcher needs for coming up with network strategies. The final aim of these network strategies is that of obtaining multiple sourcing (Bruijn & Ten Heuvelhof, 2008, p.41) of the model and where not possible, diminishing the influence of the blockers.

**2.2.3 Evaluating the success potential of the proposed case studies**

Success is defined in this research as primarily from a network perspective. The more support the owner of a value proposition has among the most important actors in its network, as each party benefits from the change of tangible and intangible assets, the more successful it is considered. Several authors tried before to explore the feasibility of success for mobile payment services. For instance, (Reuver et al., 2009) tried to link critical success factors with design parameters, by taking into account a restricted organizational and financial view of the business models. In addition, (Verschuur Edgar, 2012, p.51-54) builds a framework through which he assess the "Strategic feasibility of NFC mobile payments in the..."
The model combines elements from the STOF business model with elements from platform theory to be able to assess the success in the Netherlands for the NFC mobile payments initiatives. In the current paper, the research has used the idea of an indicator that serves evaluating the potential of success for the research objects at stake. For this, the author combines elements from another business model (in this case VISOR, which already contains elements from platform theory and value creation in e-business) and mixes them with multi-actor in network elements. These items that compose the *successfulness indicator* for the current research are referred to as the *critical factors*.

This extended indicator is not specifically designed for the disruptive cases and can be applied also to other mobile payment initiatives. Thus, the researcher aims to apply the indicator first to the reference model and then to the disruptive cases as well. The researcher reflects on the difference emerging from applying the indicator and in this way comparing the degree of successfulness of the initiatives.

Below, one can see how the *critical factors* emerging from multi-actor in networks theory, VISOR business model (including platform theory) and the model of (Amit & Zott, 2001) that aims four value creation dimensions in e-business come together in the *successfulness indicator*. (Amit & Zott, 2001) talk about four important drivers of value creation in e-business, the area where mobile payments is part of: novelty, lock-in, complementarity and efficiency. The final list of indicators have been determined by the researcher by asking numerous times the question "*What does success mean?*", when addressing a generic term such as success.

**Figure 8:** The *successfulness indicator*, retrieved as personal contribution of the researcher starting with (Verschuur Edgar, 2012, p.51)

**Successfulness indicator based on critical factors**

**Network Oriented critical factors; most relevant for current definition of success**

- **Number of actors** *Highly critical actors*: (Hillson & Simon, 2007, p.41)
- **Numbers of Saboteurs**
- **Numbers of Saviors**
- **Number of Sleeping Giants**
- **Number of Time Bombs**
Consumer Oriented critical factors, relevant from assessing success from a customer (merchant and buyer) perspective; not crucial for the current evaluation of success

- Value towards the customers: (El Sawy & Pereira, 2013, p.29)
  The more valuable the product itself is for the consumers (buyers and merchants), the higher the success is considered from a consumer perspective; value refers here to the degree of likelihood of consumption and usefulness to the client; complementarity is treated differently using (Amit & Zott, 2001)'s complementarity indicator;

- Security of the value proposition: (El Sawy & Pereira, 2013, p.29)
  Security is another dimension of value proposed to the customers, that will make the product usable;

- User interface for the client: (El Sawy & Pereira, 2013, p.30)
  The more fluid and functional an interface is for the consumer, the more accepted the product can be seen for them, thus the higher chances for success from consumer perspective;

- Platform openness (organizational, technological): (El Sawy & Pereira, 2013, p.31), (Eisenmann et al., 2008, p.7)
  This factor assesses how easy it is to access the platform from outside, from an organizational or technological perspective; thus the platform can be either closed or open following these two dimensions; the researcher considers that the more open a platform is, the better and easier is the customer’s value, thus the higher the success is from a consumer perspective;

- Multi-sided market: (Jarvi & Pellinen, 2011, para.3)
  This critical factor is relevant, as the merchants and the buyers are brought together and thus the value of the proposition increases for them and in the end so is the success from a consumer perspective

- Indirect network effects: (Rochet & Tirole, 2003)
  Represents that the more clients are present on one side of the platform, the more valuable the platform is for the other part, thus the higher chances for success are from a consumer perspective;

- Direct network effects: (Rochet & Tirole, 2003)
  Refers to the situation when the more customers are subscribed to a platform, the more valuable the platform product; the platform will be more valuable for the consumers as well, thus more successful from their point of view

- Critical mass: (Rochet & Tirole, 2003)
  Reaching a minimum number of users so that the platform is valuable for the other side; thus, achieving critical mass makes the platform successful from a consumer perspective, thus being relevant as a factor;

- Reputation in the market: (El Sawy & Pereira, 2013, p.33)
  A highly reputed company in the market increases the quality of partnerships with the actors in its network; some of these actors are the consumers that perceive the company as delivering a valuable service, fact that enhances the success of the company from a client perspective;
• Pricing for customers: (El Sawy & Pereira, 2013, p.33)
*The willingness to pay for the mobile payments products should match the value delivered to the customers; in this manner the model is considered successful from a client perspective;*

• Lock-in effect: (Amit & Zott, 2001)
*The lock-in effect contributes to value creation in e-business according to the (Amit & Zott, 2001), through mechanisms that enhance the switching costs such as loyalty programs, establishing trust and customization possibilities and others directed towards the customers; thus, an initiative characterized by lock-in effects can be seen a successful for the clients;*

• Novelty (Amit & Zott, 2001)
*Novelty refers to a new type of transaction structure and content for the customers that is more attractive; novelty is considered by (Amit & Zott, 2001) to contribute to enhancing the value proposition, thus they can be seen as a factor for achieving success for the clients;*

• Complementarity to existing payment networks(Amit & Zott, 2001)
*In case customers can complement the new value propositions to their existing payments behavior, then their value experience can be enhanced; thus the researcher considers the factor as of success for customer;*

• Efficiency of payment solution (Amit & Zott, 2001)
*The factor refers to a manner that utilizes resources such as time and cost more efficient for the users of the product; (Amit & Zott, 2001) see this as a manner of enhancing the value proposition for the customers, thus the research considers efficiency as a critical success factor from the client’s perspective*

There are no coefficients attached to the critical factors from above. In this case, the assessment of the successfulness potential is performed following two important criteria. The first set is the most important, while the second is only used as a decisive criterion when the first is not able to deliver conclusive results:

1. **Critical factors emerging from theory of multi actor networks:** The relation between the leaders of the model and the position of the other critical actors in the network (ex. the number of critical actors existing in the network, the number of Savior, the number of Saboteurs).

2. **Other critical factors:** The critical factors are used as a decision criterion only in the case when the first criterion is not conclusive enough (ex. comparable number of critical actors that are supporting or blocking the initiatives)

That is due to the fact that as already mentioned success is defined following two pillars: the value delivered to the customer and the value delivered to the network (Reuver et al., 2009) and (El Sawy & Pereira, 2013). In this research however, success is chosen as more depended on the value delivered to the network, through tangible and intangible benefits the actors receive, following the same choice made by (Reuver et al., 2009) at the beginning of their study. This choice also facilitates choosing network strategies as type of strategies recommended, as it is seen in Section 2.2.4. Thus, it is the extent to which the initiatives receive support from the actors that determine success. The other aspect, the focus on the customer’s experience and on the intrinsic value of the mobile payment product to the
customer is not the prime focus of the research. That is why the second set of critical factors is not of prime importance in the evaluation. The critical factors based on VISOR, platform theory and (Zott & Amit, 2008) are used for clarifying the value towards the consumer and by justifying the extent to which buyers and merchants support the initiative in the multi-actor network they are part of.

The output of the probability of success using the indicator applied to the disruptive cases follows the scale below.

- **Very High**: all the critical actors in the ecosystems are supportive (Saviors)
- **High**: the majority of critical actors in the ecosystems are supportive (Saviors); the others are passive (Sleeping Giants); there are also other actors against, but these actors do not have a critical power position;
- **Medium**: besides Saviors and Sleeping Giants, there are also critical actors that can are aiming to block the ecosystem (Saboteurs)
- **Low**: the majority of critical actors in the ecosystem are Saboteurs
- **Very Low**: all the critical actors in the ecosystem are Saboteurs

In the cases the researcher is unable to label the successfulness clearly using the network set of indicators and when the second set of indicators scores decisively in a certain direction, then the latter can be used as a means to influence the final success assessment. Overall, the successfulness indicator is extremely useful as it helps the researcher to compare the degree of success for the disruptive initiatives and with that, quantify the degree of success for the recommended strategies. Thus, the researcher considers that the more support an actor benefits of in its network, the higher score the strategies on the successfulness scale is.

### 2.2.4 Network strategies of disruptors emerging from the role change of the actors

The transition, from the roles identified to the network strategies Google, PayPal and A Handset Manufacturer should deploy, is done in the multi-actor network context. For this, the research makes use of (Bruijn & Ten Heuvelhof, 2008) concepts on strategy in networks, but also (Iansiti & Levien, 2004) with the purpose of adapting it towards a strategic management area. The strategy is viewed as a manner of managing the relations with the other relevant actors, a more process oriented perspective rather than a project oriented perspective (Bruijn & Ten Heuvelhof, 2008, p.35). In addition, the researcher considers that the more multiple sourcing is detected around an initiative, the higher the chances of success are, as the actors present in the network feel that the exchange with either tangible or intangible goods is beneficial for them. This is justified from the network perspective of defining success (Reuver et al., 2009) and (El Sawy & Pereira, 2013). That is the reason for which the aim of the researcher is to recommend collaborative strategies that are targeted towards obtaining the support of relevant parties around the value propositions, sometimes through a wheeling and dealing, political type of negotiation. As a reference, the traditional, collaborative model is used for sketching an ecosystem where the most important parties have common interests in supporting an NFC mobile payments proposition.

The manner of interaction with the other actors is identified considering how the role, value added of each actor changes in the disruptive ecosystems compared to their role in the

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reference model. In addition, the insights gathered by applying the successfulness indicator are obtained mainly due to the multi-actor in network perspective taken. The strategies are viewed as separate responses from the disruptor towards each actor in the network and not combined. Establishing an order and prioritization of dealing with all the actors together exceeds the objective of the research, due to time boundaries. In addition, the current framework does not intend to generate strategies of disruptive players in relation to other disruptive players (ex. Google in relation to PayPal). However, the author stresses that the current framework can be extended so that it can reach this goal if needed.

Potential network strategies, retrieved from (Bruijn & Ten Heuvelhof, 2008, p.55-79) depending on various roles of the actors look as the following:

- Involving the actor in the decision making process
- Selectively activate an actor, depending on the roles:
  - Parties with production power: to obtain multiple sourcing
  - Parties with blocking power: to obtain avoid “risk of catch as catch can”, while introducing the “Trojan horse” risk
  - Parties with diffuse power position: keep their option open
- Build redundancy, by making creating more relations in their network and thus a stronger position
- Create room for give and take by making the game a multi-issue one, in this way incenting a cooperative behavior
- Manage the winners and losers
- Building synergy with in sharing the benefits between parties
- Influence the perception of the gain
- Enlarge the shadow of the future
- Framing a loss a joint loss
- Keep relations with losers open
- Keep the game as a continue multi-issue process
- Priming: create a sense of urgency
- Raise complexity of the situation

As the (Bruijn & Ten Heuvelhof, 2008, p.90-113) stress in the book, by applying the strategies in a multi-actor network the parties have to commit in respecting several rules of the game in order to maintain their trust inside the network. For instance, actors should show respect to the ritual, “not play chess on two boards” (Bruijn & Ten Heuvelhof, 2008, p.107) simultaneously without letting the others aware of that or use the exit option in an inappropriate moment.

The level of success for the strategies is quantified through the successfulness indicator. As mentioned in Section 2.2.3. If Google’s success is assessed higher than PayPal’s, then all the strategies regarding Google will be ranked higher than PayPal’s, as the researcher considers that Google is closer to a collaborative model than PayPal. However, inside Google, the more critical an actor is, the higher the success of the strategy deployed in relation to it, is considered. Thus, when identifying the network strategies, the author has
decided to rank them considering the level of power and dedication of the actors in the network:

1. Focus on the actors that are powerful and dedicated in the value proposition and try to change their attitude in the ecosystem
2. Focus on the actors that are powerful, but not dedicated; try to activate them in such a manner that they could become Saviors;
3. Try to bring the other less powerful parties on board as well, but after dealing with the most important ones

The conclusion is that as all the strategies are aimed to reach multi sourcing, it is the actors that are the most critical that are the most important to tackle in order to reach success. Reaching the proper network strategies is the final objective of the theoretical framework.

2.3 All the theories combined create the theoretical framework

The theoretical model is built by the researcher so that it serves the goals of being able to analyze the issue on stake. It follows the goals of clarifying the way the value added, roles of different actors change in the disruptive initiatives compared to the reference, traditional one.

The final goal is to identify a manner in which the research objects should manage the relationships with the most important actors in their networks in order to reach success. This refers to finding the potential successful strategies. The strategies are labeled as successful by taking into account primarily the actual level of success of the disruptive initiatives. Success is evaluated using the **successfulness indicator** and defined as the amount of value the proposition produces in its value network. Thus, the more value and more agreement there is among actors from a multi-actor network, the higher the successfulness of the initiative, and implicitly of the strategies, is. For that reason, the researcher needs to identify the roles of the most important actors in Google, PayPal and a Handset Manufacturer mobile proximity payments value network and come up with strategies that aim towards a collaborative approach. The researcher takes as a reference the collaborative model between banks and MNOs for deploying NFC mobile payment services, where he considers the relationships between the most important actors as being aligned under common interests. By using the **role shift** indicator, the researcher tries to discover the collaborative gap created in the disruptive models. The recommended strategies should cover this gap. In order serve as an input for the role identification and successfulness evaluation, VISOR business model is used to categorize and label the information about the disruptive initiatives.

The integration of the main theoretical blocks in single theoretical framework is displayed below. The scheme brings a conclusive approach to the research perspective. The application of the theoretical framework to the analysis section is done in the following Sections.
The transversal arrows show that information from the two blocks is compared to each other and results into a new type of information that is transmitted further by making use of the horizontal arrows.

Figure 9: Research framework, from business models to strategies, through multi-actor analysis
3 Domain description: The collaborative model of NFC: The traditional roles of the actors in the ecosystem

The following Section proposes a stakeholder analysis of the collaborative model. Following the stakeholder analysis, the roles are separately emphasized and in the end the successfulness of this model is extracted as the reference indicator for the next cases. Before start, it is essentially to remember that the collaborative model, also considered as the traditional manner of deploying NFC mobile payments in this research, is a combination based on the “four corners payment model” (LLC, 2010, p.1) (referred further as the four corners model), on top of which the position of the MNOs is given as the party responsible of storing the payment credentials in the mobile handset.

3.1 Stakeholder analysis: The collaborative model as the four corners model plus the MNOs, as reference for research

Figure 10: Collaborative (traditional) model, from the four corners model with the MNOs, retrieved from (Smart Card Alliance, 2008, p.24)

The Collaboration model represents the model considered as a potential success, as key findings of the (Smart Card Alliance, 2008, p.29) report. Furthermore, the section uses
mainly insights gathered from (Smart Card Alliance, 2007), (Smart Card Alliance, 2008), (Cluckey, 2011) as well as numerous discussions with the consultants and internal materials of the client. Where citations are required, the researcher indicates this explicitly in the text.

The collaborative model proposes a joint approach between SPs (Service Providers, banks are named like this as well, as they provide financial services) and MNOs, but also other stakeholders, with the purpose of creating a virtual business ecosystem in which a new stakeholder will be included: the TSM. Whereas the main structure of the four corners model remains unchanged, it is inside a common agreed partnership, that the revenues resulting from fees such as interchange, merchant’s commission as well as transaction fees between the client and the issuing bank/ MNO will be finally split between the actors involved in the payment system. For this case, the reference is made to SPs, MNOs and TSMs (Smart Card Alliance, 2008).

Regarding the number of collaborative models, (NFC Times, 2013, para. 2) search found 218 projects worldwide, spanning a time earlier than 2007 until the present. Following a brief exploration of the database, the researcher considers as the first impression that most of the mobile proximity payments projects are restrained (around 30,000 users), mainly still in the trial phase and deployed in a bounded, local context. In addition, using interviews with two consultants from the client, the researcher gathered information about ISIS and MBN project, a U.S. and respectively a Dutch based initiative. Detailed information about these initiatives can be found in Appendix 3.1.

Furthermore, Section 3 continues with a stakeholder analysis of the most important players placed in the collaborative NFC ecosystem. The roles are considered rather static and clear and are used as a reference for comparison in the analysis section. It is then not the purpose of this section to go into too many details regarding the position of different actors. This section can be viewed rather as a domain description, although some elements on the analysis are present, structured as a conclusion regarding roles from the researcher’s perspective.

### 3.1.1 Consumers: Merchants and Buyers

The prime goal of the **merchants** is to increase their sales towards the buyers and thus enhance their revenues and profits. Merchants can achieve buyer’s lock-in by making use of NFC mobile payments loyalty and couponing schemes. In addition by making use of the efficient characteristic of the service platform, the merchants decrease their costs of handling cash, increase their sales due to diminishing queuing, thus optimizing their value chain. (Smart Card Alliance, 2007) and (Cluckey, 2011)

On the other hand, **buyers** benefit from an enhanced user experience brought by characteristics that provide added value such as couponing, loyalty schemes and enhanced information about the product (THE CLIENT, 2012a), the speed of the transaction as well as of the integration of all payment channels into a single mobile one. Thus they will save more time during a transaction and benefit of an enhanced buyer experience.
Based on the facts listed, the researcher notices that both merchants and buyers, referred to as the consumers, have the main role of being able to use the NFC mobile payment services. They are a separate element of the “chicken and egg” problem. Buyers need to have a smart device with NFC capabilities (Secure Element, NFC chip, NFC antenna, upgraded operating system for the digital wallet), whereas merchants need to make use of upgraded hardware and software terminals to be able to accept NFC payments. In case of compatibility, the buyer just “taps” his/her mobile handset alongside the payment terminal and after an authentication/verification procedure the transaction is initiated, following the line from the four corners model.

3.1.2 Banks: Issuers and Acquirers

From the banks category, according to (THE CLIENT, 2012b), (Smart Card Alliance, 2008) and Bank 1, a distinction is made between **issuers** and **acquirers**, as it is respecting the structure of the four corners model. The reason for which the banks are inclined to invest in supporting deployment of NFC mobile payment solutions is based on the gain that is at stake for them. The new payment method increases sales from merchants towards the buyers, by making the purchase more convenient and thus generating more transactions which are ultimately profitable for the **acquirers**.\(^1\) In addition, the expansion towards mobile payments services enriches the number of payment channels **issuers** are able to offer to their clients. They also diminish their costs in issuing physical cards. The conclusion of the researcher is that more revenues are generated by the Service Providers due to the easier interaction with the clients. In addition, both issuers and acquirers are following the customer in the mobile world through the provision of a new mobile payment solution, thus keeping up with the trend.

The researcher notices that the role of the Service Providers is that of offering payment services to both merchants and buyers. Thus, the most important **resource** is that of direct contact with these two groups (acquirers respectively issuers) and the control they have on the payment network from this position. When the interaction between the merchant and the buyer takes place, an authorization request is sent to the issuer through the acquirer and the card network infrastructure (THE CLIENT, 2012c). Following that, the actual transaction takes place from the issuer to the acquirer and then to the merchant’s account. However, what is specific for the NFC mobile payment is the manner in which confidential payment data is deployed, from the Service Providers towards the mobile handsets. As referred to in (Smart Card Alliance, 2007, p.9), the payment information is stored into “soft cards”, that reside placed on a piece of hardware inside the phone and are accessed through the digital wallet interface. The deployment of information is performed Over the Air (OTA), through the MNOs, in a secure manner, by making use of a network infrastructure designed by a TSM.

3.1.3 Mobile Network Operators

The role of the MNOs can be viewed as three fold, according to (Smart Card Alliance, 2007, p.24-25) : they are involved in the “Card Management, Card Provisioning and Card Hosting”. The **Card Management role** refers to the fact that the MNOs give the consumers the possibility of managing their payment cards, through the digital wallet installed on the mobile handsets provided by the carrier to them. The **Card Provisioning** perspective, the MNOs has\(^1\) It is profitable for the acquirers because of the fee received by the acquirers at every transaction
a key role in enabling the payment application in the mobile handset to be receiving payment credentials from the banks, transported over the air (OTA), thought a trusted party called the TSM (THE CLIENT, 2012d). Regarding the Card Hosting, the secure element can be placed in the:

- UIICC (Universal Integrated Circuit Card) that enables the SIM function
- embedded in the handset during manufacturing
- in a detachable SD chip

For the case the Secure Element is placed in the UIICC, the MNO has the possibility to control the access to it, and thus have a strong position in the whole NFC mobile payment ecosystem. Thus, when Service Providers request access to deploy its payment application on the software application on the Secure Element controlled by the MNO, they pay a rental fee that is the subject of negotiations between the two partners (Smart Card Alliance, 2007). The MNOs are in this case the Secure Element Issuer (SEI). The perspective of either an embedded SE or an SD-based SE pass the control of the hosting function towards the handset manufacturers and take the MNOs out of the game. The researcher observes that the power of the MNOs comes from the fact that it is in charge with the distribution of the handset terminals to the clients, they can decide to block certain types of handsets to reach their clients.

3.1.4 Trusted Service Managers (TSMs):

The TSM is the new infrastructure element added by the NFC mobile payment, without altering the four corners payment model. TSMs have the role of mediating the deployment of confidential payment data from the SPs to the mobile handsets, in the SE (Smart Card Alliance, 2007) and (THE CLIENT, 2012e) They represent the link between the SPs, more precise the issuing bank that is looking forward to send payment credentials and the MNOs, that host and manage payment credentials received. By their existence in the value network, TSMs provide trust and reliability to the consumers. TSM do not interfere with the four corners model. The TSM is isolated from the initial card payment network, as shown in Figure 20. The ownership of the SE can be in the hands of MNOs or handset manufactures. It is the control of this component that triggers the strategic discussion of the analysis, as the researcher notices and addresses in the Sections 4, 5 and 6.

![Figure 11: Role of TSM in a NFC mobile Payment Transaction, retrieved by adapting (THE CLIENT, 2012d, p.6)](image-url)
In an attempt to make the role of TSM clearer, a parallel between the deployment of payment data inside a physical card (regardless whether it is an EMV or a magnetic stripe one) and into the mobile handset by made. The information is based on (THE CLIENT, 2012e, p.11) and Consultant 1. For the case of physical payment cards, the issuing bank outsources the issuing of cards and contacts a personalization bureau that personalizes a card obtained from the card vendor and mails it towards the customers. For the case of NFC mobile payment, it is the actual TSM that does this. However, the TSM can be viewed in this case as being composed from two different parts: “the SP TSM and the SEI (SE Issuer)”, (Client, 2012d, slide 11) TSM. From the bank’s perspective, which again outsources the card issuing, the SEI is the same card vendor from the physical payments. In this case, the bank rents a part of SE chip from the SEI (which in this case is the MNO) enough space in order to securely store its banking application there\(^2\). The bank manages the relation between both the SP TSM and the SEI. The SEI manages the relation with its own TSM (SEI TSM). It is the horizontal and vertical collaboration from this model that in the end enables the bank to securely store the credentials in the application offered by the SE.

The researcher considers that is important is that the role of the TSM is that of ensuring a secure and trustworthy environment of deploying information from the Service Providers towards the mobile handsets. The main resource of this component is in fact its actual ability of provisioning this infrastructure, which makes it irreplaceable for the operator driven, traditional model. Examples from the high tech companies working as TSMs include: Gemalto, Morpho, Giesecke & Devrient (G&D) or Oberthur Technologies, according to Senior Consultant 2.

### 3.1.5 Handset suppliers

The researcher considers that the role of handset suppliers is that of supplying the market through their own delivery channels or through the MNOs of mobile handsets that are enabled with NFC capabilities. According to the specialized NFC website (NFC World, 2013), there are more than 150 types of NFC enabled handsets on the market with a perspective of reaching around “53% of the overall market by 2015”, following (David, 2011, para.2). According to (NFC World, 2013) among the current ones, one can list the flagship handsets such as A Handset Manufacturer Galaxy SIV, Google Galaxy Nexus or HTC One X/XL, Blackberry, LG, Nokia, Motorola and Huawei.

The handset supply on the market usually goes through the MNOs. As generally known, MNOs buy a certain quantity of products from the manufacturers and sell them over to clients. For the case of some Google phones such as Google Nexus 4, Google Nexus 7, Google Nexus 10, according to (Google, 2013a), that can be bought directly from Google Play, through removing MNOs from the value chain. The researcher considers that this fact can have further consequences regarding the strategies used, as it will be explained in the analysis section.

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\(^2\) The manner in which the revenues will be split by the banks and the MNOs are through negotiations; banks can pay the MNOs considering the number of transactions or a fixed rental fee for the space in the payment application
3.1.6 Secure Elements and NFC terminal suppliers

The role of these two technology suppliers is to enable NFC acceptance to buyers and respectively to merchants. The SE suppliers provide the SE chip either towards the handset manufactures to place it in the mobile device as embedded, or towards the SD card producers, as also mentioned above from (Smart Card Alliance, 2007) The collaborative model is mainly based on the fact that the SE is integrated in the actual UICC\(^3\), used in order to use the SIM function, with suppliers such as Infineon (Infineon, 2012) or NXP.

On the other hand NFC terminal suppliers are selling specially designed hardware and software equipped payment terminals, towards merchants, which are constructed with the purpose of supporting NFC payments. Some examples of terminal suppliers are VeriFone, Ingenico, and Equinox Payments, according to Consultant 1.

The researcher considers that the main resource of these suppliers is the fact that they are providing the technological components that make the NFC ecosystem work. On one hand, banks are ultimately capable to store their payment credentials in the Secure Element. On the other hand, merchants are able to accept contactless payments.

As a conclusion and a short revision of the whole ecosystem retrieved from the above mentioned sources, the information from the Service Providers (banks) is stored securely in a payment application on the Secure Element owned by the Secure Element Issuer, in this case the MNO. The information is sent OTA by making use of the TSM(s) infrastructure. The payment information on the SE is accessed from the mobile handset User Interface Application in a secure manner by the customer, which in the end makes the payment towards the merchants through the regular four corners model payment infrastructure. NFC enables that the communication between the merchant and the buyer is done in a standardized and secure manner. This model is valid for the collaborative model, viewed here as traditional, in which banks and MNOs take the lead of the payment platform either together. This model respects the traditional card based, four corners model and does not apply to disruptive players that are targeting activating in the mobile proximity payments market, as it is shown in Section 4, 5 and 6.

3.2 Roles: The roles as the reference for the disruptive cases

Following (Hillson & Simon, 2007) and (Iansiti & Levien, 2004) definition of the specific roles in what is referred in this research as the traditional mobile payment ecosystem as those shown below:

---

\(^3\) UICC: Universal Integrated Circuit Card
Table 8: Reference roles of the most important actors in the collaborative model

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Payment Schemes</td>
<td><strong>Savior</strong> of NFC, they want as many transactions as possible to transaction fees; their interest is high</td>
</tr>
<tr>
<td>In-store Merchants</td>
<td><strong>Savior/Sleeping Giant</strong>: they aim to have as many sales as possible and thus increase their revenues; they are one of the end customers of the payment services; they have a very big potential to make NFC work, however their interest fluctuates</td>
</tr>
<tr>
<td>Acquiring bank</td>
<td><strong>Keystone</strong>: they control the relationship with the merchants; they sometimes provide the contactless terminal that has to be integrated with the cash register of the merchants; they aim to support deployment of NFC payments, in order to service the merchant through different channels; they are keystones because they payment is their core business and are dedicated to make this ecosystem work in any case and adapt to change⁴</td>
</tr>
<tr>
<td>In-store Buyers</td>
<td><strong>Sleeping Giant/Savior of NFC</strong>: they aim making use of value added services (loyalty, couponing); they are one side of the chicken and egg problem as they are the other side that is using the service and can trigger the acceptance of payment with NFC; their interest is high, but their dedication is not always certain, thus the role oscillation;</td>
</tr>
<tr>
<td>Issuing bank</td>
<td><strong>Keystone player</strong>: they are enabling the payment to take place; they aim at a high interchange and more transactions; the aim is offering a diverse set of services to their clients, so that they reach the customer through more channels; they can have the direct contact with the buyers, thus they can negotiate a manner of deploying the Secure data</td>
</tr>
<tr>
<td>MNOs</td>
<td><strong>Savior, Dominator player</strong>: they support the collaborative mode because they receive a fee for hosting the credentials from the banks; they are extremely powerful because they control the handset, the access to the wallet and the SE in the UICC; in addition they are responsible for the distribution of handsets: also Role Card Management, Card Provisioning, Card Hosting⁵; they are dominators (not keystones) because payment is not their core business, but rather a manner of enhancing their revenues, thus focus on extracting value more than investing in the ecosystem;</td>
</tr>
<tr>
<td>Handset manufacturer</td>
<td><strong>Niche(Friend)</strong>: they are proactive to this initiative, but they are not very strong in influencing the model; that is because they usually need the MNOs to distribute their device</td>
</tr>
<tr>
<td>POS terminal supplier</td>
<td><strong>Niche(Friend)</strong>: they are not very powerful because they are all dependent on the demand of merchants and acquirers for their products; they have to deliver what is requested; they have the interest in supply as many devices on the market</td>
</tr>
</tbody>
</table>

One may notice that all the actors in the traditional model of NFC have a positive attitude towards the proposition, regardless of their role and power. The researcher has made this classification by himself, as a next step following the stakeholder analysis. One may notice that all the main parties align their interests in the collaborative model, as each is willing to source the initiative. This is taken as the reference case and starting point of the analysis. Section 3.3 details the manner in which this fact has an implication over the successfulness evaluation of this model.

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⁴ They also invest funds in the mobile payment model as payments “our core business and we want customers to think at us when making a payment” (Bank 1)
⁵ As clarified in the stakeholder in Section 3.1
3.3 Successfulness indicator: Scoring High, as the reference for the comparison with the disruptors

The following table represents the application of the successfulness indicator for the collaborative model. There are two sets of critical factors displayed in the table. The first set, the network critical factors, refer to the amount and type of support each model benefits of in its business ecosystem. This is the most important criteria when assessing successfulness, as referred to in Section 2.4. The second set is composed of factors that are connected to platform theory and give insights about the value proposition of the collaborative (traditional) model from a customer’s perspective. This criterion is used only when the first does not display any conclusive results and the researcher finds himself in a position when he is incapable of assigning a certain indicator for success (ex. he has to decide between Medium and High). In addition, the criterion is also used for justifying the importance of meeting support in the ecosystem, by setting the context through listing key characteristics that give insights about the value proposition.

Table 9: Successfulness in the collaborative model

<table>
<thead>
<tr>
<th>Critical factors</th>
<th>How the collaborative model fits the critical factors</th>
</tr>
</thead>
</table>
| Owners                           | 2: Banks (Keystones)  
                                    :MNOs (Dominators)                                                                                                                                                                                                                                                     |
| Number of Saviors                | 1: Card payment schemes                                                                                                                                                                                                                                                  |
| Number of Saboteurs              | 0:                                                                                                                                                                                                                                                                       |
| Sleeping Giants                  | 2: merchants and buyers are on the edge between Saviors and Sleeping Giants                                                                                                                                                                                               |
| Time Bombs                       | 0:                                                                                                                                                                                                                                                                       |
| Friends (Niche players)          | 3: TSM, handset manufactures, POS terminal vendors                                                                                                                                                                                                                     |
| Value towards the buyers         | +efficiency, conveniences; it is easier to leave their wallet at home and pay in a faster manner, according (Bank 1)                                                                                                                                                        |
| Value towards the merchants      | +Easier, because it is faster, as they can service more customers  
                                    +Increase sales, as they can process more low value payment transactions according (Bank 1)  
                                    +can achieve lock-in of the customers through loyalty and couponing;                                                                                                                                               |
| Security of the value proposition| +based on the standardized manner of storing of the credentials inside the Secure Element in the UICC; transport of information is securely performed through TSM;  
                                    +mPIN to make a payment with the handset⁶, according (Bank 1)                                                                                                                                                  |
| User interface for the client    | +The digital wallet that integrates couponing, loyalty and payment management; this contributes to the ease of use of the service;  
                                    +interface between client and merchant with NFC, the card becomes virtual from physical; the clients does not need to know how complex is the payment process behind, they just have to easily use the handset for payments according (Bank 1) |
| Platform openness: technological | +Conditioned from the technological point of view: both buyers and merchants have handsets/POS that have to be enabled with NFC; payment should follow the infrastructure                                                                                                      |

⁶With the aim of increasing convenience, by reducing time spent at the store, the clients can in several cases pay without introducing the PIN (ex. MBN- 5 times 10 euros transactions); however, in case they need to feel more secure, clients can chose to insert the PIN before every transaction;
| Platform openness: organizational | Organizational Open: The buyer has to be subscribed to the service of MNOs for being able to make use of the SE in the UICC; banks and MNOs should have an agreement for payment credentials deployment in the UICC; the buyer has to have a bank account with one of the banks from the model; |
| Multi-sided market: | There are two sides of the market: the buyers and the merchants that interact in the buying process through NFC |
| Indirect network effects | The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes. |
| Direct network effects | The more merchants are offering loyalty and value added services the more valuable the digital wallet is for the buyers |
| Ability to create a critical mass | because of the large access MNOs and banks have to the public |
| Reputation in the market | The banks are perceived as trusted entities in the markets by their customers and have good connections in the ecosystem; the MNOs possess a large public exposure and connection with the handset producers, however not trusted as much as the banks; |
| Financial viability: Pricing for customers | The pricing model does not change from the standardized payment four corners model; merchants pay the same amount of fees to their acquiring bank, the buyers pay a small fee for the card issuing and the acquiring bank pays interchange to the issuer. The MNOs receive a fee for hosting the payment credentials in their SE and the TSM and POS suppliers are paid for providing the network. The model is viable from a financial perspective |
| Lock-in effect | Customers are locked-in the NFC operator driven model, because the offering of loyalty programs through the wallet, the trust of the transaction; -Not clear if customers are locked-in in because of the phone factor according (Bank 1) |
| Novelty | It consists of a new manner of enabling a payment transaction from the perspective of the buyers who can tap their phones and perform the payment fast; the merchant can also accept the payment fast and move to the next client; |
| Complementarity to existing payment networks | Complementarity to existing contactless infrastructure from the perspective of merchant; ability to complement the offline payment model, by only replacing the payment card, but maintain the back-end model |
| Efficiency of payment solution | The efficiency is related to the enhanced speed, simplicity of the transaction and lower search costs of the consumer due to the personalized offers; decrease costs of handling cash and decrease queuing in-stores |

For filling in the successfullness framework for the critical factors, the researcher has used his own judgment, using the insights from cited sources in Section 3.2, as well as an interview with Bank 1. The questions asked for Bank 1 respected fully the second set of critical factors for the successfullness indicator. Thus, the researcher coded in the synthetic manner from the table. The questions to Bank 1 were asked during the same interview when Bank 1 was inquired about its position on the mobile payments propositions of Google, PayPal and A Handset Manufacturer. The interview was recorded and then transcribed in electronic format, by also making use of the paper-and-pen notes. The interview lasted 75 minutes and was organized at Bank 1’s headquarters at the end of May 2013. Although the researcher
acknowledges a bias given by the Dutch context, he considers the answers have a worldwide applicability, as he tried all the time to rephrase the question on the general ecosystem, when the banks expressed too personalized opinions.

The identified roles, as well as the above listed success factors, are taken as a reference for the analysis part, as argued in Section 2.2.2. In addition, as the model is argued to be the established one, the traditional one and the starting point of the analysis, the others are considered to be disruptive and their successfulness chances are also related to it. One can observe that the initiatives benefits of three strong supporters: the banks (as keystones), the MNOs (as dominators) and the card payment schemes\(^7\). There are no critical actors that oppose the initiative (Saboteurs), while the reluctance of utilizing the service makes the merchants and the buyers Sleeping Giants. In addition, there are three Niche players supporting the ecosystem. Taking this into account, from a network perspective the collaborative model scores “High”. It does not score “Very High”, as some of the players are considered as Sleeping Giants instead of Saviors, as they are not activated yet to support the initiative. However, the researcher considers that the customers are close to be activated, as the majority critical factors targeted on customer success score positively.

\(^7\) It is the keystone-dominator cooperation that makes the model so complex and difficult to implement in reality; this is what causes the technical and organizational complexity mentioned; however, in this case the model is considered successful due to the high support it has in the network;
4 Google: VISOR, role shift and score on the successfulness indicator

Google is the first disruptor to be analyzed. The purpose of this Section is to determine the roles of the most important actors and to identify the manner in which these roles change compared to the collaborative model. This is done by making use of the role shift indicator. Another objective of the current section is to assess the successfulness of Google in the mobile proximity payment market. This fact is determined by making use of the successfulness indicator. The insights gathered from role change identification and successfulness evaluation are then used in Section 7, as input for the potential successful strategies identification, as it is argued in Section 2.3.

4.1 VISOR: Two times the standardized four corners model

The researcher identifies that Google is active in the virtual payment industry, through its Google Wallet, a digital wallet that gathers all the information from the cards (either debit or credit) and gives them the possibility to pay online to merchants. The online merchants do not have to be part of Google Wallet. Recently Google has started reversed process from the virtualized world, in which it plans to step in the in-store, physical world. In addition, in March 2013, Google received a seat among the 13 member NFC Form Board, the organization gathering companies interesting of leveraging NFC towards among their payment solutions, according to (Balaban, 2013e). The researcher considers that this fact suggests that Google wants buyers to be able to pay using their mobile handsets to merchants using NFC, through its Google Wallet and that it takes a strong strategic position on that.

4.1.1 Value: Convenience and security

Google Wallet comes up with two big directions concerning the value proposition it proposes to its clients, as the researcher identified. On one hand, it concentrates on offering online shopping experience to the buyers and the merchants. On the other hand, it also offers a physical payment service in-store. Both directions of payments have in common the concept of the digital wallet, the Google Wallet.

As a value towards users, Google Wallet enables the payer to store all the information concerning payment in a personalized account, in which the client logs in. By naming information concerning payment, the reference is made specifically to storing credit/debit card data (card payment information of the client), but also to offers/coupons from merchants towards buyers. Furthermore, the payment experience is considered in this way more convenient and faster to the buyer, who does not need to carry its physical wallet anymore, have all the discounts cards together in one single place and reduce his/her time spent at the counter (Ross, 2012).

Google Wallet is also viewed as a secure solution for the paying process both for online and in-store payments. This is at least what it is promoted on Google Wallet’s webpage and through different communication channels belonging to Google. Of course, one can identify an inherent bias in this interpretation, which however is backed by facts. For paying in-store following a proximity way of payment using the handset, the installed mobile wallet has a 4-
digit PIN that needs to be typed in the mobile handset in order to open the application. This happens on top of the existing security mechanism, provided by the handset on the running platform itself. In addition, the user can remotely disable immediately his/her account online in case the handset gets lost or stolen. In addition, the information about the credit/debit cards deployed in the wallet is safely secured in an encrypted manner, in one of Google’s secure servers. In the first instance of the payment process, Google pays the merchant and then takes the money back from the buyer (this aspect is in Section 4.1.4). Thus, neither the merchants nor even the handset operating system has access to the payment information. In addition, also regarding security, the online payment method is secure, as Google argues (Google, 2013, par.3), thanks to the “multiple layers of password protection”.

On the other hand, according to some scholars or publishers such as (Kauffman et al., 2013, p.4168) and (Kit, 2012) some security flaws have been spotted, in the sense that a malicious app can use the phone power to crack the PIN encrypted in the handset and thus have access to the digital wallet. Thus, in the case someone steals the handset and has the required technological knowledge to crack the stored PIN, he/she would be able to access, without authorization, information from the wallet such as card numbers and transaction history. Furthermore, users might not be happy, because Google owns their private information from its systems.

The researcher considers that although the bias with which Google sees its own value proposition, the wallet can be considered secure. This statement is backed by several facts listed above that cannot be contested.

4.1.2 Interface: Google Wallet from the PC in your room to the mobile handset to be used in-store

The buyer can have access to Google Wallet first considering the device it makes use of. Thus, Google Wallet can be accessed from a PC, for online payment using Card Not Present\(^8\) transactions or from a mobile handset in the case of both online and also in-store payments. For the latter, the customer is protected by the 4 digit PIN before being able to manage the payment, gift and reward cards, selecting the desired card payment method or checking details about the account, according to (Roland, 2012).

The consumers can easily navigate through the interface. Below, one can see some handset interface examples. It is easy to add a payment card, reward card and also view the personalized offers. The last version of Google Wallet (2.0), was planned to be launched in Nov. 2012, according (Balaban, 2012e). The current version of Google Wallet is 1.5.

\(^8\) Card Not Present Transaction: type of transaction when the credentials are transmitted remotely, due to the fact that, client does not have to be in the same store as the merchant;
The core interface analyzed in the research is the one used on the mobile device. The researcher took the decision to place it in the context of online access from the PC and the physical card to be used in-store, with the goal of making the reader acquainted with all the interfaces between the users and the product. More details about the physical card interface can be consulted in the Appendix 4.1.1.

4.1.3 Service: Everything around the embedded Secure Element

Storing the Service Provider’s information in the handset
As also stated in the Section 4.1.2, one main feature of Google Wallet is that it allows the storage of different credit and debit cards in a single place. Then the payment is performed as a Card Not Present Transaction, because there is no need of the physical existence of the card for the transaction to be performed. Technologically, once a client introduces the credentials from a physical card, Google stores information in its cloud servers. Furthermore, it will provide a virtual card to the consumer. The virtual card still belongs to Google. For the in-store payment, it is then this information from this virtual card that is stored in the embedded SE, more specifically in the MasterCard PayPass application (prepaid card), which is there in every embedded SE belonging to a branded Google handset. In addition, the information on this virtual card is used during a contactless transaction between the customer and the merchant. The customer has access from the user interface in customizing the virtual card to his/her preferences.

The Secure element
Addressing the in-store payment, the main technological dilemma lies around the secure element. The researcher considers that the SE is besides an infrastructure element, an important strategic resource that will be analyzed from this resource perspective in the analysis section. For now looking only from a technological point of view, Google relies on an embedded SE (built inside the handset during manufacturing) in the handsets produced in direct collaboration.

The method in which the Service Providers relate to the secure element is not direct, in the sense that banks do not place their own payment application on the Secure Element. Instead of that, Google Wallet uses a “mobile MasterCard prepaid credit card” on the SE, according to information (THE CLIENT, 2012f). The SPs (ex. banks) couple their information offered to
the clients to the Google backend. Thus, Google backend can in this manner couple any credit/debit card a consumer wants, regardless of the brand (MasterCard, VISA, Amex etc.). Below, one can check the manner in which payment data are stored in the Google Wallet inside the handset

![Google Wallet Technical Architecture](image)

Figure 13: Google Wallet Technical Architecture, retrieved from as personal contribution, using picture from (Brian, 2012, picture 1)

In order to be able to use Google Wallet to pay in-store, merchants need to possess a POS terminal that accepts contactless payments. On the other side, the customer should also possess a NFC enabled phone. According to (Google, 2013c), several handsets compatible with Google Wallet are: Google Nexus 4, Google Nexus 7, Google Nexus 10 (which can be acquired directly from Google Play, with no carrier commitment or contract⁹), but also many others. Only when possessing these NFC enabled handsets, can a user download the Google Wallet app available in Google Play.

To conclude, according to (Eisenmann, Parker, & Alstyne, 2008), the researcher considers that the platform is technological open from the point of view that every customer or merchant can have access to Google Wallet for on-line payments. However, when talking about in-store payments, there are certain restrictions regarding the type of handsets being used (just some smart devices have NFC capabilities) and location. For instance, Google Wallet cannot only be downloaded worldwide by the users accessing the Google app store¹⁰. In addition, the payment in-store product is only accepted by merchants that accept NFC MasterCard PayPass application (Balaban, 2012f). To overcome this disadvantage, Google took into consideration a potential partnership with Discover for enabling the use of Google

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⁹ The user has to log in the Google Play and according to the country of delivery can order the handsets without any need of going through an intermediate MNO

¹⁰ According to (Google, 2013b, para. 3), “Google Wallet does not support devices purchased internationally”;
Wallet towards a much wider market range. The deal is however rather disputed due to reorganization strategy inside Google Wallet (Balaban, 2012e).

4.1.4 Organization Model: towards two times the four corners model

When talking about organization, the researcher starts with the view of (Allee, 2000) on how value is produced and managed in a network. Thus, the researcher makes use of the concept of value network and illustrates the manner in which both tangible and intangible benefits are exchanged in the business ecosystem. The researcher addresses the organization model both the cases of online payment and that of mobile in-store payment. The first is solely used so that it gives the reader a point of reference to understand the latter. The information in this section is a result of the first phase of interviews with internal consultants from the client and of consultation of internal materials from the client. These set of interviewees provided an unbiased interpretation of the manner value is produced. It was only the researcher that interpreted the information in a certain manner.

4.1.4.1 The online payment with Google Wallet

For the case of online payment with the Google Wallet, the schematic representation of the value network relies on a single four corners model. That is because in this case, the researcher sees Google Wallet serving just like an interface that gathers data about the different cards stored, coupons and loyalties. However, the transaction is performed through the contact with the issuing bank of the cardholder and then by making use of the payments schemes towards the merchant’s acquirer and then the merchants themselves. No modification is in this case occurring in the organization of the four corners model, due to the fact that Google placed in the middle, with the only purpose of gathering information.  

Figure 14: Google Wallet on-line payment, retrieved as personal contribution of the researcher

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11 Google is not a payment scheme, functions by making use of the existing payments schemes to perform a payment; the information was retrieved following the first session of discussions with internal consultants from the client;
4.1.4.2 The in-store payment with Google Wallet, enabled by NFC: The Card Present followed by the Card Not Present Transaction

This step involves that Google plays the role of the merchant in the relation with the initial buyer. Google initiates a transaction based on the data received from the POS (merchants) and the already stored card data from their own cloud belonging to the buyers. Then the information is passed to the acquirer bank of Google which, using the card payment network, handles the relationship with the buyer’s issuer service provider.

The researcher considers that Google Wallet’s model for the mobile in-store payment can be viewed in this moment as a two times replication of the four corners model. That is because a transaction with Google Wallet happens by using a Card Present Transaction (CPT) and the Card Not Present Transaction (CNPT). In the first, Google takes the role of buyer in relation to the merchant and afterwards the role of merchant in relation to the buyer. Apart from being based on the interviews with internal staff from the client, the information is based on (THE CLIENT, 2012f, p.17).

Step 1: In the moment the buyer gives its authorization for the payment to the merchant by using the Google virtual card, Google becomes the buyer in relation to the merchant. The researcher considers this, by taking into account of (THE CLIENT, 2012f, p.17), as the first application of the four corners model in this payment process. Thus, Google as a buyer communicates with its issuing bank, which will transfer the money towards the acquirer bank of the merchant. Then, according the level of agreement (clearing and settlement) between the merchant and its acquirer, money is transferred into the account of the merchant. This is the example for card present transaction, because the in-store the client has contact with the seller by presenting the card at the shop (contactless or physical).

Step 2: The next step is that when Google takes the money from the accounts of the buyers, by making use of the data already stored in the cloud. That is the example of a card not present transaction. Google can be viewed here acting as a merchant, which is paid through its issuing bank, that is receives funds from the buyer through its acquiring bank. This is a typical example of virtualization, as the payment credentials are stored in the cloud.

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12 Card Present Transaction: the information on the card (physical or virtual) is present at the contact point between the buyers and the merchants; during payment, the payment credentials are directly transmitted from the buyer to the seller’s acceptance infrastructure; the payment card is present during the transaction;

13 Card Not Present Transaction: the payment card is not physically present with the card at the moment of performing the payment transaction (ex. it can pay online from his home PC to a merchant placed in another location)

14 There are rumors that Google has issued a physical card: this fact can be further checked in Appendix 4.1.1.
Intangible goods:  
Revenues (tangible goods):  

Figure 15: Google Wallet in-store NFC mobile payment, Retrieved as personal contribution of the researcher, using as starting point (THE CLIENT, 2012f, p.17)

4.1.5 Revenue: Getting money from advertisements

The main part of the revenue model can be extracted from the value network from the previous section. The researcher has used data from the organizational part in order to structure the revenue flow as below. The main aspects focused in particular on the Google Wallet model have been placed in the figure above.
### Table 10: Pricing model for Google Wallet

<table>
<thead>
<tr>
<th>Product Cost Structure</th>
<th>Revenues</th>
<th>Intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merchant fee (CNP)</td>
<td>Revenues from advertisements towards merchants</td>
<td>Payment behavior of buyers</td>
</tr>
<tr>
<td>Payment for issuing cards, subsidization of buyers (CP), payment towards issuing bank (not available)</td>
<td></td>
<td>Payment behavior of merchants</td>
</tr>
<tr>
<td><strong>Interchange towards the issuer (CNPT)</strong>; the relation between the acquirer and Google as a merchant is not clear again! (if they collaborate, then it means that also Google might pay part of the fee)</td>
<td><strong>Interchange (CPT): from the acquirer</strong> (again it is not clear the relation between Google and its issuing bank)</td>
<td>-</td>
</tr>
<tr>
<td>Subsidization of payment terminals for merchants looking to use Google Wallet(^\text{15}), in order to determine more players to join the network</td>
<td>Redeem tax(^\text{16}), for each transaction every time a customer buys something in the store</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Revenues from merchants, in case Google used as payment processor(^\text{17})</td>
<td>-</td>
</tr>
</tbody>
</table>

Retrieved as personal contribution of the author

The main conclusion the researcher reached through his analysis is that Google subsidizes each payment with NFC through its Google Wallet, because the revenues obtained from interchange during a CPT, when it plays the joint role of buyer and issuer (through its collaboration with issuing bank) do not cover the costs incurred when performing a CNPT (when Google plays the role of merchant/acquirer) and the relation with the issuer bank of the buyer implies a higher interchange to be paid. Thus, according the estimations of NFC Times, (Balaban, 2012e, para.3), "Google losses roughly 1% of the purchase amount on each transaction". In order to be profitable it will have to cover this loss from the gain from advertisement.

One other relevant dimension for the Google Wallet’s business ecosystem is that of network effects that appear in a two-sided market involving merchants and buyers. Google Wallet can be viewed as a platform that facilities payment services between these two groups of customers, by enabling direct interaction in case of a purchase. In addition, according to (Jarvi & Pellinen, 2011) a two-sided market is determined when the platform has bidirectional values flows for the clients it makes connection with. The research considers that Google

\(^{15}\) Google subsidized payment terminals at check-out counters for supporting NFC in the U.S., spending millions of dollars in 2011, as part of their launching plan involving also Sprint and MasterCard (Ross, 2012). More specifically, according to (Ross, 2012, p.62), Google supported "the cost of installing the “hundreds” MasterCard PayPass terminals" that are accepting NFC payments. In this manner, merchants are encouraged to install NFC terminals and use Google Wallet using NFC as a payment solution. This fact should be viewed as an investment from Google, that are looking forward to earn their revenues by delivering targeted promotion to customers and merchants based on the data retrieved. However, the downside for merchants is the fact they cannot collect information about which is the payment provider for the buyer, as they see all payments through PayPass.

\(^{16}\) Google also wants to impose a redeem tax for coupons and offers accessed through its Google Wallet, in this manner Google will be paid every time a customer buys something in a store. (Ross, 2012)

\(^{17}\) According to (Google, 2013d), section Pricing and set-up, Google can be used as a payment processor in the case the merchant does not already have a contracted payment processor; in this case, Google gains 1.9%+$0.30 per transaction
Wallet is a particular case of a two-sided platform. This is because Google subsidizes the buyers by offering them free of charge access to the platform. On the other hand, the merchants are subsidized, in the first instance when Google Wallet offers them free access to the payment interface in case they already have a payment processor. However, on the long, it is the same merchants as well as others that are paying Google in exchange of advertisement. This information has been retrieved during the first stage of interviews, in the first two months of the research. The interpretation belongs to the researcher.

The subsidization can be explained because of the network effects that appear in the Google Wallet business model. Thus, according to (Rochet & Tirole, 2003) one of the main challenges of a multi-sided platform is that of meeting the critical mass of users. There is no information available to the researcher on whether Google Wallet has already met this number and is profitable. However, the strongest network of effect is that of the indirect type. This means that the more buyers are part of the Google Wallet platform, the more merchants will be attracted to use Google Wallet as a payment platform, and thus the more information will be stored in Google cloud servers regarding the payment behaviors that will in the end determine more money from advertisements. What Google collects from each transaction is information such as “time, date, place and amount of the purchase” (Balaban, 2012e, para. 3). That is the main reason for which Google decides to subsidize merchants and buyers, by deciding to support costs of issuing cards for users and enabling merchants to use NFC terminals. There are no signs of relevant direct network effects, because, as the researcher argues, neither the merchants nor the buyers that sign in to the platform enhance the value proposition form a content perspective.  

4.2 Role shift: Disruptive for banks, card payment network scheme companies and MNOs

The role shift analysis is performed by identifying the position of the most important actors in the Google Wallet’s network and comparing it then to their original position in the collaborative, traditional model. The generic roles of the actors are organized in the table below and are based on the interpretation (coding) of the answers received during the second interview step. The researcher has conducted the interviews based on the interview form that focuses on the three dimensions of the actors: the attitude, power and dedication of developers will produce additional apps using the APIs provided by Google Wallet and then the platform provides them further towards the clients (either merchants or buyers), then the researcher identifies about direct network effects; however, this is out of the scope of this analysis
each actor analyzed. This can be checked in Appendix 1.2. Various insights besides used to complement the role shift question form were gathered during the interviews, as it was structured as a semi-open conversation. In addition, several specific insights derived from the VISOR exploration were also included where it was the case. These additional insights were used to clarify the roles and were, as well as an input for the successfullness indicator in Section 4.3. The detailed version of the results of the interviews is displayed in Appendix 4.2., while the whole methodology can be referred to in Section 1.3. The results from this section should be viewed only as the conclusion of the investigation and in case the reader looks for detailed information he/she should not hesitate to consult the indicated sections.

The opinions extracted are sometimes diverging, however the researcher has tried to include the generic elements together and comment separately on the conflicting opinions expressed by the stakeholders. Thus, the bias had sometimes to be eliminated in order to reach a generic role of the actors. The analysis does not discuss the bias introduced due to the diverging parties, but rather focuses on the generic picture. There were 5 respondents commenting Google Wallet from their perspective: 2 experts responded by taking into account all the actors in Google Wallet’s ecosystem, while 3 respondents took their field perspective when commenting on Google Wallet (the MNO, the card scheme company and the bank). Details regarding the questions asked can be found in Appendix 1.2.

Table 11: Interviews for Google Wallet role determination

<table>
<thead>
<tr>
<th>Domain</th>
<th>Organization</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Payment Schemes</td>
<td>Card payment scheme 1</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>Banks</td>
<td>Bank 1, Bank 2</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>MNOs</td>
<td>MNO 1</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>Consultants</td>
<td>Consultant 2</td>
<td>Google</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 1</td>
<td>PayPal</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 2</td>
<td>A Handset Manufacturer</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 2</td>
<td>PayPal</td>
</tr>
<tr>
<td>Newspaper Editors</td>
<td>Newspaper editor 1</td>
<td>Google</td>
</tr>
<tr>
<td>Disruptive Players</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

It was impossible to organize an interview with Google (or any other disrupters) as they refused the request. As mentioned, the researcher clarifiers the extent to which certain actors’ value added in the network has changed in the second situation compared to the first. The actors colored in red are disrupted from their initial role they possess in the collaborative model.
<table>
<thead>
<tr>
<th>Actor</th>
<th>Role in the collaborative model</th>
<th>Role of actor in Google Wallet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>No role</td>
<td><strong>Keystone</strong>: High production power; they are using Google Wallet as a manner to gather extra information from the clients</td>
</tr>
<tr>
<td>Card Payment Schemes</td>
<td><strong>Savior</strong> of NFC, they want as many transactions as possible to receive transaction fees; their interest is high</td>
<td><strong>Saboteur</strong>: they are on one hand satisfied by the increased number of transactions, as more transactions mean higher transaction fees for them; however, they do not like the fact that they lose control of the payment market and lose visibility of the brand, which primes as they feel disintermediated from their clients.</td>
</tr>
<tr>
<td>In-store Merchants</td>
<td><strong>Savior/Sleeping Giant</strong>: they aim to have as many sales as possible and thus increase their revenues; they are one of the end customers of the payment services; they have a very big potential to make NFC work, however their interest fluctuates</td>
<td><strong>Diffuse power position</strong>: Time bomb/sleeping giant: they lose the relationship with their buyers, by the fact that GW owns all the information from the payment transaction; they however like the idea of being able to advertise their brand through GW: they are powerful, but yet not very interested towards Google Wallet, which faces the chicken and egg problem; they are one side of the two-sided market;</td>
</tr>
<tr>
<td>Acquiring bank</td>
<td><strong>Keystone</strong>: they control the relationship with the merchants; they sometimes provide the contactless terminal that has to be integrated with the cash register of the merchants; they aim to support deployment of NFC payments, in order to service the merchant through different channels; they are keystones because they payment is their core business and are dedicated to make this ecosystem work in any case and adapt to change</td>
<td></td>
</tr>
<tr>
<td>In-store Buyers</td>
<td><strong>Savior/Sleeping Giant</strong>: they aim making use of value added services (loyalty, couponing); they are one side of the chicken and egg problem as they are the other side that is using the service and can trigger the acceptance of payment with NFC; their interest is high, but their dedication is not always certain, thus the role oscillation;</td>
<td><strong>Sleeping giant</strong>: they are positioned at the other side of the chicken and egg problem chain; they are not too interested in GW because they see trust issues regarding how Google handles their private payment data; there are rumors that third-parties had access to this data without the consent of the buyers, as stated in Appendix 4.2; however, they can benefit of the loyalty, couponing schemes;</td>
</tr>
<tr>
<td>Issuing bank</td>
<td><strong>Keystone player</strong>: they are enabling the payment to take place; they aim at a high interchange and more transactions; the aim is offering a diverse set of services to their clients,</td>
<td><strong>Saboteur/Irritant</strong>: they are against Google Wallet as it blocks their direct relationship with their buyers and access to the payment information of the buyers. They are not powerful because they</td>
</tr>
</tbody>
</table>

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19 Merchants are still able to see what type of products, the value and at what time to products are bought by their customer; however, they cannot see who in fact pays the products, as the payment is always labeled as a MasterCard PayPass payment performed through Google; according to (Consultant 1)

20 they also invest funds in the mobile payment model as payments "our core business and we want customers to think at us when making a payment" (Bank 1)
The role shift indicator in Google Wallet’s case clarifies the difference in roles of the actors (either highly critical or less critical) in this disruptive ecosystem compared to the collaborative model.

**Google:** they have no role in the collaborative mode, whereas they are keystone player in their own established payment network

**Card Payment schemes:** from their role of giving full support in the collaborative mode, caused by the fees they receive in each payment transaction, they change their position and play as a Saboteur, because of the fact that they lose the control of the payment and visibility

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21 As clarified in the stakeholder analysis section
with Google Wallet; Google Wallet is disruptive for card payment schemes. It is true that they also benefit from more transactions using Google Wallet, however their opposing attitude was considered as a perspective of Google becoming very large in the market; it is also true that some of the payment schemes, such as MasterCard might have a different position regarding Google Wallet, compared to Visa and Discover, given the ongoing partnership around the PayPass application. Taking this into account, one can identify different positions regarding players placed under the same actor umbrella. Although acknowledging this aspect, the researcher tries to make use of generalization and place all card payment schemes under the same position in relation to Google. This is the manner in which the analysis can fulfill its objective following the current theoretical framework. The same situation applies to a certain extent to the mobile payments models around PayPal and A Handset Manufacturer.

**In-store merchants:** whereas still not fully convinced to adopt NFC in the collaborative model, they have the same or even a more negative position towards Google Wallet, because they lose payment information from their clients;

**Banks:** from their position of keystone players in the collaborative model, they become fierce opponents, Saboteurs in the Google Wallet; this is due to the fact that they are strongly disintermediated as acquirers and issuers in relation to the merchants and regular buyers, in this way loosing brand and visibility; for them Google Wallet is extremely disruptive, because it has a partnership with a certain bank and thus disrupts the others;

**In-store buyers:** they have a rather similar position in both cases, the collaborative mode and Google Wallet, following positioning themselves very closely as the in-store merchants do; they do not show any offensive negative position about Google Wallet, however they are not using the service due to trust issues regarding the information handling and the “chicken and egg problem”

**MNOs:** from their position as dominators, supportive players in the collaborative model, they become Saboteurs in Google Wallet, because they feel that they can be left out of the payment game as the SE from the UICC (controlled by them) is used not used any more, in favor of the embedded SE; for them Google Wallet is extremely disruptive

**Handset manufacturers:** they are niche players in both ecosystems and aim to sell as many handsets as possible, thus they are in favor of any initiative that uses the mobile device as the form factor; some of them might seem a bit reluctant to Google Wallet, because they have a strong connection with the MNOs which oppose the proposition fiercely;

**POS terminals:** they are niche players in both ecosystems, following a similar positioning like in the handset manufacturers case; they are not so interested in Google Wallet however, because the initiative faces the chicken and egg problem

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22 that is the choice the research took for generalization, as a conclusion from the interviews performed
23 Merchants are not able to see how is the client that made the payment, they rather see that the transaction is done through the MasterCard PayPass application; that is the information they lose about their clients;
Following the insights gathered as a result of the role shift indicator, the card payments schemes, MNOs and the banks are the players that are the most disrupted by Google Wallet, thus acting as saboteurs when it comes to positioning themselves in the network. However, even the other actors in the business ecosystem do not seem extremely supportive to Google, fact that is also reflected below in the fitness of the new payment proposition to the successfulness indicator designed in the research.

4.3 Successfulness indicator: Scoring Low

Following the change in roles above, hereby the analysis of the successfulness of Google Wallet follows. The successfulness assessment is based on two different sets of critical factors. The first set, the network critical factors refer to the amount and type of support each model benefits of in its business ecosystem. This is the most important criteria when assessing successfulness, as referred to in Section 2.2.3. The second set is composed of factors that are extracted from the business model VISOR and platform theory and give insights about the value proposition of Google from the perspective of consumers. This criterion is used only when the first does not display any conclusive results and the researcher finds himself in a position when he is incapable of assigning a certain indicator for success (ex. he has to decide between Medium and High). In addition, the criterion is also used for justifying the importance of meeting support in the ecosystem, by setting the context through listing key characteristics that give insights about the value proposition. This set of factors can be consulted in Appendix 4.3.

Table 13: Successfulness indicator Google Wallet

<table>
<thead>
<tr>
<th>Critical Factors</th>
<th>Collaborative model of NFC</th>
<th>Google Wallet NFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform owners Keystone/Dominator players</td>
<td>Banks and MNOs</td>
<td>Google is the keystone player in the business ecosystem</td>
</tr>
<tr>
<td>Number of Saviors</td>
<td>1: card payment scheme owners</td>
<td>0</td>
</tr>
<tr>
<td>Number of Saboteurs</td>
<td>0:</td>
<td>3: banks, MNOs and card payment schemes owners</td>
</tr>
<tr>
<td>Sleeping Giants</td>
<td>2: merchants and buyers are on the edge between Saviors and Sleeping Giants</td>
<td>2: merchants and buyers; merchants are on the edge with Time Bombs</td>
</tr>
<tr>
<td>Time Bombs</td>
<td>0:</td>
<td>1: merchants, on the edge with Sleeping Giants</td>
</tr>
<tr>
<td>Niche players</td>
<td>3: TSM, handset manufactures, POS terminal vendors</td>
<td>2: handset manufactures, POS terminal vendors</td>
</tr>
</tbody>
</table>

In the given case when the researcher considers the collaborative model as a reference towards success, Google Wallet has the advantage of being an innovative solution comparing to the previous traditional, collaborative NFC mobile payment one. In addition, as emerging from the answers of the respondents, Google is the keystone player in its network due to its financial potential and reputation a successful high tech company. However, the major concerns gravitate around the acceptance, because it seems that the customers and the merchants are not fully convinced by the value proposition of Google Wallet. The lack of success derives from a low score received at the direct networks effects and at the critical mass indicator, fueling the chicken and egg problem. This fact is also determined by the
rather technological and organizational closed platform, as well as from trust issues raised by both merchants and buyers. Moreover, they have to deal with the strong opposition of banks and MNOs that feel their position threatened.

In conclusion, the researcher considers that Google should treat the relationship with the actors in the network with extreme care, due to the fact that the card payment schemes, the banks and the MNOs oppose the value proposition. In addition, Google does not have any critical actors acting as supporters, whereas merchants can even act as blockers if the fact that they lose information about their clients’ payment behavior is not clarified. Thus, summing up the platform theory and the network perspective of the success indicators, Google Wallet is seen as Low in its attempt to be successful. As it can be seen, the critical factor belonging to VISOR and platform theory provide insights to the position that various actors take regarding Google. However, it is the critical factors emerging from the multi-actor network perspective that are decisive to qualify Google Wallet as such. The manner in which the researcher sees what strategies Google should make use of in the network is given in Section 7.1.
PayPal: VISOR, role shift and score on the successfulness indicator

PayPal is the second disruptor to be analyzed. The purpose of this Section is to determine the roles of the most important actors and to identify the manner in which these roles change compared to the collaborative model. This is done by making use of the role shift indicator. Another objective of the current section is to assess the successfulness of PayPal in the mobile proximity payment market. This fact is determined by making use of the successfulness indicator. The insights gathered from role change identification and successfulness evaluation are then used in Section 7 as input for the potential successful strategies identification, as it is argued in Section 2.3.

5.1 VISOR: Starting from a closed loop three corner model and then taking different flavors

5.1.1 Value: Complementarity and efficiency

PayPal is an electronic e-payment platform that enables direct transfer of money between customers subscribed through the network. PayPal started as an online, remote payment method (money transfer) and recently started stepping into in-store. Thus, the interface between the client and the merchants ranges from the PC (remote payment) to the QR code for a mobile application (for in-store). PayPal usually functions as a closed loop model, meaning that both the merchant and the buyer are subscribed to the network and the payment flow goes traditionally through PayPal only. There are also exceptions, as it will be detailed in the further sections. The researcher has identified several products are available from PayPal to the customers. The current thesis focuses on person to business payments. According to (PayPal, 2013a, para.1,2,3), there are three types of products offered to both merchants and buyers: “Personal account”, “Premier account” for regular buyers and “Business account” for the merchants.

For merchants, the researcher considers that PayPal comes with a wide range of services. According to (PayPal, 2013b) for the case of the US market, merchants can choose for Business Account if they want to operate under a company name and then customize their choice with the “Standard, Advanced or Pro solutions”. These options differ as the merchants can use PayPal for their on-line purchasing “standard check-out” or also by making use of the in-store solutions that enable physical payments towards the buyers. More information about the general picture of these products can be consulted in the Appendix 5.1.1, paragraph 1. The general image promoted by the company, is that PayPal comes with a complementary range of services that serve the payment activity of the merchants. In addition, by offering a whole spectrum of customizable options that are easy to use, the researcher considers that PayPal enhances the efficiency of the selling process.

From the perspective of buyers, there are a multitude of products that PayPal offers starting from remote and ending to the in-store types of payments. One important advantage for the

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24 For the UK situation, according to (PayPal, 2013c, par. 4), one can only talk about Standard and Pro solutions
buyers is that payments through PayPal are usually free, according to (PayPal, 2013c, para. 8), excepting the situation when payments are performed through “third-parties” or are subject to currency conversion fees. In addition, the researcher considers that PayPal is also a secure and trustworthy solution for the buyers, as according to (González, 2004), PayPal takes a certain liability that the goods paid through PayPal arrive at the destination. Last but not least, PayPal is considered to benefit of a global, which makes it easy and convenient to use. This is argued in the next paragraph.

When addressing PayPal’s worldwide coverage as a payment network (PayPal, 2013b, para. 1.1), there are 230 million PayPal accounts open at the moment, with a worldwide growth of 104 500 a day. From them, 106 millions are active, according to (Statistic Brain, 2012). Payments are accepted in 190 different countries and regions, in 24 currencies at the moment. The researcher compares the current figure to that of (González, 2004, p.294). PayPal was present in 2002 in 38 countries covering 20 million users, which signaled a fast increase of the service in the last 10 years. In addition, the same sources mentions as a good criterion for comparison, the total transaction volume of $1.79 billion in Total Payment Volume in Q3 of 2002 (with a 93% increase compared to Q3 of 2011 from $925 million), compared to the 2012 $8.1 billion on average per quarter. This means, according the same (PayPal, 2013b, para. 3) that around “$2 million per hour and $48 million per day” account holders are using as transactions. It is also interesting to emphasize that the annual amount of payments made by “PayPal mobile phone users is $1 billion” (Statistic Brain, 2012, table 2). The researcher wants to emphasize that PayPal is growing and is facilitating more and more transactions through its network.

The current thesis focuses only on the relation between merchants and buyers, as it aims to take a look in the manner PayPal facilitates in-store payments using the mobile device. Thus, the traditional peer to peer money transfer is left outside the scope of the analysis. Also, the reference to remote payments is made only as a means to explain the in-store payment, but not as a scope itself.

5.1.2 Interface: From the physical card to the mobile handset

The researcher identified that PayPal provides buyers and merchants various manners of interaction during the payment process. Thus, he identified that its functionality ranges from online payments, performed outside the stores using the e-mail address of the buyer and the sender belonging to (Card Not Present Transactions) towards proximity types of payments (still Card Not Present Transactions, according to (PayPal, 2013c, para. 4.1.4) )and even to the existence of a physical card.

The researcher has made a classification of all in-store payment possibilities offered worldwide by PayPal. However, each modality can be found only in a limited geographical context at the moment. The different types of interfaces correspond to three different cases, which are the input for the three different organization schemes addressed in Section 5.1.4.

Case 1(PayPal Here): The buyer just uses his/her own payment card (branded with Visa MasterCard or other payment scheme owners) as the interface transaction with the merchant. The merchant however makes use of an app installed on the handsets that has
the ability to act as a cash register and record the received payments. PayPal acts as an acquirer, role that is detailed in the analysis section.

### Table 14: PayPal’s in-store payments interfaces

<table>
<thead>
<tr>
<th>Interfaces</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PayPal Here, Contact card readers(^{25}) attached to the existing mobile devices for reading information from credit/debit cards [physical card as interface]</td>
<td></td>
</tr>
<tr>
<td>2. PayPal payment card accepted in all terminals that accept Discover payment scheme(^{26}) [physical card as interface]</td>
<td></td>
</tr>
<tr>
<td>3. PayPal Debit Card: physical card linking to the PayPal account(^{27}); this product can be consulted in Appendix 5.1.2; [physical card as interface]</td>
<td></td>
</tr>
<tr>
<td>4. Existing POS, virtual PayPal card through Mobile phone number (transfer from number to number), (Clark Sarah, 2011a) (only U.S.) [mobile handset as device interface]</td>
<td></td>
</tr>
<tr>
<td>5. Barcode (UK-London) or QR code (NL-Amsterdam)(^{28}) (same principle as the Mobile Phone number) [mobile handset as device interface]</td>
<td></td>
</tr>
<tr>
<td>6. Contactless with NFC (rumors, tested initiatives using NFC stickers Silicon Valley, Stockholm, but nothing yet on the market by PayPal) [mobile handset as device interface]</td>
<td></td>
</tr>
</tbody>
</table>

Retrieved as personal contribution, following the citation of the different references

**Case 2 (PayPal payment card accepted by Discover):** The PayPal physical card is linked to the PayPal account of the owner and is inserted in the POS terminal of the merchant. The interface is then a typical card and POS terminal combination. However, in this situation PayPal acts as an issuer.

**Case 3,4,5,6 (Rest):** The interface for the merchant is always the POS. In all the four cases the actual payment is done through the PayPal network, both the merchants and the acquirer should have an account with PayPal. The role of PayPal in this case is both of an acquirer and of issuer, following a three corner model, under a closed loop scheme. In the first case, the buyer pays with a physical card using PayPal balance. In the second, the buyer identifies himself based on the phone number and then payment is again performed through PayPal. Furthermore, he can also make use of a handset that generates a barcode/QR code using the PayPal app or eventually, in the future, there might be the case that a handset which uses a PayPal app sends the credentials contactless to the terminal using NFC. The latter is still a speculation, as PayPal has not released any product of this type on the market. Thus, for the mobile in-store case, the researcher considers that the latter three cases are of interest, as the interface includes in a certain manner the mobile handset.

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\(^{25}\) (PayPal, 2012), service was launched in 2012, also only in the U.S. and is a direct response to the need that small-business have direct access to the customers;

\(^{26}\) (REUTERS, 2013), PayPal accepted in 2 million retail stores that accept payments through Discovery

\(^{27}\) According to (PayPal, 2013), the PayPal debit card is a manner of using the money stored

\(^{28}\) The Barcode technology started to be applied in the UK; the stores have to make a previous agreement with PayPal; the client will have to install the in-store app, fact that will allow him/her to have access to a generated code for the place he/she wishes to makes purchases from; several references found in: (PayPal, 2013m), ("Mobile Payments: Using PayPal in Stores - PayPal UK," n.d.)(Balaban, 2011a) and (Clark Sarah, 2012b); the interface using the QR code functions the same, as stated in (Mobile Commerce News, 2012) for Amsterdam, the NL.
5.1.3 Service: Mobile in-store payments through the cloud

The researcher has designed a schematic architecture of PayPal, considering both its on-line and in-store services. The focus of this analysis is on the green box, Service 3 which represents the in-store payment services, still based on the remote backend infrastructure.

Figure 17: PayPal's service architecture, retrieved as a personal contribution, however the building blocks are taken from various sources, such as (DHindia, 2013), (Zuuply, 2012), (CHINAdaily, 2009) and (Datamax, 2013)

As it can be seen, PayPal delivers three types of services through its infrastructure:
- the online payment between buyers and merchants
- the person to person money transfer
- in-store payment services between buyers and merchants

The latter is the focus of the current research. However, it is important to observe that this service is delivered following the same payment closed loop infrastructure through PayPal. In other words, the researcher considers that the in-store payment uses the online payment as a means to get to the end. The only two exceptions from this case are the situations when PayPal is behaving as an acquirer or an issuer (corresponding to Case 1 and Case 2 from Section 5.1.2).

The researcher assesses the access to the service platform following (Eisenmann, Parker, & Alstyne, 2008, p.1), based on the degree of its technological or organizational openness. He
considers that PayPal comes up with an open platform from an organizational point of view, because any customer willing to benefit from the payment service is allowed to join. The buyers join for free, as well as the merchants, in case they chose for the Standard Business account, the free subscription package. There are also some merchants who are asked to pay a monthly fee when choosing a higher customized offer (Pro and Advanced options). In this manner, one may view their access as not fully open because of the fee. In addition, for the whole range of products from the Business line, the merchant subscribed is asked to provide information about the company in order to be able to demonstrate it is a real merchant and thus make use of PayPal’s services. This can be viewed as an organizational barrier, as there is limited number of entities respecting the conditions.

It is more difficult when addressing the technological openness of the system. For the online, remote payment cases, a good internet connection and possibility of successfully authenticating in the system suffices for performing a PayPal transaction. However, this is more complicated for the in-store payment case, as the level of technological openness depends on the interface technology. Thus, for instance in case of a barcode app, the merchant needs to be able to read the barcode with a device. The same applies for the case of QR codes, authenticating using the mobile phone number, or the potential NFC technology. A full inventory of the NFC rumors around PayPal’s in-store payment proposition as well as the other technologies enabling proximity payments can be consulted in Appendix 5.1.3.

5.1.4 Organization: From Closed to Open Loop Models, both used inside the shop

PayPal can be considered a “two-sided market”, according to (Jarvi & Pellinen, 2011, par 2.), by the fact that it connects two different sets of clients, the merchants and the buyers. In addition, the researcher considers that the more merchants are there on the market, the more interested buyers will be to join the platform. On the other hand, the more customers are subscribed to the platform and are willing to pay with PayPal, the more willing will merchants be to offer PayPal payment services. In these case, one can identify network effects (Rochet & Tirole, 2003) between merchants and buyers. The relation between the merchants and the buyers is viewed as an indirect type of network effect, in the sense that the value of the platform depends on the number of users on each side of the platform.

The process of payment flow differs considering the three main situations, characteristic to the services PayPal delivers to its customers. For making the processes explicit, the research makes use of value network concepts introduced by (Allee, 2000) There, the author references to tangible (goods, services, money) and intangible (knowledge, loyalty, brand enhancement) exchanges between the parties. There are three main types of organization models followed by PayPal as in-store payment models:

- closed loop, when PayPal is both an acquirer and merchant
- open loop scheme where PayPal plays the role of acquirer
- open loop scheme where PayPal plays the role of issuer
The manner in which value is produced in different organizational models is depicted below:

**PayPal closed loop scheme: PayPal as both acquirer and merchant**

- **Service Provider (bank, credit card companies)**
  - Validates the credit/debit card account number of buyer
  - Transaction fee for fuelling Buyer’s PayPal account
  - Money flow

- **PayPal**
  - Transfer through e-mail address, mobile phone, no disclosure of the bank account or credit account of parties involved
  - Information about receiver’s transaction details
  - Information about sender’s transaction details
  - Money flow

- **Merchant’s PayPal**
  - Validation of credit/debit card account number of merchant
  - Transaction fee for fuelling Merchant’s PayPal account
  - Money flow

- **Service Provider (bank, credit card companies)**
  - Validates the credit/debit card account number of buyer
  - Transaction fee for fuelling Buyer’s PayPal account
  - Money flow

- **Buyer’s PayPal**
  - Money flow
  - Transfer amount
  - Fast, immediate transfer
  - No passing through the intermediate payment schemes

**Stakeholder involved into value exchange**

- **Tangible value:**
- **Intangible value (knowledge, information):**

**Figure 18:** PayPal’s closed loop scheme, retrieved as original contribution of the researcher
The manner the network functions in a closed loop scheme is detailed below:

1. Merchants and buyers open a PayPal account customized to their needs, as presented in section 5.1.1. Their account is validated.
2. The buyer initiates the transaction through the interface available in-store; the exchange of tangible/intangible goods stays the same regardless one is talking about a PayPal physical card or barcode, QR code, NFC (mobile)
3. Transaction is performed in the authorization servers of PayPal. Money is received instantly by the merchant, as stated in (C. John, 2013, par.3)
4. The merchants can keep the funds in the PayPal account or transfer to their bank account. According to Peter Thiel, PayPal chief executive, cited in (González, 2004, p.294)" PayPal can invest any money left there until the user wants to spend it". The same source states that in case money is kept in the PayPal accounts, PayPal either deposits it into a bank account at Wells Fargo Bank or inside a "money market fund managed by them". This situation applies to the UK.

PayPal not closed loop, PayPal as an acquirer
This case corresponds to the in-store payment interface, when the merchant attaches a card reader directly to its handset, through the PayPal Here product (PayPal, 2012).

In order to operate in an open-loop model, first, the merchant should be subscribed to PayPal under a Business account, which is the option for merchants, according to (PayPal, 2013b). The main difference compared to the previous case is the fact that the transaction is being founded in an open loop manner, meaning that the merchant is able to accept payments from customers that are not even subscribed to PayPal, as PayPal account holders, according to (PayPal, 2013e). In this situation, the payment will be done by making use of a four corners model infrastructure, through the card payments networks. As referred to in (PayPal, 2012a, par.2), the model started to be applied to the on-line, remote version, through the “Website Payment Standard”, option. In this case, the buyer can directly pay with its payment card to the merchant that uses PayPal's services. The extension of this model in the offline, in-store world is represented by the PayPal card reader (PayPal, 2012a, par.3). The researcher observes that this model comes in contrary with the previously presented closed loop one, where PayPal was playing both from an acquirer and an issuer position.

The manner in which the scheme is organized in this case and the value is produced and exchanged can be found below:
Figure 19: PayPal is acquirer in the in-store payment, retrieved as the researcher’s contribution after interpreting PayPal’s payment flow.

PayPal not closed loop, PayPal as an issuer

The case in which PayPal acts as an issuer is analogous to the case above, when it plays the role of an acquirer. The corresponding interface of buyer and merchant contact is that of a PayPal payment card accepted in Discover by merchant subscribed to Discover payment scheme network (REUTERS, 2013). Thus, in this case PayPal serves directly only the buyer and manages to reach the merchant through the payment scheme. That is why the researcher considers that PayPal plays the role of the issuer and not that of the acquirer.

5.1.5 Revenues: The merchant usually pays

Based on the value networks depicted above, this section identifies what the main sources of revenue for PayPal are when it targets a physical presence in the shops. Thus, the reference is made here at the costs incurred by merchants and buyers when making use of PayPal’s services. Depending on the various markets, fees can vary, however the section attempts to give a generic perspective of the payment flow.

The transaction through PayPal is usually free for buyers. They can fund their transaction with the bank account, credit/debit card or use their existing balance in the PayPal account.
Each of these modalities corresponds to a different organizational model as shown in Section 5.1.4. The fees are extracted from PayPal’s public materials and are based on the on-line, remote fees of the company. The additional fees for the in-store payment are added to the analysis as well.

Table 15: Transaction fees for buyers using PayPal’s in-store payment service

<table>
<thead>
<tr>
<th>Type of fees for buyers</th>
<th>Values of the fees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transaction fee</strong>, when making the payment:</td>
<td></td>
</tr>
<tr>
<td>PayPal transaction founded by PayPal balance or bank account</td>
<td>$0²⁹ (in the absence of currency conversion)</td>
</tr>
<tr>
<td>PayPal transaction founded by credit/debit card</td>
<td>fee for credit/debit card;</td>
</tr>
<tr>
<td><strong>Transaction fee</strong> when transferring money from own bank account to PayPal balance</td>
<td>Depends on every commercial bank, depending on its agreement with PayPal</td>
</tr>
<tr>
<td><strong>Currency Conversion Fee</strong> (paid by the buyer in the case when the buyer is paying in a different currency than that requested by the merchant)</td>
<td>from 3% to 4% above the wholesale exchange rate</td>
</tr>
</tbody>
</table>

Retrieved from as personal contribution of researcher using (PayPal, 2013f)

The merchants support the cost of the transaction and contribute to the revenues of PayPal. There are usually no costs for setup, statements, withdrawals and cancellations. For some of the products part of the Business Account, there are however monthly fees as shown below. This is the major advantage of PayPal compared to other issuers, because sometimes that hidden fees can add up. The table makes a list of all the three main products offered towards merchants. The Advanced option is only used in the US, the other two are however present where PayPal has coverage. The intention is not to reflect in detail the exact and precise value of the fees for merchants, but rather aims towards identifying their type and level of magnitude.

²⁹ There is a currency conversion fee (UK) if sending money involves currency change (PayPal, 2013h); the currency conversion fee ranges from 3-4%; the currency conversion fee is paid by the sender, in the case he/she wants to send money in a specific currency.
Table 16: Transaction fee for merchants that use PayPal’s in-store payment services

<table>
<thead>
<tr>
<th>Type of fees for merchants</th>
<th>PayPal Payments Standard</th>
<th>PayPal Payments Advanced</th>
<th>PayPal Payments Pro (Virtual Terminal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly fee</td>
<td>$0</td>
<td>$5</td>
<td>$30</td>
</tr>
<tr>
<td>Setup fee</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>PayPal merchant fees! ^30: (transaction for on-line payments)</td>
<td>2.2-2.9% + $0.30 (US)</td>
<td>2.2-2.9% + $0.30 (US)</td>
<td>2.2-2.9% + $0.30</td>
</tr>
<tr>
<td>Transaction fee for card reader(Swiped and PayPal transactions)</td>
<td>2.7%</td>
<td>2.7%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Transaction fee for card reader (Typed and scanned transactions)</td>
<td>3.5% + $0.15</td>
<td>3.5% + $0.15</td>
<td>3.5% + $0.15</td>
</tr>
<tr>
<td>Transaction fee for Virtual Terminal payments (based on monthly sales)</td>
<td>N/A</td>
<td>N/A</td>
<td>2.4%-3.1% + $0.30</td>
</tr>
<tr>
<td>Fees for international transactions (U.S.)</td>
<td>3.9%+$0.31^31</td>
<td>3.9%+$0.3</td>
<td>3.9%+$0.3</td>
</tr>
<tr>
<td>Fees for receiving payments from money outside the country ^32</td>
<td>0.4%-1.5%</td>
<td>0.4%-1.5%</td>
<td>0.4%-1.5%</td>
</tr>
<tr>
<td>Convert balance of payments into another currency(merchant cost )</td>
<td>2.5% above the wholesale exchange rate</td>
<td>2.5% above the wholesale exchange rate</td>
<td>2.5% above the wholesale exchange rate</td>
</tr>
</tbody>
</table>

Retrieved as the researcher’s contribution after adding information from (PayPal, 2013f, Exibit A) (PayPal, 2013h) and (PayPal, 2013g)

As a conclusion, the researcher has identified a general representation of the cost, revenues and Intangible benefits from PayPal’s perspective when it comes to physical payment, as it is displayed in Table 17. Again, variations occur by addressing each market separately as well as each interface in a distinct manner.

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^30 The Merchant fee can vary for the merchants, by taking into account their monthly sales; thus for payments higher than $3,000 or 2,500 per month, the rate is lower, reaching 2.2%-fixed fee in the US and 1.9%-fixed fee in the UK and EURO area, for transactions higher than $100,000 (100,000 euro),% plus $c taxation fee for payment lower than $10; the information is retrieved from (PayPal UK, 2013) and (PayPal, 2013g)

^31 There are discounts for higher amounts of money received from buyers, going down towards 2.4%+$0.30 to larger funds above $100,000(PayPal, 2013h); the rate differs from based on country the example is taken for U.S.; for UK

^32 According to (PayPal, 2013h), the merchant is considered to be in the UK; the value of the tax depends on where the depends on the residence of the sender
Table 17: PayPal Overview of costs and revenues for in-store payment

<table>
<thead>
<tr>
<th>Product Cost Structure</th>
<th>Revenues</th>
<th>Intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit/debit card fees towards card network companies (when PayPal payment fueled by</td>
<td>Credit /debit card fee from users</td>
<td>Payment behavior of merchants</td>
</tr>
<tr>
<td>credit/debit or payment done directly through credit/debit card)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsidization cost card-readers cost for merchants</td>
<td>Standard Rate</td>
<td>Payment behavior of buyers</td>
</tr>
<tr>
<td>Subsidization costs for issuing the PayPal debit/credit</td>
<td>Merchant Rate (Business accounts)</td>
<td>x</td>
</tr>
<tr>
<td>Extra taxes for Business accounts (monthly fees, different taxes for card-reader,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual Terminals)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currency conversion fee</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Fee for international transactions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2 Role shift: Disruptive for banks, card payment network companies, but not for MNOs

The role shift analysis is performed by identifying the position of the most important actors in the PayPal’s network and by comparing it then to their original position in the collaborative, traditional model. The generic roles of the actors are organized in the table below and are based on the interpretation (coding) of the answers received during the second interview step. The researcher has conducted the interviews based on the form that focuses on the three dimensions of the actors: the attitude, power and dedication of each actor analyzed. Various additional insights outside the ones targeted through the role shift questions, were gathered during the interviews, as the conversation was structured as semi-open. In addition, several specific insights derived from the VISOR exploration were also included where it was the case. These additional insights were used to clarify the roles and were considered, as well, an input for the successfulness indicator in Section 5.3. The detailed version of the results of the interviews is displayed in Appendix 5.2, while the whole methodology can be referred to in Section 1.3. Thus, the results from this section should only be viewed as the conclusion of the investigation and, in case the reader looks for detailed information he/she, should not hesitate to consult the indicated appendix.

The assessment is performed by analyzing the attitude/ position of the actors in PayPal’s closed loop ecosystem compared to the traditional model. The open loop models (when PayPal behaves either as an acquirer or an issuer) are taken into account, however the focus in not primary on them at the moment. The opinions of the respondents are sometimes diverging, however the researcher has tried to include the generic elements together and comment separately on the conflicting opinions expressed by the stakeholders. There were 5 respondents commenting on PayPal mobile in-store proposition from their perspective: 2 of them responded, by taking into account all the actors involved into PayPal mobile in-store payment, while 3 respondents took their field perspective when commenting on PayPal (the
MNO, card payment scheme and bank). In Section 5.1.2, when identifying several interfaces that are used by PayPal in its attempt to step in the physical payment world, the researcher identified two instances correspondent to the mobile interface: barcode, QR code and NFC. The role change is focused on both, but when a distinction is requested, NFC is used as the primary objective of the analysis.

Table 18: Interviews for PayPal mobile in-store payment proposition role determination

<table>
<thead>
<tr>
<th>Domain</th>
<th>Organization</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Payment Schemes</td>
<td>Card payment scheme 1</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>Banks</td>
<td>Bank 1, Bank 2</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>MNOs</td>
<td>MNO 1</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>Consultants</td>
<td>Consultant 2</td>
<td>Google</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 2</td>
<td>PayPal</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 2</td>
<td>A Handset Manufacturer</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 1</td>
<td>PayPal</td>
</tr>
<tr>
<td>Newspaper Editors</td>
<td>Newspaper editor 1</td>
<td>Google</td>
</tr>
<tr>
<td>Disruptive Players</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

The differences are marked with contrasting colors. The most relevant fact to follow is the transition of a role from a Keystone (Savior) towards a Saboteur, thus showing the disruption caused by PayPal. The role change is analyzed after the table. The actors colored in red are disrupted from their initial role in the collaborative model.

Table 19: Role shift for PayPal in-store, closed loop, mobile payments proposition

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role in the collaborative model</th>
<th>Role of actor in PayPal in-store</th>
</tr>
</thead>
<tbody>
<tr>
<td>PayPal</td>
<td>No fundamental role</td>
<td>Keystone of their own business ecosystem, they are using the physical payment as a method to close the payment loop</td>
</tr>
<tr>
<td>Card Payment Schemes</td>
<td>Savior of NFC, they want as many transactions as possible to obtain transaction fees; their interest is high</td>
<td>Saboteur, blocker of PayPal getting in-store, because they lose transaction fees, brand exposure to their customers and control; they are powerful and have close contact with PayPal</td>
</tr>
<tr>
<td>In-store Merchants</td>
<td>Savior/Sleeping Giant: they aim to have as many sales as possible and thus increase their revenues; they are one of the end customers of the payment services; they have a very big potential to make NFC work, however their interest fluctuates</td>
<td>Sleeping giant: they have no reasons to block PayPal, but they also have no reasons to adopt it, because it is expensive and complicated to implement, as it cannot be integrated in the services offered by their acquirers; part of the chicken and egg problem; it can be more useful to small merchants, compared to large ones</td>
</tr>
<tr>
<td>Acquiring bank</td>
<td>Keystone: they control the relationship with the merchants; they sometimes provide the contactless terminal that has to be integrated with the cash register of the merchants; they aim to support deployment of NFC payments, in order to service the merchant through</td>
<td>Saboteur: they are against PayPal because PayPal breaks their relationship with their merchants; they are a powerful actor and they are interested to see what kind of solutions PayPal proposes in-store; acquiring banks might consider offering services in a potential</td>
</tr>
<tr>
<td>Role</td>
<td>Description</td>
<td>Collaboration Notes</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>In-store Buyers</td>
<td><strong>Sleeping Giant/Savior of NFC</strong>: they aim making use of value added services (loyalty, couponing); they are one side of the chicken and egg problem as they are the other side that is using the service and can trigger the acceptance of payment with NFC; their interest is high, but their dedication is not always certain, thus the role oscillation; they also invest funds in the mobile payment model as payments “our core business and we want customers to think at us when making a payment” (Bank 1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sleeping Giant</strong>: they have a similar attitude with that of the merchants; they are part of the chicken and egg problem; they are not blocking PayPal, but they will not use PayPal as in-store payment in the absence of convincing value added services</td>
<td></td>
</tr>
<tr>
<td>Issuing bank</td>
<td><strong>Keystone player</strong>: they are enabling the payment to take place; they aim at a high interchange and more transactions; the aim is offering a diverse set of services to their clients, so that they reach the customer through more channels; they can have the direct contact with the buyers, thus they can negotiate a manner of deploying the Secure data</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Irritant/Saboteur</strong>: they do not like PayPal because they disintermediate them from their clients; they are more powerful as acquirers than issuers, because as issuers they cannot block certain services to the buyers, as they would seem not attractive for them anymore; thus they are a not so powerful as issuers;</td>
<td></td>
</tr>
<tr>
<td>MNOs</td>
<td><strong>Savior, Dominator player</strong>: they support the mobile payment enabled with NFC because they receive a fee for hosting the credentials from the banks; they are extremely powerful because they control the handset, the access to the wallet and the SE in the UICC; in addition they are responsible for the distribution of handsets: also Role Card Management, Card Provisioning, Card Hosting; they are dominators (not keystones) because payment is not their core business, but rather a manner on enhanced their revenues, thus they want to extract value more than investing value in the ecosystem;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Acquaintance</strong>: they are in general powerful, as they control the distribution of the handsets, but they are not interested in PayPal getting in-store as this proposal is not convincing enough; they are waiting for PayPal to break the chicken and egg problem, before they behave more actively; in addition, PayPal is not using the SE, thus it would be impossible from MNOs to block PayPal applications on the Operating Systems of the phones they distribute</td>
<td></td>
</tr>
<tr>
<td>Handset manufacturer</td>
<td><strong>Niche(Friend)</strong>: they are proactive to this initiative, but they are not very strong in influencing the model; that is because they usually need the MNOs to distribute their device</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Niche (Acquaintance)</strong>: they are supportive of any initiative that increases their sales; they are not however active in relation to PayPal</td>
<td></td>
</tr>
<tr>
<td>POS terminal supplier</td>
<td><strong>Niche(Friend)</strong>, they are not very powerful because they are all dependent on the demand of merchants and acquirers for their products; they have to deliver what is requested; they have all the interest in supplying as many devices on the market</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Niche (Friends)</strong>: they are positive about any initiative that increases demand for terminals; as PayPal getting in-store needs at least an upgrade to existing terminals, if not new orders, they are mediumly interested and are supplying the ecosystem with devices (either contact or contactless)</td>
<td></td>
</tr>
</tbody>
</table>

Retrieved as personal contribution of the author, following the insights gathered in Appendix 5.2 regarding attitude, power and interest of the actors

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33 they also invest funds in the mobile payment model as payments “our core business and we want customers to think at us when making a payment” (Bank 1)

34 As clarified in the stakeholder analysis section
Banks and card payment scheme owners against, the MNOs still passive

The role shift indicator in PayPal’s case clarifies the difference in roles of the actors (either highly critical or less critical) in this disruptive ecosystem compared to the collaborative model.

**PayPal:** whereas it has no role in the collaborative model between banks and MNOs, PayPal plays the keystone role in the in-store payment ecosystem that it creates;

**Card Payment Companies:** from their role of promoters of the collaborative model, where they are receiving high fees during the payment transaction, they can become saboteurs; this is due to the fact that they lose brand exposure, transaction fees and their relation with their customers; the only positive fact for card payments is that the numbers of transactions can increase due to PayPal; however, from the analysis it seems the benefits do not outweigh the costs; PayPal mobile in-store payments model is disruptive for them, regardless we are talking about barcodes or NFC as method of contact between buyers and sellers; it is also true that in the case that PayPal acts as an issuer (Section 5.1.2), the relation of Discover might be viewed as supportive, as party involved in the model; in that case, the positions of the other card payment companies can be different as well and might vary taking into account competition in their own market they come from; the researcher understand this limitation, however he focuses on the closed loop model when assessing the position of these parties;

**In-store merchants:** their role does not change dramatically in the two cases; in both, the in-store merchants are Sleeping giants, however in the collaborative model, the assumption is that they have a minimum interest for the model, although this interest fluctuates; for the case of PayPal, the main challenge is to convince the merchants that the new service comes with numerous value added elements for them, such as increased loyalty, couponing redemption benefits and personal funds management;

**Banks:** from their position as keystone players in the networks, they become fierce opponents in the new ecosystem of PayPal, because the relationship between them and their clients is affected and they lose interchange fees; PayPal mobile in-store payment is considered disruptive towards banks in this analysis;

**In-store buyers:** their role is similar to that of in-store merchants; in both cases the buyers are seen as Sleeping Giants; for the case of PayPal, the buyers face the chicken and egg problem and have to be convinced that the new services bring added value for them; this is not the case yet as it results from the analysis;

**MNOs:** whereas in the collaborative model MNOs are dominators, Savior players, in PayPal mobile proximity payment they are Acquaintances (they lose power due to lack of control); they do not feel yet threatened to this initiative as it is small and does not involve any relation to the Secure Element in the handset; they could support PayPal because they see it as a Service Provider, that is handling the payment part; however, they can also end up in
competition over the staged wallet; currently, however, the model is not to interesting for them and not disruptive;

**Handset manufactures:** they are niche players in both ecosystems, their follow their goal of supplying the market with as many handsets as required; they prefer all initiatives that enable the phone factor and thus create more demand; the difference is that they manifest less interest for PayPal compared to the collaborative model;

**POS terminal supplier:** similar to the handset manufactures, they have niche and supportive position for both initiatives; they are more proactive in PayPal compared to the handset manufactures, as they have closer contact in supplying terminals specific for this ecosystem

Following the insights gathered as a result of the role shift indicator, it is the banks and the card payment schemes that are the most disrupted by PayPal mobile in-store payment proposition. Thus, the roles in the initial four corners model are affected by this initiative. However, the position of the MNOs does not seem to be affected yet, as it results from interpretation of the interviews. This is due to the fact that this new payment method does not aim use the Secure Element in the phone, solely being an application in the operating system.

### 5.3 Successfulness indicator: Scoring Low-Medium

Following the change in roles below, here is the analysis of how PayPal scores on the success indicator developed for assessing the successfulness of the value propositions. Again, the analysis refers to the mobile in-store payment proposition, based on the remote communication between the merchant and the buyer using the proximity interaction (barcode, QR code or NFC).

The successfulness evaluation is based on two different sets of critical factors. The first set, the network critical factors refer to the amount and type of support each model benefits of in its business ecosystem. This is the most important criteria when assessing successfulness, as referred to in Section 2.2.3. The second set is composed of factors that are connected to platform theory and give insights about the value proposition of PayPal from a consumer perspective. This criterion is used only when the first does not display any conclusive results and the researcher finds himself in a position when he is incapable of assigning a certain indicator for success (ex. he has to decide between Medium and High). In addition, the criterion is also used for justifying the importance of meeting support in the ecosystem, listing key characteristics that give insights about the value proposition. This set of factors can be consulted in Appendix 5.3.
Table 20: Successfulness indicator PayPal in-store, closed loop mobile payments proposition

<table>
<thead>
<tr>
<th>Critical Factors</th>
<th>Collaborative model of NFC</th>
<th>PayPal mobile in-store payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform leadership</td>
<td>Banks and MNOs</td>
<td>PayPal</td>
</tr>
<tr>
<td>Keystone players</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Saviors</td>
<td>1: card payment companies</td>
<td>0</td>
</tr>
<tr>
<td>Number of Saboteurs</td>
<td>2: banks and card payment companies</td>
<td>0</td>
</tr>
<tr>
<td>Sleeping Giants</td>
<td>2: merchants and buyers are on the edge</td>
<td>2: merchants, buyers</td>
</tr>
<tr>
<td></td>
<td>between Saviors and Sleeping Giants</td>
<td></td>
</tr>
<tr>
<td>Time Bombs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>1: MNOs</td>
<td></td>
</tr>
<tr>
<td>Niche players</td>
<td>3: TSM, handset manufactures, POS</td>
<td>2: handset manufactures, POS</td>
</tr>
<tr>
<td></td>
<td>terminal vendors</td>
<td>terminal vendors</td>
</tr>
</tbody>
</table>

The PayPal mobile in-store payment model has the advantage of starting with a huge customer base of “117 million people with $6 billion in their account ready to spend”, according to (Balaban, 2012d, para.2). The researcher considers that it is also an innovative solution, proposing virtual payment through PayPal's network using proximity interaction. The proposition builds a multi-sided market, benefits of network effects and of financial potential from its keystone player PayPal. In addition, PayPal seems to be the most reputed digital wallet in the US, at least. However, the drawback is that the large customer base know PayPal as a virtual payment method and may get confused with this new service. In addition, the value proposition is expensive for the merchants and does not bring enough value added services for the buyers. Regarding the form factor, NFC seems to be rather expensive compared to the QR code and barcode solutions.

In conclusion, the researcher argues that PayPal should treat the actors in the network with extreme attention, because the proposition is disruptive for both banks and card payment companies, which can act aggressive in their attempt to protect their interests. In addition, PayPal does not have any critical actors that are also supportive for its value proposition. The good side is that the MNOs are not positioned against them, so there the researcher counts one blocker less compared too Google Wallet, that might turn into a supporter if it has the interest and the context. MNOs are however less powerful in PayPal’s in-store payment ecosystem, as there is no Secure Element involved. Taken into account everything that is written above, the researcher grades PayPal with a **Low-Medium** success perspective, which can happen if it can break the chicken and egg problem, offering more value added services and leveraging its exposure on the large customer base it has. The manner in which the researcher sees what strategies PayPal should deploy in the network is presented in Section 7.3.
6 **A Handset Manufacturer: VISOR, role shift and score on the successfulness indicator**

*A Handset Manufacturer* is the last disrupter to be analyzed. The purpose of this Section is to determine the roles of the most important actors and to identify the manner in which these roles change compared to the collaborative model. Based on this objective, Section 7 illustrates the potential strategies that *A Handset Manufacturer* should deploy in its attempt to become successful. Another objective of the current section is to assess the successfulness of *A Handset Manufacturer* in the mobile proximity payment market. This fact is determined by making use of the successfulness indicator, as it is argued in Section 2.3.

6.1 **VISOR: In-line with the four corners model, but still different than the collaborative one**

Before starting applying VISOR to this case, the researcher states the where not indicated specifically, data was retrieved following internal interviews with the client’s consultants. These interviews were conducted in the first two months of the research, with the purpose of gathering data about the insights of the value proposition. Where indicated, the researcher retrieved data from specialized publications from the field. There were some cases when information retrieved during the second phase of interviews, aimed for identifying the role shift and assessing the success, is used. This is also noted down.

6.1.1 **Value: Same advantages as for the collaborative model**

Information about *A Handset Manufacturer* initiative is rather scarce, as the collaboration with the first card payment scheme owners (VISA), was announced recently in February, 2013. (Balaban, 2013a). As it is detailed in Section 6.1.4, the model is not fundamentally different from an organizational point of view from the reference case for this current research, when considering the position of banks and card payment scheme owners. However, it is different for the MNOs which are disrupted from their phone factor provisioning purpose.

Referring to the value given to the buyers, the mobile payment centered on *A Handset Manufacturer* does not bring much of a difference if relating it to the collaborative model. Thus, among the advantages brought to the buyer, the researcher lists the low time for performing a transaction, the possibility of managing different cards in the digital wallet and the perspective of benefiting of couponing, loyalty and redemption. In addition, in the same line as for the collaborative mobile payment model, the user should use a predefined password that access the digital wallet and in this manner start the payment.

On the other hand, the merchants benefit from the same value proposition as in the case of the collaborative model. Thus, the researcher considers that merchants benefit in terms optimizing their value chain, reducing costs of handling cash and increase their image in front of their customers. Ultimately, offering the proposition of *A Handset Manufacturer* may enhance their leverage of contactless services that can ultimately determine enhanced sales for them.
The NFC mobile payment centered on A Handset Manufacturer offers the banks to deploy their own wallet applications in the handsets that are already “preloaded with a Visa payWave application” (Balaban, 2013a, para.1). However, the researcher could not identify specific value elements for a particular case implemented, as the initiative is at its beginning. The main conclusion is however that the value proposition towards buyers and merchants is similar to that offered by the collaborative model.

### 6.1.2 Interface: A Handset Manufacturer’s interface in-line with the one from the NFC collaborative model

Considering the point of view of in-store buyers, the researcher considers that the user interface does not change a lot compared to the collaborative model as well. In this case, they are still using a digital wallet, which is provided by the banks that join A Handset Manufacturer’s initiative. As this initiative is in principle open for any bank to join, the idea is that each bank can come with its own wallet and join the model, according to Consultant 6. Thus, the researcher cannot provide a detailed description of the wallet in this case, as he did not find an existing example of a specific, particular case. Essentially, the user experience for the buyer does not change compared to the collaborative model used as reference for this case.

The same situation applies to the merchants. Their manner of interaction with the NFC enabled handsets do not change compared to the collaborative model. They must possess a terminal that accepts NFC payments and is able to integrate this type of payments in its cash registry.

### 6.1.3 Service: Same as the collaborative model with A Handset Manufacturer as the SEI instead of the MNOs

**Storing the Service Provider’s information in the handset**

The most important change regarding the technical architecture of the NFC mobile payment model centered on A Handset Manufacturer and card payment networks (currently VISA) is the fact that the payment credentials are stored in an embedded secure element already built in the handset. In addition, the collaboration between A Handset Manufacturer and Visa enable the banks to be automatically able to load their payment account information in the secure chips. This is due to the fact that Visa (and in the future also other payment schemes) preload from manufacturing the payment application VISA payWave in the devices built by A Handset Manufacturer. The payWave application is stored in the embedded Secure Element of the handset (Balaban, 2013a).

As already stated in the collaborative model, the TSM (Trusted Service Manager) component is the one that enables the transmission of payment credentials from the banks to the handsets. In the current case, Visa comes with a “mobile provisioning service” that aims to “manage Visa account information over the air in the embedded chips” (Balaban, 2013a, para. 3). The TSM on behalf of Vlisa is Oberthur Technologies according the (Balaban,
2013a) and Senior Consultant 1, which in this case is the TSM Service Provider. On the other side, A Handset Manufacturer already possess a “key management system” (Balaban, 2013a, para 3) on the NFC manufactured devices that enables secure data storage. The TSM from A Handset Manufacturer’s point of view, which is seen as the Secure Element Issuer (SEI) TSM is A Handset Manufacturer SDS, a subsidiary of A Handset Manufacturer’s Group. Thus, the banks can automatically personalize the A Handset Manufacturer handsets through the SP TSM, mobile provisioning service of Visa. In addition, as said in the beginning of the section, A Handset Manufacturer is due to make partnerships with also other payment networks (Balaban, 2013b) that can preload their own payment applications, such as MasterCard PayPass application, emphasizing the fact that the deal with A Handset Manufacturer is not non-exclusive. For instance, the new flagship handset Samsung the Galaxy SIV is due to support multiple payment applications, as also noted in (Balaban, 2013b, para. 1). That is why the researcher has chosen to center the mobile payment ecosystem around A Handset Manufacturer in this case.

In case banks want to onboard to the current platform they have the options that they will do that by making use of the VISA (other payment networks) TSMs. However, as supported by (Balaban, 2013a, para. 3) and Consultant 6, banks can as well use their own SP TSM (build by other external vendors) to onboard to A Handset Manufacturer. The manner in which this will involve the card payment networks is subject of negotiations.

**The Secure element**

As for the Secure Element, the major difference compared to the collaborative model is the fact that it is embedded in the A Handset Manufacturer built handset. This comes in contrast to the reference case for the current research, where the Secure Element was embedded in the UICC (SIM) chip. One can easily imagine that the control the MNOs have in the collaborative model by that fact that they own the SE in the SIM is now shifted to A Handset Manufacturer. This technological detail starts the strategic game and is the subject of the analysis in the next section. In case of A Handset Manufacturer the Secure Element will be provided by the embedded chip manufacturer STMicroelectronics that uses a BroadCom NFC controller (Balaban, 2013c).

As for the technological openness of the new NFC mobile payment ecosystem in which A Handset Manufacturer is involved, it is important to realize that first the user has to make use of one of the Samsung Galaxy SIII, Galaxy Note II and the flagship, Samsung Galaxy SIV, according to (Balaban, 2013a, para. 2). Only on these handsets is the payment application from VISA loaded on the embedded Secure Element. Other payment scheme owners can load their application only in the flagship model (the SIV) , as it is stated in (Balaban, 2013d). In addition, the merchant has to be able to accept payments using either the payWave or the payPass application at their terminals so that the payment can be managed. Thus, one can consider that the technological openness of the ecosystem is rather close, due to the fact that is dependent on a limited number of smart devices.

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35 As also stated in Section 3, the TSM is composed of two elements: the SP TSM and the SEI TSM; in this case Oberthurs is the SP TSM on behalf of Visa and A Handset Manufacturer SDS is the SEI TSM, on behalf of A Handset Manufacturer
6.1.4 Organization Model: collaborative mode without the MNOs

As already stated above, the organization of the NFC mobile payment model involving A Handset Manufacturer's cooperation with the payment networks stays in the boundaries of the four corners model. The contact between the merchants and in-store buyers is still done by using the NFC handset at a terminal that accepts NFC payments. The transaction can be viewed as a Card Present one, as the data is residing on the secure element embedded in the handset is securely passed to the NFC receiver in the merchant terminal. However, the research considers that the difference to what in the current paper is taken as the reference, meaning the collaborative model, is the fact that the MNOs lose their power and the phone factor is given directly by the handset manufacturer, in this case A Handset Manufacturer. As the current research proposes as the status quo the situation when both conditions are respected (the four corners model organization and the responsibility of MNOs to deliver the phone factor), the model is considered disruptive for the carriers. More on this aspect is detailed in Section 6.2.

Figure 20: The four corners model with A Handset Manufacturer instead of MNOs, retrieved as a personal contribution of the researcher

The researcher also reflects on the value network from above, first through the perspective of its organizational openness. When considering the VISA payWave as the payment application that lies on the embedded Secure Element in the A Handset Manufacturer handset, a requirement is that the user has to possess a bank account, to an issuer that already has made an agreement with VISA. The agreement means that the bank uses the SP TSM given by VISA to stick to the SEI TSM of A Handset Manufacturer and thus be able to be in the A Handset Manufacturer and VISA NFC loop. In addition, the researcher considers that the issuing bank should also be able to offer a digital wallet to the user, so that the client is able to perform mobile payment transactions. Last but not least, apart from its technical capabilities to receive NFC payWave applications at its terminals, the merchants...
should also be able to have contracted an acquirer that has already agreed a partnership with VISA for accepting payments through this scheme.

Regarding the network effects, the researcher has found that the same characteristics from the collaborative models apply here as well. That is the more merchants use VISA payWave application of receiving payments, the more buyers might be inclined to do so. This type of indirect network effects can also be applied the other way around. However, what is more particular for this case is a network effect between the usage of A Handset Manufacturer and the number of transactions using VISA payWave application. Thus, one side of this issue is the more A Handset Manufacturer handsets with payWave application are ready for payment, the more transactions will happen through VISA payWave. On the other, the more existence of banks (issuers and acquires) of payWave products, the more demand is for cards on handsets accepting this particular payment application. This line of reasoning can be applied for multiple card payment networks, such as MasterCard with its payPass application.

6.1.5 Revenue: MNOs out of the revenue model

A similar fee structure, such as in the collaborative case, between the buyers, issuing banks one side, acquiring banks and merchants on the other side and in between the two banks is used, from the researcher’s perspective.

In addition, the banks ask also a transaction fee towards the card payment schemes, such as VISA for being able to use their products. Thus, if a bank wants to deploy NFC mobile payment services through the VISA SP TSM (“mobile provisioning service”, (Balaban, 2013a, para.2)), it has to negotiate a package from its position as an issuer or an acquirer according to the number and other types of VISA (or other payment products), following Senior Consultant 2. As the MNOs are taken out from the scheme, A Handset Manufacturer receives a host fee from VISA that receives space for its payment application on the embedded Secure Element, according Senior Consultant 2 and Consultant 6. In addition, following Senior Consultant 2, the money exchange flow between VISA and A Handset Manufacturer is subject of confidentiality.

6.2 Role shift: Disruptive only for the MNOs

The role shift analysis is performed by identifying the position of the most important actors in the A Handset Manufacturer’s mobile payment model and comparing it then to their original position in the collaborative, traditional model. The generic roles of the actors are organized in the table below and are based on the interpretation (coding) of the answers received during the second interview step. The researcher has conducted the interviews based on the form that focuses on the three dimensions of the actors: the attitude, power and dedication of each actor analyzed. Various insights besides used to complement the role shift question form were gathered during the interviews, as it was structured as a semi-open conversation. These additional insights were used to clarify the roles and were, as well as an input for the successfullness indicator in Section 6.3. In addition, several specific insights derived from the VISOR exploration were also included where it was the case. The detailed version of the results of the interviews is displayed in Appendix 6.1, while the whole methodology can be referred to in Section 1.3. The results from this section should be viewed only as the
conclusion of the investigation and in case the reader looks for detailed information he/she should not hesitate to consult the appendix.

The researcher performs the roles assessment by analyzing the attitude/position of the actors from the traditional model as part of the A Handset Manufacturer ecosystem. The opinions are sometimes diverging, however the researcher has tried to include the generic elements together and comment the separately the conflicting opinions expressed by the stakeholders. There were 4 respondents commenting A Handset Manufacturer from their perspective: 1 person responded taking into account all the actors in A Handset Manufacturer mobile payment ecosystem, while 3 respondents took the perspective of their own area of activity (card payment schemes, MNOs and banks) to comment of the proposition. As a remark, for the current case A Handset Manufacturer is viewed as the actor which is managing the ecosystem, while VISA as well as MasterCard and the other payment schemes are viewed separately. As it results from the analysis, the platform is not closed for other than VISA payment schemes, so the researcher takes the card payment schemes as a single group, without individualizing any player in a more specific manner.

Table 21: Interviews for the NFC mobile payments model around A Handset Manufacturer

<table>
<thead>
<tr>
<th>Domain</th>
<th>Organization</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Payment Schemes</td>
<td>Card Payment Scheme 1</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>Banks</td>
<td>Bank 1, Bank 2</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>MNOs</td>
<td>MNO 1</td>
<td>Google, PayPal, A Handset Manufacturer</td>
</tr>
<tr>
<td>Consultants</td>
<td>Consultant 2</td>
<td>Google</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 2</td>
<td>PayPal</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 2</td>
<td>A Handset Manufacturer</td>
</tr>
<tr>
<td>Consultants</td>
<td>Senior Consultant 1</td>
<td>PayPal</td>
</tr>
<tr>
<td>Newspaper Editors</td>
<td>Newspaper editor 1</td>
<td>Google</td>
</tr>
<tr>
<td>Disruptive Players</td>
<td>x</td>
<td>X</td>
</tr>
</tbody>
</table>

The differences are marked with different brightness levels of the same color (Light Green-Dark Green). The transitions in roles between the different situations are emphasized with diverging colors (Red-Green). Thus, the most relevant changes when considering disruption is the ones from Keystone/Savior towards Saboteur, as the color in the A Handset Manufacturer model becomes red. The actors colored in red are disrupted from their initial role in the collaborative model.
Table 22: Role Shift for the model around *A Handset Manufacturer*

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role in the collaborative model</th>
<th>Role of actor in <em>A Handset Manufacturer</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>A Handset Manufacturer</em></td>
<td>Friend (niche): Handset supplier</td>
<td>Savior: player, they support the proposition as offer the possibility of hosting the payment application for the banks in their mobile handsets</td>
</tr>
<tr>
<td>Card Payment Schemes</td>
<td>Savior of NFC, they want as many transactions as possible to transaction fees; their interest is high</td>
<td>Savior: they support the initiative, it is not disruptive for their role and they can benefit in the business ecosystem, as more contactless transactions can be enabled</td>
</tr>
<tr>
<td>In-store Merchants</td>
<td>Savior/Sleeping Giant: they aim to have as many sales as possible and thus increase their revenues; they are one of the end customers of the payment services; they have a very big potential to make NFC work, however their interest fluctuates</td>
<td>Sleeping giant: they are powerful, as they represent on side of the chicken and egg problem; they are not involved, because this is a contactless initiative that has no influence to their existing contactless terminals and cash registers; they might feel a bit threatened by the strong positions that card payment schemes can build up in such a case;</td>
</tr>
<tr>
<td>Acquiring bank</td>
<td>Keystone: they control the relationship with the merchants; they sometimes provide the contactless terminal that has to be integrated with the cash register of the merchants; they aim to support deployment of NFC payments, in order to service the merchant through different channels; they are keystones because they payment is their core business and are dedicated to make this ecosystem work in any case and adapt to change 36</td>
<td>Keystone player: They are generally in favor, in case they are not part in other mobile payment initiatives together with the MNOs; they support the initiative, as they do not have to depend on the MNOs to host their credentials; their role in the payment network is not disrupted; However, they would prefer to discuss with <em>A Handset Manufacturer</em> separately, as they might be afraid the card payment schemes can become too powerful</td>
</tr>
<tr>
<td>In-store Buyers</td>
<td>Sleeping Giant/Savior of NFC: they aim making use of value added services (loyalty, couponing); they are one side of the chicken and egg problem as they are the other side that is using the service and can trigger the acceptance of payment with NFC; their interest is high, but their dedication is not always certain, thus the role oscillation;</td>
<td>Sleeping giant: they have a similar attitude with that of the merchants, not too interested; they are part of the chicken and egg problem; they trust their banks, so if initiative is supported by the banks they might get on board</td>
</tr>
<tr>
<td>Issuing bank</td>
<td>Keystone player: they are enabling the payment to take place; they aim at a high interchange and more transactions; the aim is offering a diverse set of services to their clients, so that they reach the customer through more channels; they can have the direct contact with the buyers, thus they can negotiate a manner of deploying the Secure data</td>
<td>Keystone player: same attitude as acquirers, if not extensively involved in projects with MNOs on mpayment, they support the attitude, because they do not have to rely on the MNOs; they have another option to deposit their payment credentials, so more room for negotiation at least is created; they might prefer to discuss to <em>A Handset Manufacturer</em> separately, as they do not like the growing power of the card payment schemes;</td>
</tr>
</tbody>
</table>

36 They also invest funds in the mobile payment model as payments “our core business and we want customers to think at us when making a payment” (Bank 1)
### MNOs

**Savior, Dominator player**: they support the mobile payment enabled with NFC because they receive a fee for hosting the credentials from the banks; they are extremely powerful because they control the handset, the access to the wallet and the SE in the UICC; in addition they are responsible for the distribution of handsets: also Role Card Management, Card Provisioning, Card Hosting\(^{37}\); they are dominators (not keystones) because payment is not their core business, but rather a manner on enhanced their revenues, thus they want to extract value more than investing value in the ecosystem; **Saboteurs**: fierce against the proposition, they would do anything in their power to stop it; they do not like the fact that they are taken out of the payment game, as the bank credentials are not stored in the SE in the UICC; they are powerful, they buy handsets from *A Handset Manufacturer* and control the distribution channel; they are extremely involved;

### Handset manufacturer

<table>
<thead>
<tr>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Niche(Friend):</strong></td>
</tr>
<tr>
<td><strong>Friend/Acquaintance</strong></td>
</tr>
</tbody>
</table>

### POS terminal supplier

<table>
<thead>
<tr>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Niche(Friend),</strong> they are not very powerful because they are all dependent on the demand of merchants and acquirers for their products; they have to deliver what is requested; they have all the interest in supply as many devices on the market</td>
</tr>
</tbody>
</table>

Retrieved as personal contribution of the author, following the insights gathered in Appendix 6.2 regarding attitude, power and interest of the actors

**The roles of MNOs change, the rest stays the same**

The role shift indicator in *A Handset Manufacture*’s case clarifies the difference in roles of the actors (either highly critical or less critical) in this disruptive ecosystem compared to the collaborative model.

**A Handset Manufacturer**: their position remains the same in both cases; however in the latter their role is more important, as they propose that the banking credentials to be stored in the embedded SE from their handset, without making use of the MNOs; they can be considered Saviors from their proactive position and the fact that they have more power; they are not disruptive for the banks, but are disruptive for the MNOs, that is why this new ecosystem is referred to as disruptive

**Card Payment Schemes**: their position does not change; they are positive in both of the value propositions and thus Savior, due to the power they have; however, in the collaboration with *A Handset Manufacturer* they will be even more powerful, as the payment application branded by them is already placed in each secure element from the manufactured handsets; that can give them more room for negotiation in their relationship with the banks; in this case,

\(^{37}\) As clarified in the stakeholder analysis section
the position of other card payment schemes that are not officially in a partnership with A Handset Manufacturer is labeled as supportive towards the initiative, as they all see the potential of leveraging on model that might prove successful; A Handset Manufacturer might want to bring more card payment schemes closer to their model, as they see the perspective of gaining money; thus, the strategic importance of making a first partnership with Visa is viewed by the researcher as rather a first step for A Handset Manufacturer entering in the mobile payments arena;

**In-store merchants:** their position does not change compared to the collaborative mode between banks and MNOs; however, they might feel a bit threatened by the increased power card payment schemes have regarding the banks, as they are dependent on the fees perceived by the banks;

**Banks:** in the case they do not have any ongoing collaboration with the MNOs for NFC mobile payments, their position does not change; they remain keystones in the ecosystem as before, because the model is designed in a non-disruptive manner to the four corners model; they might disagree to the enhanced power received by the card payment schemes, that can have a better negotiation position in terms of fees asked for transactions;

**In-store buyers:** there is no change compared to the collaborative model; they are still waiting to be convinced by the suitability of the contactless payment method for their needs;

**MNOs:** for them the situation changes radically; in the A Handset Manufacturer proposition they are taken out of the game, thus their position is severely disrupted by the fact that A Handset Manufacturer comes with an in-built payment application in the embedded SE from the handset; from Dominator, supporting players, they act as blockers, Saboteurs and use all their resources to stop the initiative to take place in the following format

**Handset manufactures:** while in the collaborative model the analysts focused on all handset manufactures when talking about the access to the buyer, in A Handset Manufacturer case it is only the A Handset Manufacturer handsets that are part of the proposition; the other handset manufactures are not part of the decision making process; they have a positive attitude, because if the proposition works they can pair up with payment schemes, in the same manner as A Handset Manufacturer does; however, they do not have the power in influencing the ecosystem; they might be interested, however, to make use of the on-boarding platform developed by A Handset Manufacturer in collaboration with the other card payment schemes so that they can offer a comparative service to the banks; thus a new level of competition in the payment area can be created between handset manufactures; this is viewed by the researcher as topic for further research;

**POS terminal supplier:** their role does not change, they are seen as niche players, important technological vendors, which have the interest that contactless initiatives functions so that their sales are increased;

Following the insights gathered as a result of the role shift indicator, the conclusion is that A Handset Manufacturer’s collaboration with VISA (and other payment schemes) is not disruptive for banks. Banks still keep their keystone role in the payment model that it
structured on the traditional four corners model. However, it is for the MNOs that this proposition is disruptive, as their role shifts from a keystone to a player that can be removed from the payment game. They position themselves as Saboteurs which will do anything in power in order to stop the initiative to be materialized under the following circumstance.

6.3 **Successfulness indicator: Scoring High**

Following the change in roles above, here is an analysis of how *A Handset Manufacturer* scores inside the success indicator developed for assessing the successfulness of the value propositions. There are two sets of critical factors that contribute to the assessment of the successfulness. The first set, the network critical factors refer to the amount and type of support each model benefits of in its business ecosystem. This is the most important criteria when assessing successfulness, as referred to in Section 2.2.3. The second set is composed of factors that are connected to platform theory and give insights about the value proposition of *A Handset Manufacturer* from a consumer perspective. This criterion is used only when the first does not display any conclusive results and the researcher finds himself in a position when he is incapable of assigning a certain indicator for success (ex. he has to decide between Medium and High). In addition, the criterion is also used for justifying the importance of meeting support in the ecosystem, by setting the context through listing key characteristics that give insights about the value proposition. It is only these most important insights derived from this criterion that are shown in the following section. The detailed application of these critical factors to this case study can be consulted in Appendix 6.2.

<table>
<thead>
<tr>
<th>Critical Factors</th>
<th>Collaborative model of NFC</th>
<th><em>A Handset Manufacturer</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Platform leadership</strong></td>
<td>Banks: Keystone</td>
<td>Banks: Keystone</td>
</tr>
<tr>
<td><em>(Keystone players/Dominators)</em></td>
<td>MNOs: Dominators</td>
<td><em>A Handset Manufacturer</em>: Dominator</td>
</tr>
<tr>
<td><strong>Number of Saviors</strong></td>
<td>1: card payment schemes</td>
<td>1: card payment schemes</td>
</tr>
<tr>
<td><strong>Number of Saboteurs</strong></td>
<td>0:</td>
<td>1: MNOs (they can become Irritants, opponents with low level of power if <em>A Handset Manufacturer</em> manages to overlap them from the channel of distribution)</td>
</tr>
<tr>
<td><strong>Sleeping Giants</strong></td>
<td>2: merchants and buyers are on the edge between Saviors and Sleeping Giants</td>
<td>2: merchants and buyers are on the edge between Saviors and Sleeping Giants</td>
</tr>
<tr>
<td><strong>Time Bombs</strong></td>
<td>0:</td>
<td>0:</td>
</tr>
<tr>
<td><strong>Niche players</strong></td>
<td>2: handset manufactures, POS terminal vendors</td>
<td>1: terminal vendors</td>
</tr>
<tr>
<td><strong>Acquaintances</strong></td>
<td>0:</td>
<td>1: other handset manufactures</td>
</tr>
</tbody>
</table>

Following the assessment of success, the model proposed by *A Handset Manufacturer* in collaboration with VISA and in the future other payment schemes, scores very similar towards the defined indicators as the collaborative model. The only difference relies in the
fact the implementation around the embedded SE offered by A Handset Manufacturer does not provide use access to the MNOs clients.

Thus, the MNOs can try to block the distribution of A Handset Manufacturer handsets that have payment credentials stored in the embedded secure element, thus the critical mass of users can be hard to use. This depends on exogenous factors such as market and regulatory behavior. On the other hand, the model around A Handset Manufacturer makes the handset manufacturer a critical actor in the ecosystem, so the number of Saviors compared to the collaborative model stays the same (3). In term of network support, the collaborative model benefits of the support of the MNOs, whereas the A Handset Manufacturer model does not. On the other hand, taking into account that in the latter A Handset Manufacturer replaces the MNOs as SEI, the position of the MNOs diminishes to a lower level of importance. They still oppose, but they may not possess the same level of power to be considered Saboteurs. Besides, the model has 3 Saviors, 2 Sleeping Giants and other less critical actors around, thus it is rated as High on the successfulness indicator.
7 Results: Focus on collaboration and network support as strategies

The current section comes up with the list of strategies that Google, PayPal and *A Handset Manufacturer* should deploy in relation to the actors from their networks in order to be successful in the mobile payments in-store market. Previous insights about the value proposition, role change and the successfulness of these initiatives have been found in the last Sections. It is based on this information gathered from applying the role shift and successfulness indicator, that the network strategies towards success are listed. More specifically, the strategies are referred to as successful, given the degree of successfulness determined in the analysis. The degree of successfulness is determined mainly grounding on critical factors by making use of a multi-actor in networks perspective. In addition, the nature of these strategies is identified by taking into account the shift in roles of the most important actors in the mobile in-store payments ecosystems.

This identification of strategies is based on the previous work of (Hans de Bruijn, 2008) on strategy in networks, (Iansiti & Levien, 2004) as referred to in Section 2.2.4. The strategies targeted here are viewed as a perspective of managing the relations with other actors. In some cases the researcher chose to also integrate several strategic choices applied to the business model, following the descriptor proposed by VISOR. However, it is the multi-actor strategies that the current research aims to take into account. The strategies are identified one by one, in relation to the most important actors in these networks: card payment schemes, banks, MNOs, consumers and technology vendors. The researcher choses to rank these strategies, taking into account the level of power of these actors. There is no reference in the current research on strategies that these three disruptors should deploy in relation to each other.

The section addresses in Section 7.1 the strategies Google should deploy regarding the actors in its disruptive Google Wallet ecosystem. Furthermore, Section 7.2 focuses on PayPal’s mobile in-store payment proposition, whereas Section 7.3 on *A Handset Manufacturer*. 
7.1 **Google: Try to bring the banks, the card payment network owners and even MNOs on board**

As a result of the minor network support from the powerful players in its network, Google Wallet scored **Low** in the successfulness indicator. From the critical factors emerging from VISOR, the researcher has been able to identify several issues that stand behind the low support from the consumers. Thus, he has is the impossibility of reaching critical mass, because the system seems rather organizational and technological closed and because the customers, both merchants and buyers show trust problems in relation to Google. On the other hand, Google comes with a financially advantageous proposition for both clients and merchants, as it subsidizes the payment process. In addition, it is a very large brand in the e-business market. As said in Section 2.2.4, the researcher has chosen to rank the recommended network strategies taking into account the power and dedication of the actors. The colors attributed for the players correspond to the ranking given for the different groups, given by the ranking in the introductory section: 1-orange; 2-green, 3-blue. The strategies regarding the last two groups can be checked in Appendix 4.4

**Banks: (Group 1)**

**Role change:** Keystones- > Saboteurs; this is due to the fact that they are strongly disintermediated as acquirers and issuers in relation to the merchants and regular buyers, in this way losing brand and visibility; for them Google Wallet is extremely disruptive

**Strategy towards success:** Having the banks against them, does not fit Google’s attempt to reach success in a network with a lot of actors. It needs support. Thus, Google should use appropriate tactics to change the perspective of the banks from Saboteurs towards Saviors and obtain a situation of multiple sourcing. For this, Google should first try to build extra redundancy in the network and thus create a large web of connections for them. Then, Google should prepare the ground for proposing a win-win situation, around the wallet as the central element. That is the strategic choice the company can take considering its existing business model. Google can offer the banks the solution of wallet development, while the banks could facilitate the access towards their clients. That will mean that the revenues from the merchants can be shared between Google and the banks following a negotiation process. In this manner, Google and the banks can be linked through a common perception of the gain in case of success, but also from a joint loss in case of an undesired development. In both situations, the collaboration between them can build a tight relationship. Also, as Card Payment Scheme 1 mentioned, Google can focus on the value added provided by NFC payments, while the banks can still take their share from the payments industry.

**Card Payment schemes companies: (Group 1)**

**Role change:** Savior-> Saboteur; from their role of giving full support in the collaborative model, caused by the fees they receive in each payment transaction, they change their position because of the fact that they lose the control of the payment and visibility with Google Wallet; Google Wallet is disruptive for card payment schemes

**Strategy towards success:** Google should try to work with the card payment schemes and not against them. Thus, they should try to bring the card payment companies on board by showing them the advantages of making transactions through Google Wallet. This can be
attained by using concepts such as *influence the perception of gain* and *build a synergy* with card payment schemes, in which both parties can share the loses but also the gains from payment. Thus, in the situation partner payment schemes (MasterCard) or other payment schemes such as Visa, take into account an increase of a fee for the staged wallet, Google could negotiate a larger support for payments in the context of the increased fee. The need the brand support of the payment schemes to be able to break the chicken and egg problem, by creating the acceptance infrastructure and awareness among the buyers.

**Mobile Network Operators (MNOs): (Group 1)**

**Role change: Dominators-> Saboteurs;** they feel that they can be left out of the payment game as the SE from the UICC (controlled by them) not used any more, in favor of the embedded SE; for them Google Wallet is extremely disruptive

**Strategy towards success:** Google can present the mobile proximity payment as a *multi-issue game*, so that it can create room for give and take with the MNOs. It can then try to turn the MNOs from their hostile behavior towards a more supportive one. Google can think of offering a limited space on the embedded Secure Element to the MNOs, in exchange for their support in distributing terminals to the handset users. Then, the MNOs can leverage this asset by asking a fee from Google. In this manner, Google might give up part of the Secure Element ownership, but in exchange it can gain critical mass and adoption of its payment model. This can work also because MNOs see payment as a manner of generating extra revenues from payment and not because they have payment as their core business offerings as banks do.

The other actors are less critical, thus their case and strategy recommendation is illustrated in the Appendix 4.4. This is the case for in-store merchants, in-store buyers, handset manufactures and POS terminals.

7.2 **PayPal: Try to bring the banks on board and adapt to the requests of the card payment schemes**

After applying the *successfulness indicator*, the researcher grades PayPal with a *Low-Medium* success perspective, as PayPal still does not have enough support in the network, but is rather more attractive to the customers, following the exploration using the second set of critical factors. As said in Section 2.2.4, the researcher has chosen to rank the recommended network strategies taking into account the power and dedication of the actors. The colors attributed for the players correspond to the ranking given for the different groups, given by the ranking in the introductory section: 1-orange; 2- green, 3-blue. The strategies regarding the last two groups can be checked in Appendix 5.4.
**Strategy towards success:** There can be no support on behalf of the payment schemes in relation to PayPal’s closed loop proposition, because of severe conflicting interests regarding the access to the targeted customers’ in-store. In order to gain more support from them, PayPal could construct and promote more open loop solutions, such that with Discover in the US, perhaps on a mobile device. In this manner, they could share both the costs and the benefits with their common partners, bind the relations and thus increase the value perceived by card payment companies that would altogether enhance the success judged from a network perspective.

**Banks: (Group 1)**

**Role change: Keystones-> Saboteurs;** because the relationship between them and their clients is affected and they lose interchange fees; PayPal mobile in-store payment is disruptive towards banks

**Strategy towards success:** Opposing the banks cannot be a sustainable strategy. The account of each PayPal’s user is fueled through the bank, thus banks are extremely important. PayPal should think of the banks as an element that contributes to the multiple sourcing of their value proposition and thus use their production power. Thus, PayPal can approach the banks and propose a multi-issue approach of the problem. Negotiation can lead to various solutions from a contribution of PayPal to the value added services of the banks’ wallets until an integration of PayPal’s offers directly as services of some banks, as long as there is an fair agreement about the spread of the interchange and other transaction fees. While banks oppose the fact that payment is not done through their network, they do not seem that reluctant to the situation that the money stays with them at the end of a transaction. Thus, in case of a direct debit during a PayPal transaction there might be room for negotiation. It is a give and take game that can help PayPal reach success, by enhancing the value of their network.

The other actors are less critical, thus their case and strategy recommendation is illustrated in the Appendix 5.4. This is the case for in-store merchants, in-store buyers, MNOs, handset manufactures and POS terminals.

7.3 **A Handset Manufacturer:** Focus on developing the relationship with the banks to build scale

By applying the *successfulness indicator*, the research identified that the critical mass of users can be hard to attain, because of the blocking position of the MNOs. This aspect may vary depending on exogenous factors such as market and regulatory behavior. In term of network support, the collaborative model benefits of the support of the MNOs, whereas the model around *A Handset Manufacturer* does not. Nevertheless, the mobile payment initiative around *A Handset Manufacturer* is evaluated as *High*, as the researcher considers that *A Handset Manufacturer* takes over the role of SEI from the MNOs. As said in Section 2.2.4, the researcher has chosen to rank the recommended network strategies taking into account the power and dedication of the actors. The colors attributed for the players correspond to the ranking given for the different groups, given by the ranking in the introductory section: 1-orange; 2-green, 3-blue. The strategies regarding the last two groups can be checked in Appendix 6.3.
Banks: (Group 1)

Role change: Keystone→Keystone; they remain keystones in the ecosystem as before, because the model is designed in a non-disruptive manner to the four corners model; they might disagree to the enhanced power received by the card payment schemes, that can have a better negotiation position in terms of fees asked for transactions;

Strategy towards success: In case the banks do not have any ongoing initiatives with MNOs for mobile payments, A Handset Manufacturer should leave the role of communicator to VISA or the other card payment companies. It is their responsibility, not A Handset Manufacturer's. The card payment schemes, should adopt a multi-issue approach towards the banks when discussing cost structure and the processes of taking issuers on board. They are now becoming more powerful in relation to the banks while getting involved into the mobile payments game. Thus, they can afford to play strategically, but they should realize that they are talking with a party together with which they can play a win-win game, so they should also build trust. Thus, card payment scheme should use the extra power in a reserved way, with moderation. In addition, they should not always show-off the extra negotiation power they have, as “power revealed is power reduced” (Bruijn & Ten Heuvelhof, 2008).

For the case when banks already have ongoing initiatives with the MNOs, they might look suspicions at the new value proposition of A Handset Manufacturer together with the card payment schemes. As Bank 2 notices some banks would like to discuss separately with A Handset Manufacturer and include them into their current value proposition together with the MNOs. That has to do apart from the ongoing commitments, to the fact collaboration between A Handset Manufacturer and the card payment schemes can prove “too expensive” for the banks. In this situation, A Handset Manufacturer can still “keep the deal with VISA, but they also need a deal with the banks” (Bank 2). Thus, in this case A Handset Manufacturer should keep all the options on the table and be willing to play a multi-issue game, by showing commitment to stretch its goals and be flexible. The researcher notes that this is part of the inherent bias that derives as the interviewees express their institution’s point of view on this topic.

Card Payment Schemes: (Group 1)

Role change: Savior→Savior; their position does not change; they are positive in both of the value propositions and thus Saviors, due to the power they have; however, in the collaboration with A Handset Manufacturer they will be even more powerful, as the payment application branded by them is already placed in each secure element from the manufactured handsets; that can give them more room for negotiation in their relationship with the banks

Strategy towards success: A Handset Manufacturer should keep a very close contact with partner payment schemes (VISA), as well as the other which might potentially join, influence their perspective of gain and take a joint approach in case of profit and loss. However, A Handset Manufacturer should continue to play a multi-issue game when it comes to discuss topics such as share of profits, contact to customers or TSM infrastructure, as to continue to have a strong strategic position in the partnership. This comes also as the management of the both customers and service providers are not yet fully decided. It is the alliance with the card payment schemes that make A Handset Manufacturer powerful as players in the mobile payment ecosystem.
MNOs: (Group 1)

Role change: Dominators (Saviors) -> Saboteurs; in the Handset Manufacturer proposition they are taken out of the game, thus their position is severely disrupted by the fact that Handset Manufacturer comes with an in-built payment application in the embedded SE from the handset; from Keystone players, they act as blockers, Saboteurs and use all their resources to stop the initiative to take place in the following format

Strategy towards success: In order to be able to cooperate with the MNOs in NFC payment propositions, Handset Manufacturer should play a multi-issue game, in which they would also be ready to involve the MNOs in the model. Taken this into account, Handset Manufacturer might think of offering space on the embedded Secure Element that they own to the MNOs, in exchange of keeping the distribution channels open towards customers and maintain strong connections with the MNOs. The ownership of a part of the embedded Secure Element would make the MNOs part of the NFC mobile payment value network around Handset Manufacturer and increase the success from the network perspective, as the MNOs will also contribute as another party sourcing this value proposition.

The other actors are less critical, thus their case and strategy recommendation is illustrated in the Appendix 6.4. This is the case for in-store merchants, in-store buyers, handset manufactures and POS terminals.

It is important to note that in this case the banks still remain Keystone players, whereas Handset Manufacturer replaces the MNOs as Dominators/Saviors as a Secure Element Issuer. Thus, from Handset Manufacturer’s perspective, they should exploit the good relationship they have with the banks and the card payment network companies. Using this high support from the network, it is possible for them to reach success. The blocking power of the MNOs should be also managed however. It is important that to clarify that the main goal of Handset Manufacturer is that of selling handsets on the market, thus payment is “the core business of Handset Manufacturer”, (Bank 1) but rather a means for reaching revenue targets.
8 Conclusions and discussions:

8.1 Main findings of research

Placed in the context of mobile proximity payments field, the main goal of the researcher was that of answering the research question below:

*What kind of network strategies should new-coming players in the mobile proximity payment market Google, PayPal and A Handset Manufacturer deploy in relation to the most relevant actors in their networks, in order to ensure their successfulness in the international market?*

Furthermore, the main research question was divided into several sub questions, that gave the researcher sufficient input to construct a theoretical framework. By the means of this framework developed, the researcher aimed to reach the goal of recommending a list of potential successful strategies. The framework first positioned the research in the academic environment by the means of (Dahlberg et al., 2008b)'s model, who see the competition between mobile payments service providers influenced by different parties with different levels of power and interests. In addition, the researcher considers that inside the mobile payments service providers, the so called “traditional payment services” (Dahlberg et al., 2008b, p.3) are based on the standardized “four corner payments model” (LLC, 2010, p.1) which integrates the mobile network operators (MNOs), as responsible for storing the secure payment information in a Secure Element, built in the SIM card. The researcher names them as the collaborative model, as all the parties involved seem to have aligned interests in this proposition. The “new e-payment services” (Dahlberg et al., 2008b, p.3) are represented by the so called “self-organized schemes” (Jan Ondrus & Pigneur, 2006, p.3) and refer in this research to Google, PayPal and *A Handset Manufacturer*. They are considered disrupters, as their models as at least one of the roles of the most important actors involved in the network (banks, MNOs, card payment schemes etc.) is changed compared to the status quo from the collaborative model. Thus, the researcher considers a value proposition as disruptive, when at least one single position from the status quo model is changed. From this perspective, the collaborative model is used as a reference for comparing it to the three cases.

Furthermore, the current theoretical model defines success by primarily considering the value delivered to the value network (Allee, 2000) and then secondly by taking into account the value delivered to the consumers, the merchants and the buyers. The researcher used the definition of success following (El Sawy & Pereira, 2013) and then chose the perspective of (Reuver et al., 2009) regarding the network perspective. Thus, the researcher’s claim is that in order to reach more success, the owner of a mobile payments initiative should deploy collaborative strategies, aimed towards obtaining multiple sourcing from other relevant actors in the multi-actor environment (Bruijn & Ten Heuvelhof, 2008). In this manner, the value perceived by the network increases and thus the success enhances as well. In order to measure success, the researcher has developed a *successfulness indicator that first focuses on counting the amount of support an owner has in the network and only after on the extent the value proposition brings to the customers*. The first criterion primes in making the
evaluation of success. In addition, with the purpose of clarifying the roles of the most important actors in the three different value propositions (ex. banks, MNOs, card payment companies etc.) and then identify the support needed for the successfulness assessment, the researcher had to clarify the roles of each of the actors in these ecosystems. The role identification was based on the classification of (Hillson & Simon, 2007, p.41) and (Enserink et al., 2010) based on the attitude, interests and power of these actors. Thus, actors are labeled between Savior (high power, interest and supportive attitude) and Saboteur (high power, interest, blocking power). The researcher makes use of strategic management literature (lansiti & Levien, 2004) to emphasize the strategic position of certain actors in a business ecosystem, by labeling players as keystones, dominators or niche. As the collaborative model is considered the status quo, when the interests of all the actors are aligned for deploying NFC mobile payments services, the researcher relies on a role shift indicator, that aims to assess the number and the extend the reference model is disrupter. As mentioned before, disruption occurs in case one actor changes its role in the either the analyzed model compared to the collaborative case. The role shift indicator is used as an insight for generating network strategies for Google, PayPal or A Handset Manufacturer.

As key finding of the thesis, the researcher lists the aspects listed below. Google Wallet's proposition is structured as two times the four corners model from an organizational point of view. The initiative is disruptive for banks, card payment schemes and MNOs, which change their roles compared to the collaborative model. Because of the opposition they encounter in the network from these parties, the author views Google with a Low successfulness probability. That is in line with the current definition and criteria for assessing success. The researcher considers that Google faces a low degree of support in its value network, with 3 powerful blockers, 2 strong parties that are not convinced to support the proposition and no powerful supporter (Savior). As potential successful strategies, Google should try to change the position of banks, by getting involved in developing value added services for their digital wallets, share the revenues with the card payment companies and give the MNOs a limited space in the embedded Secure Element. In this manner, the company can build support around the actors in Google Wallet’s value network and reach a higher level of success.

On the other hand, PayPal's closed loop model is based on a three corners model instead of a four corners model for making the payment. In this case, PayPal is the party providing the account for both the merchant and the buyer, while the payment is performed through its network. It is based on this closed loop scheme, on which the researcher considers that PayPal constructs the mobile in-store payment proposition, with the interface consisting of barcode, QR code or perhaps NFC. From this perspective, PayPal is disruptive towards banks and card payment schemes companies, which feel their relation with their customers in danger. The MNOs do not count so much in this case, as there is no Secure Element involved for payment. The research sees PayPal with a Low perspective of success due to lack of support in the network from other parties than the MNOs which are not relevant, as 2 actors are seen as powerful blockers and 2 actors (buyers and merchants) hard to be activated and source the mobile payment proposition. However, following the interviews, the research concludes a positive success direction towards Medium, as he considers PayPal already benefits from a large amount of users in the on-line world that could be transformed into a critical mass. As network strategies, PayPal should tighten the relationship with the banks, which might be turned into supporters, for instance in case of creating products that
enable direct debit from a bank account through PayPal’s network. On the other hand, the situation with card payment schemes is much complicated, as both parties compete for generating fees from the transactions. The researcher considers that support is hard to gain in the closed loop, three corners model. He considers that the card payment companies could only be attracted for collaboration in an open-loop model, where PayPal would serve the buyer by offering payment services and the card payment companies would be linked to the merchant’s issuing bank. In this situation, through a similar collaboration as recently proposed with Discover (REUTERS, 2013), PayPal could close a deal with card payment companies and share transactions fees.

Last, but not least, the model around *A Handset Manufacturer* as the Secure Element Issuer is seen similar to the standardized corners model. The banks are still the keystones and *A Handset Manufacturer* can be viewed as a Savior (high power, high interest and supportive attitude). It is the MNOs which are disrupted, taking into account the situation from the collaborative model point of view. However, as the MNOs lose their power as not the only party that can offer a space on the Secure Element, the model around *A Handset Manufacturer* is labeled with a High probability of success. In case *A Handset Manufacturer* manages to exploit the good ties with the banks and the card payment schemes, by building synergy in sharing benefits or building strong relations, they can enhance the support they get from them and thus increase success. The MNOs are important, as *A Handset Manufacturer* needs them for accessing the handset buyers. Thus, the researcher considers that *A Handset Manufacturer* can give the MNOs ownership of a small part of the embedded Secure Element, in exchange for their cooperation for handset distribution and handset subsidization. This might however depend from market to market, by considering the specific level of power *A Handset Manufacturer* in negotiations with the MNOs.

### 8.2 Interpretation of the findings

As an interpretation perspective, it is interesting to comment on the notion of disruption and disruptive roles. In comparison to the collaborative initiative, based on the standardized four corners model and with the MNOs providing the handset factors for storing the payment credentials securely in the SIM, Google and PayPal are the most disruptive. They are both disruptive for banks and card payment scheme companies, whereas Google is also extremely disruptive for MNOs. On the other hand, the initiative around *A Handset Manufacturer* as the Secure Element Issuer is in-line with the standardized four corners model. However, it is disruptive for the MNOs and thus to the collaborative (traditional) model considered in this report.

In addition, taking into account the large support it receives in the network, *A Handset Manufacturer*’s initiative is scored with a higher indicator for successfulness than the others. Google and PayPal might have an innovative technological value proposition, but their models are disruptive for too many important actors, thus they have a lot of opponents. In this manner, their models are scoring low on the successfulness scale, as defined by the researcher in this thesis.

In addition, as a general observation which is in line with the theoretical model proposed, it is in fact this lack of support from the actors in the value network that triggers the researcher to
recommend collaborative strategies, which aim to close this gap. Thus all the recommended strategies are targeted towards multiple sourcing (Bruijn & Ten Heuvelhof, 2008), following the network definition of success given in this research. The researcher argues that some readers might find this approach too narrow, as does not primarily take the interests of customers are main criteria for success. This will be detailed in the limitation section.

An interesting observation is made by the researcher regarding the POS systems that should be used. He notices that Google’s and A Handset Manufacturer’s propositions focus on the contactless interface that uses the NFC standard for communication with the handsets. Payment follows a structure centered on the four corners model. In this case, if merchants have contactless terminals they could use them in a standardized manner, at most with the price of upgrading the software. In this manner scale can be built. A different story applies to PayPal. When referring to closed loop case, the merchant needs to have a different terminal that accepts payments through PayPal, but also a different cash register, according to Senior Consultant 1. The merchant can be placed in the position to makes use of two cash registers, as it cannot quit the deal with its acquiring bank. This is rather inconvenient. Scale is hard to be built in this situation.

8.3 Limitations
Despite the thoroughness of the research, the researcher has identified several aspects that can be viewed as limitations for the current study:

*The Network Perspective:* The identification of strategies through the successfulness indicator is made by taking a network oriented approach that relies on the first set of critical factors, which counts the amount of support in the multi-actor network. That is because success is primarily defined as the value added to the value network, following (Reuver et al., 2009). In this situation, the value delivered for the customers falls as second criteria. The researcher argues that this approach is rather narrow, as in some situations the value delivered to the users might be more important for a product to be labeled as successful. The researcher admits that the whole approach on the thesis could drastically change if the definition of success would change. Thus, if some readers, such as representatives from industry groups, prioritize the value given to the client more than the value given to the other actors in the network, they might judge the results of this research with skepticism.

*Disrupter becomes successful despite low support:* The researcher understands the limitations of this current approach, as there can be the case that an extremely well designed and strong value proposition can reach acceptance, attract the users and be disruptive, despite the opposition of some of the actors taken into account in this analysis. However, the current research perspective is focused on the premises that the more support a certain proposition benefits of in the ecosystem, the higher its chances of success are. This hypothesis follows the theoretical framework from Section 2. In case an intruder succeeds in relation the consumers, despite strong opposition of critical actors, then these parties might think of repositioning themselves in relation to the disrupter and inherently increase the success in from a network perspective as well. This is an interesting topic of further research in this direction that might consist of several working scenarios that can take into account the
possible success chances of the disruptors and the different manner the incumbents respond in the different instances. In this manner, a correlation between success from a consumer and a value network perspective might be found.

**VISOR too extensive for the current goal:** The business model VISOR has been applied in all its five dimensions. However, the strategies emerge mainly from relation management and perhaps financial considerations. The aspects regarding the actual value proposition and interface has an impact only to the customer. Information about the technical infrastructure is relevant from a descriptive knowledge point of view, but it is rather irrelevant for the success evaluation and strategy recommendation. Thus, the researcher argues that VISOR business model could have been applied more effectively only focusing on Organization and Revenue matter for Google, PayPal and *A Handset Manufacturer*, under this definition of success. However, the researcher did not want to eliminate the other elements from the final version, as he considers them as relevant for delivering valuable descriptive knowledge, despite not fitting to the current goal. In addition, in this manner the researcher opens starts the path towards a framework that weights the value towards the customers and the value towards the merchants with similar weights towards the successfullness assessment, differentiation being made only inside between specific critical factors of each category.

**Generalization due to International focus:** The researcher focused on the research objects from an international perspective, by taking into account generic characteristics of the roles, organizational schemes and market behavior. That caused the paper to lack of specificity in several contexts, as a tradeoff. The research suggests that further work can focus on a specific regional, national, local context (ex. The Netherlands, European Union). In that case, the analysis can provide more specific information about the number of players in a certain market, the actual roles they possess and the manner the market behaves there. For instance, the position of card payment schemes or the MNOs in relation to Google differs if one is addressing the U.S. or the Dutch context. In addition, the researcher observes a difference from the position of MasterCard that has a special partnership with Google through the PayPass application installed in the embedded secure element and other payments schemes such as VISA or Discover. The latter only use interchange and brand, as every NFC transaction through Google Wallet is facilitated by MasterCard PayPass. In this situation however, the researcher treated all the payment schemes as opposing Google Wallet. Of course, MasterCard does not like that its brand is not visibly displayed, but its level of opposition might be different than that of Visa and Discover, as it also receives benefits during each transaction. However, a much detailed approach per category of each actor might have made the theoretical framework too complex and the case unmanageable for the four month time allocated.

**No exogenous factors included:** A future analysis should make use of the exogenous variables identified by (Dahlberg et al., 2008b) regarding mobile payments such as: *Social/Cultural, Commerce Technological, Regulatory and Standardization Environment*, apart from the resources of the actors involved in the analysis. That would give the opportunity to the researcher to bring the discussion about success under a much more realistic perspective. This approach needs a specific focus on a bounded location context.
No cross influences between the disrupters: Another limitation refers to the fact that no identification of managing the relations between the Google, PayPal and A Handset Manufacturer to each other is given. The researcher focuses on the relation management in each of the three ecosystems. An extended approach could map more linkages and contribute towards a more accurate estimation of success. For instance, most of devices of A Handset Manufacturer function under the Android operating systems of Google. In this case Google has a strong resource in relation to A Handset Manufacturer that might give them negotiation power in case the two business ecosystems collide over conflicting interests.

8.4 Perspective of future research

Following insights obtained through the interpretation of the results and limitations of the current research, this section concludes with a few solutions of continuing this research.

First, an analysis involving Google, PayPal and A Handset Manufacturer can be performed in a certain national or local context, by using the theoretical framework provided. For instance, following the interviews with experts in the mobile payments area, the researcher identified a high interest for these players in The Netherlands. Thus, a possible continuation of the research can focus on the Dutch context and might aim a roadmap of strategic choices for the three value propositions personalized to The Netherlands. For instance, this analysis can conclude that, through certain steps, a specific PayPal product customized and integrated with banks products for the Dutch market can be more successful to the customers this time, than the ongoing standardized model. On the other hand, a specific study over Google Wallet in the Netherlands can assess its feasibility for this context as well. As a methodology, the researcher would widen the definition of success in the sense that it would treat the influence of a wider range of critical factors towards each of the actors in the network individually. When referring to a wider range of critical factors, the researcher considers also regulatory, social-economic and technological parameters as well, which are specifically identified for the Dutch context in this case.

A second manner for continuation of the research is seen as evaluating the perspective of exporting the cooperative model between A Handset Manufacturer and card payments companies (Visa, followed by MasterCard) to other handset manufacturers such as Apple, HTC, Nokia and others that are aiming offer on-boarding services for financial institutions for NFC mobile payments. There are many issues to be clarified here starting with whether this cooperation model can be patented, if it has the perspective of building economies of scale and monopoly and to which type of regulatory regime it should be subjected to. As a methodology, the researcher sees the possibility of creating an on-boarding collaboration indicator that would clarify the manner in which organizational, revenues and technological issues are treated in a type of collaboration such as that between A Handset Manufacturer and Visa for instance. Furthermore, this indicator could be used to assess in which manner other players could design together such as system and to which extent this can fuel a monopoly type of a situation that should be further regulated. The researcher proposes to start with developing the on-boarding collaboration indicator and then apply it to a list of defined players in established market contexts in order to obtain specificity and reliability.
An interesting observation can be made regarding the position of the three disruptors in relation to the card payments schemes. Google has a preferential partnership with PayPass for enabling the contactless payments with NFC (although the general negative feeling considered in the research on behalf of all card payment schemes towards Google), PayPal has announced a deal with Discover, whereas A Handset Manufacturer has taken a first step in deploying mobile payments with Visa. The researcher argues that this fact can also be analyzed from the perspective of competition between the different card payment companies. They might have a preference in closing a partnership with one of the disruptors and thus gain a competitive advantage regarding the others. The current analysis does not focus on this aspect however and takes a generalized approach when it comes to the position of certain disruptors in relation to the card payment schemes. However, the research acknowledges that this can be a very interesting topic of future research.

Last, but not least, the mobile proximity payment field is an extremely dynamic environment with high perspective of growth in the next years. Thus, many players are attracted to be part of this game, but as the collaborative models between banks and MNO start to be implemented (MBN, Weve, ISIS), the possibility creating a monopoly and deterring entrance for outsiders, such as Google or PayPal increases. Until now, there have been some competition trials, for instance at the European Commission for projects such as Weve and abandoned SixPack. The third proposal of research aims to assess the whether the perspective of building a monopoly situation for the collaborative models is feasible and in case it is so, what type of regulatory mechanisms should be design to stop this. The researcher proposes to consider as a start several national contexts (The Netherlands, UK, and United States) where collaborative models between banks and MNOs seem to get more scale. In these contexts, the perspective of creating a monopoly could be assessed by testing a monopoly indicator developed specifically for the mobile payments context that makes use of different critical factors. Tackling the critical factors that score the most in these situations can be considered as the regulatory policies to be applied for preventing monopoly to occur.
Bibliography


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A.1 Interview questionnaire

A.1.1 Set one of interviews: retrieving information about the value propositions

The general points addressed during the first set of interview are listed below. The questions address the topics that were on the agenda with the first group of interviewees:

a In the case the interview referred to Google, PayPal, MBN and Weve (Interviewed object):

- Value proposition for the Interviewed object
- Interface for the Interviewed object
- Organization for the Interviewed object
- Technology behind the proposition of the Interviewed object
- Revenue for the Interviewed object
- Identification of the most relevant actors in its ecosystem; general relation with them
- Position of the value proposition of the Interviewed object in the market;

b In the case the interview regards the general behavior of the NFC market

- Dimension of the market
- Types of initiatives present in the market
- Role of disruptive players

c In the case the interview focuses on the general regulatory aspects

- Types of regulation mechanisms in payment
- Famous cases involving regulatory issues

d In the case the interview focuses functioning of the NFC ecosystem

- Functioning of the standardized four corners model of payment
- The main components of the collaborative model; the roles of the banks, merchants, buyers, TSM, MNOs, card payment schemes
- The general opinion of why the Google, PayPal, A Handset Manufacture are considered disrupters
A.1.2 Set two of interviews: retrieving information about the roles of the most important actors

The interviewed parties were: Card payment scheme 1, Bank 1, Bank 2, MNO 1, Senior Consultant 1, Senior Consultant 2, Specialized Publication Senior editor. Each of them addressed specific question regarding the actors and the three disrupters (Google, PayPal, A Handset Manufacturer), as it follows:

**Card payment scheme 1:**
Actors: card payment schemes;  
Case studies: Google, PayPal, A Handset Manufacturer

**Bank 1, Bank 2:**
Actors: banks (as acquirers and issuers), merchants, buyers  
Case studies: Google, PayPal, A Handset Manufacturer

**MNO 1:**
Actors: MNOs, in-store merchants, in-store buyers  
Case studies: Google, PayPal, A Handset Manufacturer

**Senior Consultant 1:**
Actors: all (card payment scheme, banks, merchants, buyers, MNOs, handset manufacturers, POS suppliers)  
Case study: PayPal

**Senior Consultant 2:**
Actors: all (card payment scheme, banks, merchants, buyers, MNOs, handset manufacturers, POS suppliers)  
Case study: PayPal, A Handset Manufacturer

**Publication senior editor:**
Actors: POS terminal vendors, handset manufactures  
Case study: PayPal, A Handset Manufacturer

The interview form followed was the following:

1. What is the attitude of the Actors in the Disruptive (1,2,3- Google, PayPal, A Handset Manufacturer) value propositions?  
2. What is their level of power in these ecosystems? (the extended version of the question was used)  
3. What is their level of interest/dedication? (1 less dedicated.. 5 most dedicated)  
4. Could you think of any network strategies that that the disruptors are deploying or are planning to deploy in relation to these actors?

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38 Insights not referred to in the analysis, as they the information retrieved was seen as general knowledge
### Table A1: Standardized question for the second round of interviews

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude</th>
<th>Power Critical actor (power and dedication)</th>
<th>Dedication Activation: Yes/No</th>
<th>Network Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disrupter 1-3: Google, PayPal, A Handset Manufacture</td>
<td>++: supportive / : diffuse / --: against ?: NOT CLEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Card payment schemes:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>In-store Buyer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issuing bank for in-store buyer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MNOs</td>
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<td></td>
</tr>
<tr>
<td>Handset manufacturers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POS suppliers</td>
<td></td>
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</tbody>
</table>

Based on the rather open questions asked, the respondents provided extensive answers which could be coded following topics such as: network effects, multi-sided markets, access openness and many others. These were consisted as solid input for the successfulness assessment in the analysis part.
A.2 Research Framework

A.2.1 Research perspective: Role identification; The power in the network

The power of the actor is among the interest and attitude, one of the indicators for the role establishment. In order to determine the power, the researcher needs the resources of the actor in discussion.

The resources are classified as taking into account their importance and their level of being replaceable. Thus, the researcher sees these resources as limited or great concerning their importance. In addition, he also considers them as limited or easy to be replaced. The manner in which these two indicators are combined is displayed in the following table. In this case, one can talk about highly critical, Medium critical and Easy Critical actors. Actors categorized as highly critical are the most powerful, while the ones labeled as Easy Critical are the least powerful.

Table A2: Level of power of the actors

<table>
<thead>
<tr>
<th></th>
<th>Limited importance</th>
<th>Great importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited options to replace</td>
<td>Medium critical</td>
<td>Highly critical</td>
</tr>
<tr>
<td>Can easily be replaced</td>
<td>Easily critical</td>
<td>Medium critical</td>
</tr>
</tbody>
</table>

Retrieved from (Kenneth & Fritz W., 1978) as cited in (Enserink et al., 2010, p.80)
A.3 The collaborative model of NFC: a stakeholder analysis, roles as reference of successfulness

A.3.1 Zoom into two NFC collaborative initiatives

_Isis (Information retrieved following conversation with Consultant 3)_

Isis represents a Joint Venture between 3 of the largest MNOs in U.S.:“AT&T, Verizon Wireless and T-Mobile”(Ross, 2012, p.1), that are working together with the purpose of offering a common standardized platform as a single contact for the SPs in their attempt to deploy NFC mobile payments. The payment credentials are hosted in securely in the application from the Secure Element of the UICC (popularly known as SIM card), in mobile handsets that enable NFC capabilities and are connected to the one of the 3 carriers. In attempt to become even more spread towards the public, Isis signed a partnership agreement with leading handset manufacturers such as HTC, LG, Motorola Mobility, RIM, _A Handset Manufacturer_ Mobile or Sony Ericson and Device Fidelity, a MicroSD device maker to agree on implementing Isis NFC technology and standards (Clark Sarah, 2011b) to non-NFC manufactured handsets.

According to Consultant 3, the actual payment is performed following a standard Card Present Transaction (CPT) and thus provoking no disruption to the card based four corners model referred to in the sections above. Isis comes on the market with its own Isis Mobile Wallet, the interface and card manager. The digital wallet can store credit/debit cards as well as loyalty cards and coupons. According to the information found on the official website of (Isis, 2013), the access to the Digital Wallet is permitted only after inserting the PIN. In case of theft, the user can either “freeze” the cards information from the Wallet or in case of existing wireless connection to the mobile handset “shut down the wallet” (Isis, 2013, para.3)

The largest competitor of Isis in the U.S. is the Google that with the partnership of ex- Isis member mobile carriers Sprint enters the NFC mobile payment market with its Google Wallet (Ross, 2012). However, due to the different organizational structure Google can be seen as a potential disrupter to the market. This case is treated in the analysis Section 4.

_MBN Project (Information retrieved following conversation with Consultant 7)_

Following with conversation with Consultant 7, MBN Project (Mobiel Betalen Nederland) is constructed on the 3 MNOs and 3 Banks failed joint venture, initially called Sixpack. That project started in 2009 and proposed to bind the three largest MNOs in the Netherlands (KPN, Vodafone, T-Mobile) with the 3 largest SPs (ABN Amro, ING, Rabobank), in their attempt to deliver a standardized mobile proximity paymentsolution towards their clients. However, after T-Mobile dropped out of the project and also facing regulatory challenges towards the European Commission,(Balaban, 2011c), the initiative was cancelled amid the lack of a convergence strategy from the players involved. The interviewee mentioned that Sixpack was abandoned in 2012, time when MBN emerged. Whereas Sixpack proposed a unified ecosystem for NFC mobile payments for both MNOs and SPs big groups, MBN comes as a solution from the 3 largest banks only towards single MNOs. According to Consultant 7, in MBN ABN, ING and Rabobank come in the venture with individual contracts for SP TSMs, and are planning to contact MNOs separately for collaborations. In this manner, the possibility of colliding strategies in the same projects is diminished. The goal is however to establish a common and unified set of standards, for instance by setting common requirements for the SP TSMs of the banks.
Furthermore, the banks will commission also individually a SEI TSM, which further communicates to the MNO.

The MBN project targets almost 90% of the Dutch payment market, due to the implication of the 3 largest banks that together reach this market share. There is a pilot in plan for the soft launch between August-Nov in the city of Leiden, while the official launch is planned for the end of 2013. However, this is not known yet. The structure of the proposed Digital Wallet is not yet clear, but the banks will opt to keep their brand on their own wallet. A possible integration of all the wallets in one single White one is possible, although the fact is not clear yet as well.

What is important is that also the MBN project as well as the previous attempt SixPack respects the four corners model of card payment, because all the parties (issuers, acquirers, merchants and buyers) keep their traditional roles. The fees between these players respect also the same structure in the four corners model. Thus, MBN is not disruptive.
A.4 Google: Details on identifying the roles

A.4.1 VISOR: Two times the four corners model

A.4.1.1 Interface: The Google Wallet’s physical card

One other interface is the physical card. According to a Google spokesman, (Quentin, 2012) a physical card, a representation of the digital wallet will enhance the shopping experience of Google. In this manner, Google might attempt to be more aggressive in the in-store payment, even without involving the mobile handset. The information appeared after an apparent “leak” on behalf of Google which is confirmed by the new plans of the Google Wallet (Clark Sarah, 2013a). The rumors continued by in giving Discover as the given partnership card payment organization for Google to make this deal with (Balaban, 2012e). Through a potential deal, Google could have access to over 7 million merchant locations in the U.S (Balaban, 2012e, par.1). However, following the latest moves in Google, (Wester James, 2013), the company seems to drop this initiative at the beginning on May 2013, due to a change in strategy following the departure of an important person in the Google Wallet team.

A.4.2 Role determination based on power, attitude and dedication

The interviews followed the question format from below focused on power, attitude, and dedication. The role identifications starts with assessing the Attitude/Position of the actors involved in A Handset Manufacturer’s payment ecosystem. For the Attitude/Position, part the respondents were asked to grade this indicator from ++ towards OO. In most the cases, they did not provide the responses using the indicators, thus the researcher assigned himself these weights, according to their position. In addition, several insights gathered through the exploration with VISOR were added in some cases as well, in order to complement the opinions of the interviewees. Where citations and references are not employed, the researcher makes use of the coded results of the interviews. This fact is referenced properly in the table. When the researcher has not citied the interviewees accordingly, but only paraphrase them he made use of the construction according (Interviewer).

Table A3: The attitude of the selected actors in relation to Google Wallet

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude/Position for Google Wallet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>++ they are the keystone, so they are producing value and investing it to the payment network; however, the Wallet is not the core responsibility of Google</td>
</tr>
<tr>
<td>Card payment schemes:</td>
<td>-- they oppose Google Wallet because they lose their brand due to the staged wallet and they claim not be fully compensated on that; MasterCard have a milder position towards Google, because they own the payment application and receiver a fee from each transaction, however they do not like GW because of the final disintermediation effect between them and their clients</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td>/: + they like GW because it is free for them compared to other payment methods - they do not like GW because they lose information about the payment behavior of their clients</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td>- they are against, because of the disintermediation and the fact the banks loose brand during the transaction; they are afraid to lose the relationship with their clients (Bank 1)</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td>+ GW gives them the same possibility as other wallets to digitize their payment transactions and access couponing and loyalty schemes - they do not like Google Wallet because they are afraid of how Google is managing their private data regarding payment; there are rumors that Google handed private data of their customers to developers (Arthur, 2013); following this, Google can</td>
</tr>
</tbody>
</table>
encounter face the trust issues mentioned (Bank 1)

**Issuing bank of the in-store buyer**

- they are against, because they are losing information about the payment behavior of their clients in favor of Google; Google is attacking “the core linkage between the issuer and the buyer” (Bank 2); in addition, it can be the banks who are blamed in case the transaction does not go well, because the buyers do not know exactly how to address

**MNOs**

- they are the most to be against, because Google is making use of the embedded SE in the handsets and in this manner overpass the MNO who offer the SE in the UICC; only in few situations are the MNOs collaborating with Google and this comes from a strategic market positioning reason

**Handset manufacturers**

/support GW because this brings them extra selling of handsets; however they also do not want to jeopardize the relation with the MNOs;

**POS suppliers**

+they are in favor of any initiative that offers contactless terminals, not specifically to GW;

**In-store Buyer:** here the opinions about the trust issue of Google were expressed by the respondent from Bank 2 and the MNO 1. The positive opinion was expressed by the CLIENT consultant.

The power is assessed from the combination of resources and the degree to which that actor is replaceable in the network. The last indicators are only considered from the perspective of the generic role of the actor in the network and not by considering the competition between actors from the same type on various markets. Thus, the researcher considers whether the certain actor can be replaced by another actor in the ecosystem that makes use of similar resources. In this manner, the complexity of the research is reduced and the research can be managed. The critical actors are marked with red and the less critical with orange. The evaluation of this indicator is based mainly by the interviews. However, the reader should be acknowledged that these represent only the coded version of the conversations. Specific reference to the name of the interviewee are made only were strictly necessary.

**Table A4: The power of selected actors in relation to Google Wallet**

<table>
<thead>
<tr>
<th>Actors</th>
<th>Important resources importance (limited, great)</th>
<th>Replacebility (limited, easy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>Great: Reputation, brand value Google is associated with a great technological brand (Lucia D’Acunto)</td>
<td>Limited, rare</td>
</tr>
<tr>
<td></td>
<td>Great: Position in the network: The handsets provided by Google and manufactured by A Handset Manufacturer</td>
<td>Limited, rare</td>
</tr>
<tr>
<td></td>
<td>Great: Financial potential</td>
<td>Easy, imitable</td>
</tr>
<tr>
<td></td>
<td>Great: Partnership with a bank for enabling issuing and acquiring services</td>
<td>Easy, imitable</td>
</tr>
<tr>
<td>Card payment schemes:</td>
<td>Great: Position in the network, control of the organizational openness, enables the payment between two different banks</td>
<td>Limited: rare, non-imitable, valuable only deliverable by payment schemes</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td>Great: Position in the network: In case merchants do not support Google in-store payment, the network remains impossible to use for buyers, they are part of the chicken and egg problem</td>
<td>Limited: Valuable, rare, they are one side of the chicken and egg</td>
</tr>
<tr>
<td>Acquiring bank of the</td>
<td>Great: Position in the payment infrastructure, control of the merchants terminals; they can block Google</td>
<td>Limited: Not easy to replace the banks are</td>
</tr>
</tbody>
</table>

39 (Clark Sarah, 2013b)
| Merchant | Wallet as a method of payments  
**Great:** Position in the payment network: Good and tight relationship with the merchants, they give trust to the merchants, they provide other offers than the terminals | payment infrastructure  
Limited: rare, valuable there are parties that have a good relationship with the merchants, but do not offer as many payment services |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Great:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Limited:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-store Buyer</td>
<td>Great: Position in the network, the opposing direction in the chain of the chicken and egg problem</td>
<td>Limited: Valuable, they provide the money flow from the other side of the chain</td>
</tr>
<tr>
<td><strong>Great:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Issuing bank of the in-store buyer | Great: Good relationship with the customers to whom they issue cards;  
**Great:** they give trust to the buyers, compared to Google  
**Limited:** Position in the network: partnership with payment schemes, can ask the payment schemes to deny transaction with GW, however it will be hard for them to do so because customers feel it is their fault | Limited: valuable  
Limited: hard to construct the trust  
Limited: |
| **Great:** | | |
| **Limited:** | | |
|MNOs | Great: Position in the network: they are the main distribution channel of the handsets, they own the handsets  
**Great:** control of the keys of the SE in the UICC  
**Great:** control the access control to the wallet to the digital SIM  
**Great:** financial potential in investing in infrastructure | Limited: non-imitable, the MNOs as distribution channels for Google  
Easy: can use the embedded SE and store the payment credentials there  
Limited: non-imitable, cannot control the access to wallet if the MNOs are against  
Limited: cannot compete with the MNOs for investments in infrastructure, according (MNO 1) |
| **Limited:** | | |
| Handset manufacturers | Limited: Position in the network: technology openness: the handsets have to be able to function with NFC capabilities (NFC antenna, embedded SE), however the handsets manufactures cannot building NFC terminals if there is demand  
**Limited:** distribution channel for the handsets  
**Great:** the brand for well-known handset manufactures such as *A Handset Manufacturer* and Apple | Limited: valuable, non-imitable due to the fact that they build the handsets  
Easy: the distribution channel can be taken by the MNOs  
Limited: valuable, rare hard to imitate such as brand |
| **Limited:** | | |
| POS suppliers | Limited: Technological control, they provide the contactless terminals needed for the enabling payment with Google Wallet through NFC; however, they cannot block the distribution of these devices in case there is demand of them due to Google Wallet | Limited: valuable, non-imitable payment terminals |
The last aspect assessed during the interview was the level of dedication and activation in the network of the actors listed. The dedication was assessed from 1 to 5 (most dedicated actor). Sometimes, the respondents did not give a precise answer to this question and the result had to be coded from the previous two sections: attitude/position and power. The roles are furthermore computed based on the combination between power, attitude and dedication.

Table A5: The dedication of the selected actors towards Google Wallet, placed besides power and attitude

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude</th>
<th>Dedication Activation: 1..5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>++</td>
<td>5: as the drivers</td>
</tr>
<tr>
<td>Card payment schemes: (MasterCard, VISA..)</td>
<td>--</td>
<td>5: various discussions with Google, especially for MasterCard</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td>/</td>
<td>2: they do not seem to be interested because GW is too small</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td>-</td>
<td>4: they have contact with Google to see what kind of products Google offers</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td>+</td>
<td>1: they are not interested in GW, because of lack of information and trust</td>
</tr>
<tr>
<td>Issuing bank for in-store buyer</td>
<td>-</td>
<td>4: they have contacts with Google, to understand what their offer is</td>
</tr>
<tr>
<td>MNOs</td>
<td>-</td>
<td>5: they keep contact with Google, to identify potential collaboration around the wallet</td>
</tr>
<tr>
<td>Handset manufacturers</td>
<td>/</td>
<td>3: they are attentive to what is happening, some of them collaborate with Google for building the handset</td>
</tr>
<tr>
<td>POS suppliers</td>
<td>*</td>
<td>5: they have contact with Google as Google subsidizes the merchants through terminal supply</td>
</tr>
</tbody>
</table>

Based on the determined indicators for power, attitude and dedication, the final list of roles is determined. The final list regarding the role of each single actor is stated in the table below. It should be noticed that this represents the interpretation performed by the researcher based on the insights gathered in the three previous steps, on the basis of the theoretical framework provided. This is the first analysis step performed on the gathered information of the results.
<table>
<thead>
<tr>
<th>Actors</th>
<th>Role of the actor/Value added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td><strong>Keystone</strong>: High production power they are using Google Wallet as a manner to gather extra information from the clients</td>
</tr>
<tr>
<td>Card payment schemes</td>
<td><strong>Saboteur</strong>: they are happy by the increased number of transaction, but they do not like the fact that they lose control of the payment market and loose visibility of the brand</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td><strong>Diffuse power position: Time bomb/sleeping giant</strong>: they lose the relationship with their buyers, by the fact that GW owns all the information from the payment transaction; they however like the idea of being able to advertise their brand through GW; they are powerful, but yet not very interested towards Google Wallet, which faces the chicken and egg problem; they are one side of the two-sided markets</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td><strong>Saboteur</strong>: They are against Google Wallet because they lose the relationship with their customers and do not receive information from the payment; they lose their brand through the transaction; some banks like the idea of GW, but do not like GW to the threat it brings to them</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td><strong>Sleeping giant</strong>: they are positioned at the other side of the chicken and egg problem chain; they are not too interested in GW because they see trust issues; however, they can benefit of the loyalty, couponing schemes;</td>
</tr>
<tr>
<td>Issuing bank for in-store buyer</td>
<td><strong>Saboteur/Irritant</strong>: they are against Google Wallet as it blocks their direct relationship with their buyers and access to the payment information of the buyers. They are not powerful because they cannot ask the payment schemes to deny a transaction with GW, as their image suffers as well; being the same entity as the acquiring bank, they can also be seen as more powerful thus, Saboteurs instead of Irritants</td>
</tr>
<tr>
<td>MNOs</td>
<td><strong>Saboteur</strong>, actively against GW as the initiative proposes to keep them out of the payment game, by canceling their control to the SE embedded in the SIM; they have the power to block Google by disabling the embedded SE in the terminal as they control the distribution channel of handsets</td>
</tr>
<tr>
<td>Handset manufacturers</td>
<td><strong>Irritant/ friend</strong>: their position is not clear as they are following conflicting goals: they want to sale more handsets, but on the same time they want to keep the relationship with the MNOs well-functioning; they do not have the power of stopping delivering the handsets with NFC, as their main goal is to make profit, they are dedicate in finding out the plans of Google;</td>
</tr>
<tr>
<td>POS suppliers</td>
<td><strong>Friend/ Acquaintances</strong>: they are interested in GW as long as it is contactless and it has a market in supplying terminals; they will have enhanced sales which is their final goal</td>
</tr>
</tbody>
</table>
A.4.3 Successfulness evaluation

Below the reader can consult the consumer oriented critical factors emerging from VISOR and platform theory valid for Google Wallet’s case. In this case, the researcher performed the evaluation based on the prior exploration using VISOR.

Table A7: Successfulness evaluation of Google Wallet according to consumer oriented critical factors

<table>
<thead>
<tr>
<th>Critical Factors</th>
<th>Collaborative model of NFC</th>
<th>Google Wallet NFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value towards buyers</td>
<td>+efficiency, conveniences; it is easier to leave their wallet at home and pay in a faster manner, according (Bank 1)</td>
<td>-</td>
</tr>
<tr>
<td>Value towards the merchants</td>
<td>+Easier, because it is faster, as they can service more customers +Increase sales, as they can process more low value payment transactions according (Bank 1) +can achieve lock-in of the customers through loyalty and couponing;</td>
<td>+Can deliver targeted couponing +Payment is subsidized and it is free for the merchants, according (MNO 1) /Not perceived as an advantage, because of the fact that Google take the information about the payment from the merchants, according (Consultant 2)</td>
</tr>
<tr>
<td>Security of the value proposition</td>
<td>+based on the standardized manner of storing of the credentials inside the Secure Element in the UICC; transport of information is securely performed through TSM; +mPIN to make a payment with the handset 40, according (Bank 1)</td>
<td>Payment credentials stored in the embedded SE inside the Google phone; PIN needed when to be able to do a transaction Security issues because of the possibility of cracking the PIN from the wallet and the fact that Google owns the information from the payment; Google is liable for the transaction in totality</td>
</tr>
<tr>
<td>User interface for the buyer customer attraction:</td>
<td>+The digital wallet that integrates couponing, loyalty and payment management; this contributes to the ease of use of the service; + interface between client and merchant with NFC, the card becomes virtual from physical; the clients does not need to know how complex is the payment process behind, they just have to easily use the handset for payments according (Bank 1)</td>
<td>The digital wallet which is easy to use for the client, brings convenience to the users;</td>
</tr>
<tr>
<td>Platform openness: technological</td>
<td>+Conditioned from the technological point of view: both buyers and merchants have handsets/POS that have to be enabled with NFC; payment should follow the infrastructure</td>
<td>- both buyer and merchant should have NFC enabled devices; the buyer has to make use of a Google branded handset, that has an embedded Secure Element inside; Impossible to have access to Google Wallet from another phone enabled with NFC, because the MNO does</td>
</tr>
</tbody>
</table>

40 With the aim of increasing convenience, by reducing time spent at the store, the clients can in several cases pay without introducing the PIN (ex. MBNO- 5 times 10 euros transactions); however, in case they need to feel more secure, clients can chose to insert the PIN before every transaction;
| Platform openness: organizational | +Organizational Open: The buyer has to be subscribed to the service of MNOs for being able to make use of the SE in the UICC; banks and MNOs should have an agreement for payment credentials deployment in the UICC; the buyer has to have a bank account with one of the banks from the model; | - there are numerous barriers of entry imposed by the MNOs of for consumers not to be able to install the Google Wallet, if the MNO does not have an agreement with Google - it is open only in the case the handset is bought from Google Play |
| Multi-sided market: current number of users for payment services, outside payment services | There are two sides of the market: the buyers and the merchants that interact in the buying process through NFC | +There are two sides of the market: the buyers and the merchants that interact in the buying process through NFC |
| Indirect network effects (the more clients on one side of the platform, the more valuable is the platform for the other part) | The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes. | The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes. The issue is that no party has the incentive of accepting the payment to solve the chicken and egg problem |
| Direct network effects (the more users, the more intrinsic value of the product increases) | The more merchants are offering loyalty and value added services the more valuable the digital wallet is for the buyers | The more merchants are offering loyalty and value added services the more valuable the GW for the buyers |
| Ability to create critical mass | + because of the large access MNOs and banks have to the public | Hard, because none of the two sides of the market seems to be able to make a step ahead and gain acceptance to break the chicken and egg problem; |
| Reputation in the market (original field of activity as well as the payment one) | The banks are perceived as trusted entities in the markets by their customers and have good connections in the ecosystem; the MNOs possess a large public exposure and connection with the handset producers, however not trusted as much as the banks; | Google is known as a multinational corporation in the internet related services and products, however numerous consumers do not trust Google because of the fact that it owns the information; |
| Pricing model | The pricing model does not change from the standardized payment four corners model; merchants pay the same amount of fees to their | Both customers and merchants benefit from advantageous value proposition, because Google subsidizes the payment transaction |
acquiring bank, the buyers pay a small fee for the card issuing and the acquiring bank pays interchange to the issuer. The MNOs receive a fee for hosting the payment credentials in their SE and the TSM and POS suppliers are paid for providing the network. The model is viable form a financial perspective so far; the overall profitability of Google Wallet is unknown;

<table>
<thead>
<tr>
<th>Lock-in effect</th>
<th>Customers are locked-in the NFC operator driven model, because the offering of loyalty programs through the wallet, the trust of the transaction; Not clear if customers are locked-in because of the phone factor according (Bank 1)</th>
<th>If deciding to join Google Wallet, customers benefit of loyalty programs and of positive network externalities;</th>
</tr>
</thead>
</table>

| Novelty | If consists of a new manner of enabling a payment transaction from the perspective of the buyers who can tap their phones and perform the payment fast; the merchant can also accept the payment fast and move to the next client; | From the technical manner of organizing the transaction into two steps and the fact that the transaction contents are sent by GW to the merchants; |

| Complementarity to existing payment networks | Complementarity to existing contactless infrastructure from the perspective of merchant; ability to complement the offline payment model, by only replacing the payment card, but maintain the back-end model | Complementarity to the existing contactless payment network with NFC, also complementarity to the existing online Google Wallet; |

| Efficiency of payment solution | The efficiency is related to the enhanced speed, simplicity of the transaction and lower search costs of the consumer due to the personalized offers; decrease costs of handling cash and decrease queuing in-stores | Simple payment transaction, including the redemption of the couponing, focused advertisement towards the clients; |

### A.4.4 Strategies recommended for the less critical actors

This section takes into consideration strategies that should be deployed by Google in relation to less critical actors in their business ecosystem.

**In-store merchants: (Group 2)**

**Role change: Savior/Sleeping Giants- Time Bombs;** whereas still not fully convinced to adopt NFC in the collaborative model, they have the same or even a more negative position towards Google Wallet, because they lose payment information from their clients;

**Strategy towards success:** Google should try to build higher awareness and support with the merchants, by showing them that Google Wallet is a win-win concept for both of the parties. For this, it should first build redundancy, meaning creating as many connections with the merchants as possible. It can do that by its own means, or by making use of actors such as banks and card payment schemes. This can also be supported by the company getting closer to the merchants, through initiatives such as national portals for the wallet, where the merchants can directly upload their offers. Banks can also play a role in that, according to (Bank 2). Google should also try to eliminate the trust issue regarding information ownership, by making use of a broad problem formulation and be ready to negotiate around this topic, by making clear that their payment service is much cheaper than the existing models. For powerful merchant groups that want to have their own wallet, Google can either
stress the advantages a direct promotion Google Wallet has for the clients or be ready to find a manner of negotiating a common contribution to the digital wallet together with them.

**In-store buyers: (Group 2)**

**Role change: Savior/Sleeping Giant-> Sleeping Giant;** in the collaborative model the assumption is that they are already actively contributing to the network as Saviors; for the case of PayPal, the buyers face the chicken and egg problem and have to be convinced that the new services brings added value for them; this is not the case yet as it results from the analysis

**Strategy towards success:** Google should focus on activating the buyers so that it can reach multiple sourcing for its value proposition. The company should build redundancy around with the clients, by making use of the position of other actors such as card payment schemes, banks and merchants. As some strategic choice in their business model, it can also make its own steps such as building a national portal, where customers can check offers from merchants from their own country. Also, enhanced features like geo-tagging can also increase value perceived by the customer for Google Wallet, idea retrieved from ([Bank 2](#))

**Handset manufacturers: (Group 3)**

**Role change: Friend (Niche player) -> Friend (Niche player);** some of them might seem a bit reluctant to Google Wallet, because they have a strong connection with the MNOs which oppose the proposition fiercely;

**Strategy towards success:** In case the no other actor joins Google in its effort to build a multiple sourcing network, the company can find handset manufactures as the only partners suitable for building an alliance. Thus, Google can ask more producers to build handsets branded as Google phones that have an embedded Secure Element and will be distributed through the channels of Google. However, it cannot really gain success, either from a network perspective or even from a customer position, with only the handset manufactures as solely allies, as the acceptance problem still remains.

**POS terminals vendors: (Group 3)**

**Role change: Friend (Niche player) -> Friend (Niche player);** following a similar positioning like in the handset manufacturers case; they are not so interested in Google Wallet however, because the initiative faces the chicken and egg problem

**Strategy towards success:** POS terminals are too insignificant for the decision making process to be used for multiple sourcing. Google should at most build more redundancy, in order to have access to functional and extra functional relations and make a preferred partnership with this group of actors, by spending money on a number of terminals that could then be given to the merchants in a subsidized manner. In this way, the value Google could build support with the POS terminal vendors, as well as with the merchants and the chances to reach success.

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41 In his interview he was referring to the situation when Google can provide a Dutch portal for the buyers, not a generic national one, however the researcher has adapted this for his case;
A.5 PayPal: Details on identifying the roles

A.5.1 VISOR: Starting from a closed loop three corner model and then taking different flavors

A.5.1.1 Value: Why is PayPal in-store payment attractive for buyers and merchants?

Different PayPal products for merchants:

Following and (PayPal, 2013a) and (PayPal, 2013i), the researcher has extracted the most important features of the three customized solutions for merchants that are listed. For a start, the *Standard* option comes along with no monthly fee costs, no fees regarding setup, the ability for the merchant to send online invoice for payment through PayPal and the acceptance of 24 currencies from 190 countries. However, the buyers complete the payments with leaving the website of the merchant and being directed to the PayPal platform. In the case merchants chose for the *Pro* option, they will have all the facilities of the *Standard* and in addition their customer will not have to leave the website when making the payment. In addition, apart for a free phone support services from PayPal, the merchants will also be able to accept card payments via phone, fax or mail, thus in this case making use of a Virtual Terminal. This service asks for a fee from the merchant (ex.$30). The *Advanced* option stays between these two. It costs $5 per month, with the advantage that the client can check out directly from the website of the merchant in case of choosing some specific shopping cart platforms. However, the researcher identifies that the merchant faces several restrictions, as it is not able to work as a Virtual Terminal, by not being able to accept payments via phone, fax and mail. The customization of the PayPal service depends on the location where the merchant in positioned. The examples illustrated above are valid for the U.S., for other countries (regions) there can be only 2 or just 1 customizable option.

A.5.1.2 Interface: The PayPal physical debit card for performing payments through PayPal’s network

*Table A8: PayPal Debit MasterCard, physical debit card*

- Users’ needs to sign for a *Premier or Business* account with PayPal (ones targeted for merchants)
- Issued by *The Bancorp Bank* in collaboration with MasterCard, according to (PayPal, 2013j)
- Available only to U.S. PayPal account holders
- Can get cash back bonus rewards for using the PayPal debit card like a credit card at brick-and-mortar retailers: (the researcher considers this as a clear step towards getting in-store)
- Daily spending limit $3,000 USD; daily ATM limit $400 USD;
- No fees for buyers with merchants accepting MasterCard42;

Retrieved as personal contribution of the researcher, after consulting (PayPal, 2013j) and (PayPal, 2013k)

---

42 No fees when purchasing from merchants that accept MasterCard (MasterCard, Maestro, Cirrus, STAR, PULSE); there are fees associated with the actual withdrawal and foreign transactions (PayPal, 2013j)
A.5.1.3 Service: The technical architecture of PayPal and the manner of accessing the platform from a customer perspective

NFC as technology used for PayPal in-store payments; short history

Table A9: History on PayPal mobile proximity payments discussion around PayPal

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2013</td>
<td>PayPal Here app for iPad in the U.S. (Hussain, 2013)</td>
<td></td>
</tr>
<tr>
<td>May 2012</td>
<td>UK: PayPal brings mobile payments to UK stores, with barcode scan from the merchants, according to (Clark Sarah, 2012b)</td>
<td></td>
</tr>
<tr>
<td>May 2012</td>
<td>PayPal deal with 15 US retailers to complete plans in offline purchase, as they previously closed deals with the top POS merchants and sale software providers, this ensures PayPal access to 40 million payments terminals worldwide (Clark Sarah, 2012a)</td>
<td></td>
</tr>
<tr>
<td>May 2012</td>
<td>VeriFone POS supplier (largest terminal supplier worldwide), deal to support PayPal in-store payment system; Also Equinox Payments, No 3 POS supplier announces deal with PayPal (Balaban, 2012c)</td>
<td></td>
</tr>
<tr>
<td>March 2012:</td>
<td>PayPal Here launched in U.S., Hong Kong, Canada, Australia, (Balaban, 2012c)</td>
<td></td>
</tr>
<tr>
<td>Dec 2011:</td>
<td>PayPal trail NFC sticker for 2 in-store payments in Stockholm (Clark Sarah, 2011c)</td>
<td></td>
</tr>
<tr>
<td>Nov 2011:</td>
<td>PayPal to release NFC based P2P transfer app, by then industry experts considered this step as a direct response to Google Wallet (Hachman Mark, 2012);</td>
<td></td>
</tr>
<tr>
<td>Sep 2011:</td>
<td>PayPal jumps to physical point of sale without NFC (Balaban, 2011a); plans to use barcode, mobile network, conventional POS terminal technology to turn from online to physical payments</td>
<td></td>
</tr>
<tr>
<td>Jul 2011:</td>
<td>PayPal announces plans to go with NFC; first announcement of NFC for PayPal(Balaban, 2011b)</td>
<td></td>
</tr>
<tr>
<td>March 2011:</td>
<td>PayPal to launch digital wallet in the cloud, (Christopher Brown, 2011)</td>
<td></td>
</tr>
<tr>
<td>July 2010:</td>
<td>first PayPal NFC trial in Silicon valley; contactless sticker; Bling nation NFC sticker trial (Clark Sarah, 2010)</td>
<td></td>
</tr>
</tbody>
</table>

Retrieved as a personal contribution of the researcher, following a combined analysis of various sources regarding PayPal’s in-store activity

As the researcher notices, PayPal seems to be reluctant in betting for NFC in the near future. Although, it the researcher observes that PayPal makes use of other in-store payment methods, such as barcode or card adaptors for mobile devices.

A.5.2 Role determination based on power, attitude and dedication

The interviews followed the question format from below focused on power, attitude, and dedication. The role identifications starts with assessing the Attitude/Position of the actors involved in A Handset Manufacturer’s payment ecosystem. For the Attitude/Position, part the respondents were asked to grade this indicator from ++ towards --. In most the cases, they did not provide the responses using the indicators, thus the researcher assigned himself these weights, according to their position In addition, several insights gathered through the exploration with VISOR were added in some cases as well, in order to complement the opinions of the interviewees. Where citations and references are not employed, the researcher makes use of the coded results of the interviews. This fact is referenced properly
in the table. When the researcher has not cited the interviewees accordingly, but only paraphrase them he made use of the construction according (Interviewer).

### Table A10: The attitude of the selected actors in relation to PayPal's in-store closed loop value proposition

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude/Position for PayPal with NFC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PayPal</strong></td>
<td>:&quot;they come from the virtual world, so they do not think that the in-store is the future; for them internet is the future&quot; (Senior Consultant 1); however, they realized that in order to be able to have a comprehensive payment method, they have to close the loop, as in-store payments is a large part of the commerce (Senior Consultant 2); -they consider NFC only as a means to get in-store, which is rather expensive compared to barcoding, PIN, mobile phone authentication; the NFC; &quot;NFC looks quite fancy, but NFC with remote is a much too expensive solution&quot; (Card Payment Scheme 1), thus inefficient + PayPal is taking a “mobile first approach”, as more and more users, around 25% are getting active on mobile and make 10% of their payments with the mobile device (ConferenceTracker, 2013)</td>
</tr>
<tr>
<td><strong>Card payment companies</strong></td>
<td>The analysis shows that the disadvantages seem to outweigh the benefits, thus the card payment companies do not seem to like PayPal getting in-store (with any kind of technology they are proposing) +: &quot;the positive aspects is that PayPal generates transactions, in order to fund the PayPal wallet, that is a good thing in terms of money&quot; (Card Payment Scheme 1) --: &quot;we [as well as the other payment schemes], loose transaction because from one credit card transaction the user might do several e-com transactions inside PayPal&quot; (Card Payment Scheme 1); -- in addition, PayPal possess the threat of cannibalizing the payment market if they get in-store, fact that the card payment companies do not like; “the payment schemes will lose positive interchange for a particular transaction” (Senior Consultant 2)</td>
</tr>
<tr>
<td><strong>In-Store Merchants</strong></td>
<td>- they are not attracted because it is “rather expensive compared to the services offered by their acquiring banks” (Card Payment Scheme 1); “why would they do something as stupid if there are no benefits for the shop and also costs money for the merchants” (MNO 1) - in case they are convinced to make use of PayPal in-store, they have to integrate PayPal’s acquiring system with their existing one, which “they cannot quit that easy” (Senior Consultant 1); the integration of cash registers is extremely hard and costly; “merchants to do like the idea of having different terminals, one for each payment method” (Bank 2) + it can only work for small merchants, vending machines, which do not want to have an acquirer</td>
</tr>
<tr>
<td><strong>Acquiring bank of the merchant</strong></td>
<td>- negative attitude, as PayPal possess a “threat of disintermediating” the relationship between merchants and banks (Bank 2) - “loos of incomes, as PayPal cannibalizes payments, banks will not like that” (Senior Consultant 1) + banks do not like PayPal to act alone, however they are “looking into revenue models, to earn money in case of a cooperation with PayPal”, adapted (Bank 2)</td>
</tr>
<tr>
<td><strong>In-store Buyer</strong></td>
<td>- no too open, because they are confused, “they label PayPal as a tool to pay in the online world, not in the physical world” (Senior Consultant 1) - chicken and egg problem, “merchants dictate in the payment world and they do not push for PayPal now” (Senior Consultant 1) +: they can be positive only if they are offered additional benefits (no high taxes and value added services), thus convenience” (Senior Consultant 1)</td>
</tr>
</tbody>
</table>
| **Issuing bank of the**     | - disintermediation between the bank and the customer (mostly on the
The power is assessed from the combination of resources and the degree to which that actor in replaceable in the network. The last indicators are only considered from the perspective of the generic role of the actor in the network and not by considering the competition between actors from the same type on various markets. Thus, the researcher considers whether the certain actor can be replaced by another actor in the ecosystem that makes use of similar resources. In this manner, the complexity of the research is reduced and the research can be managed. The critical actors are marked with red and the less critical with orange. The evaluation of this indicator is based mainly by the interviews. However, the reader should be acknowledged that these represent only the coded version of the conversations. Specific reference to the name of the interviewee are made only were strictly necessary.

Table A11: The power of selected actors in relation to PayPal's in-store closed loop value proposition

<table>
<thead>
<tr>
<th>Actors</th>
<th>Important resources (limited, great) importance</th>
<th>Replaceability (limited, easy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PayPal</td>
<td>Great: Position in the network: Huge customer and merchant base, 43, 117 million people, $6 billion in their account ready to spend</td>
<td>Limited: valuable, rare to replicable resources in the market, even compared to Google 44</td>
</tr>
</tbody>
</table>

43 already 230,000 million accounts, 100,000 million subscribers, according to (PayPal, 2013d)
44 According to (Balaban, 2012d), PayPal has tens of millions of customers in the market with billions in their account, ready to spend
<table>
<thead>
<tr>
<th><strong>Card payment companies</strong></th>
<th><strong>Great:</strong> Position in the network: Well-known payment brand;</th>
<th><strong>Limited:</strong> valuable, rare, non-imitable hard to construct such brand as PayPal in the worldwide payment market;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Great:</strong> Position in the network: platform openness, it has ownership on the brand from of their payment card⁴⁵, it is through them that the payment is performed at a merchant;</td>
<td><strong>Limited:</strong> rare, non-imitable, valuable only deliverable by payment schemes, because it is hard to build such as scaled and world-wide accepted network;</td>
</tr>
<tr>
<td></td>
<td><strong>Great:</strong> they fund PayPal transactions, before payment takes place through PayPal network; in some situations buyers can pay directly with their payment card to a merchants that have contract with PayPal;</td>
<td><strong>Limited:</strong> hard to fund PayPal only by making use of the bank account</td>
</tr>
<tr>
<td><strong>In-Store Merchants</strong></td>
<td><strong>Great:</strong> Position in the network: In case merchants do not support PayPal in-store payment (through offering terminals that accept payment for the buyers), the network remains impossible to use for buyers, they are part of the chicken and egg problem; they can also influence the buyers to pay with certain payment methods;</td>
<td><strong>Limited:</strong> Valuable, rare, they are one side of the chicken and egg problem;</td>
</tr>
<tr>
<td></td>
<td><strong>Great:</strong> Position in the payment infrastructure, give the merchants the possibility of accepting payments and integrate them into the same cash register</td>
<td><strong>Limited:</strong> Not easy to replace the banks payment infrastructure;</td>
</tr>
<tr>
<td></td>
<td><strong>Great:</strong> Position in the payment network: Good and tight relationship with the merchants, they give trust to the merchants, they provide other offers than the terminals (“loans, investments, finance”) (Senior Consultant 1)</td>
<td><strong>Limited:</strong> rare, valuable; there are parties that have a good relationship with the merchants, but do not offer as many payment services as the banks;</td>
</tr>
<tr>
<td><strong>Acquiring bank of the merchant</strong></td>
<td><strong>Great:</strong> Position in the network, the opposing direction in the chain of the chicken and egg problem</td>
<td><strong>Limited:</strong> Valuable, they provide the money flow from the other side of the chain</td>
</tr>
<tr>
<td><strong>In-store Buyer</strong></td>
<td><strong>Great:</strong> Good relationship with the customers to whom they issue cards; <strong>Great:</strong> they give trust to the buyers, compared to PayPal <strong>Limited:</strong> Position in the network: partnership with payment schemes, can ask the payment schemes to deny transaction with PayPal, however it will be hard for them to do so because customers feel it is their fault</td>
<td><strong>Limited:</strong> Valuable <strong>Limited:</strong> hard to construct the trust</td>
</tr>
<tr>
<td><strong>Issuing bank of the in-store buyer</strong></td>
<td><strong>Limited:</strong> control the access control to the wallet to the digital SIM; however when wallet stored in the OS, their influence is not that large</td>
<td><strong>Limited:</strong> non-imitable, cannot control the access to wallet if the MNOs are against</td>
</tr>
<tr>
<td></td>
<td><strong>Great:</strong> financial potential in investing in infrastructure</td>
<td><strong>Limited:</strong> PayPal cannot compete with the MNOs for investments in infrastructure, according to (MNO 1)</td>
</tr>
</tbody>
</table>

⁴⁵ (Clark Sarah, 2013b), in the article the staged wallet fee is triggered by the response of the owners
Handset manufacturers | **Limited**: They provide the handsets to be used for mobile payments; however, the handsets are delivered anyway in the market and only an application in the operating system is needed; no SE for PayPal; | **Limited**: valuable, non-imitable due to the fact that they build the handsets

POS suppliers | **Limited**: Technological control, they provide the contactless terminals needed for the enabling payment with PayPal | **Limited**: valuable, non-imitable payment terminals; hard to replace because there are “replacing terminals implies also changing an entire backend IT infrastructure” (Senior Consultant 1)

The last aspect assessed during the interview was the level of dedication and activation in the network of the actors listed. The dedication was assessed from 1 to 5 (most dedicated actor). Sometimes, the respondents did not give a precise answer to this question and the result had to be coded from the previous two sections: attitude/position and power. The roles are furthermore computed based on the combination between power, attitude and dedication.

**Table A12: The dedication of the selected actors towards PayPal’s in-store payment proposition placed besides power and attitude**

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude</th>
<th>Dedication Activation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PayPal</td>
<td>/+</td>
<td>5: they are dedicated to step in the physical world of payments</td>
</tr>
<tr>
<td>Card payment companies</td>
<td>--</td>
<td>4: card payment schemes have good connections with PayPal, “Card Payment Scheme 1 quite proactively involved” (Card Payment Scheme 1); they are interested to understand what is happening with PayPal (Senior Consultant 2)</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td>-</td>
<td>1: They do not seems to care about PayPal in-store, “especially in the markets with an efficient payment system” (Bank 2)</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td>-</td>
<td>4: they are open to discussion and curios to find out what PayPal is doing (Bank 2)</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td>/</td>
<td>1: Not too interested, “I don’t see the value added to them” (Senior Consultant 1)</td>
</tr>
<tr>
<td>Issuing bank</td>
<td>-</td>
<td>2: Not that interested from an issuer perspective, as they do not get so many requests from the buyers, “on the radar, but they have more interesting things to do” (Senior Consultant 1)</td>
</tr>
<tr>
<td>MNOs</td>
<td>/</td>
<td>1: “They do not care much about PayPal, they are not in competition “ (MNO 1)</td>
</tr>
<tr>
<td>Handset manufacturers</td>
<td>+</td>
<td>1: “they are more interested in other trends of the devices” (Senior Consultant 2) 1: “they do not care, it is just an app” (Senior Consultant 2)</td>
</tr>
</tbody>
</table>
consultant 1)

POS suppliers

3: they have a medium interest, because they provide the terminals for transactions

Based on the determined indicators for power, attitude and dedication, the final list of roles is determined. The final list regarding the role of each single actor is stated in the table below. It should be noticed that this represents the interpretation performed by the researcher based on the insights gathered in the three previous steps, on the basis of the theoretical framework provided. This is the first analysis step performed on the gathered information of the results.

Table A13: The roles of the selected actors in PayPal’s in-store value proposition ecosystem

<table>
<thead>
<tr>
<th>Actors</th>
<th>Role of the actor/Value added</th>
</tr>
</thead>
<tbody>
<tr>
<td>PayPal</td>
<td><strong>Keystone</strong> of their own business ecosystem, they are using the physical payment as a method to close the payment loop</td>
</tr>
<tr>
<td>Card payment companies:</td>
<td><strong>Saboteur</strong>, blocker of PayPal getting in-store, because they lose transaction fees, brand exposure to their customers and control; they are powerful and have close contact with PayPal</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td><strong>Sleeping giant</strong>: they have no reasons to block PayPal, but they also have no reasons to adopt it, because it is expensive and complicated to implement, as it cannot be integrated in the services offered by their acquirers; part of the chicken and egg problem; it can be more useful to small merchants, compared to large ones</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td><strong>Saboteur</strong>: they are against PayPal because PayPal breaks the connection with their merchants; they are a powerful actor and they are interested to see what kind of solutions PayPal proposes in-store; acquiring banks might consider offering services in a potential collaboration, but only if they are included as keystone</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td><strong>Sleeping giant</strong>: they have a similar attitude with that of the merchants; they are part of the chicken and egg problem; they are not blocking PayPal, but they will not use PayPal as in-store payment in the absence of convincing value added services</td>
</tr>
<tr>
<td>Issuing bank for in-store buyer</td>
<td><strong>Irritant/Saboteur</strong>: they do not like PayPal because they disintermediate them from their clients; they are more powerful as acquires than issuers, because as issuers they cannot block certain services to the buyers, as they would seem not attractive for them anymore; thus they are a not so powerful as issuers;</td>
</tr>
<tr>
<td>MNOs</td>
<td><strong>Sleeping giant</strong>: they are powerful, as they control the distribution of the handsets, but they are not interested in PayPal getting in-store as this proposal is not convincing enough; they are waiting for PayPal to break the chicken and egg problem, before they behave more actively</td>
</tr>
<tr>
<td>Handset manufacturers</td>
<td><strong>Niche (Acquaintance)</strong>: they are supportive of any initiative that increases their sales; they are not however active in relation with PayPal</td>
</tr>
<tr>
<td>POS suppliers</td>
<td><strong>Niche (Friends)</strong>: they are positive about any initiative that increases demand for terminals; as PayPal getting in-store needs at least an upgrade to existing terminals, if not new orders, they are medium interested and are supplying the ecosystem with devices (either contact or contactless)</td>
</tr>
</tbody>
</table>
### A.5.3 Successfulness evaluation

Below the reader can consult the consumer oriented critical factors emerging from VISOR and platform theory valid for PayPal's case. In this case, the researcher performed the evaluation based on the prior exploration using VISOR.

**Table A14: Successfulness evaluation of PayPal’s in-store payment proposition according to consumer oriented critical factors**

<table>
<thead>
<tr>
<th>Critical Factors</th>
<th>Collaborative model of NFC</th>
<th>Google Wallet NFC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value towards the buyers</strong></td>
<td>+efficiency, conveniences; it is easier to leave their wallet at home and pay in a faster manner, according (Bank 1)</td>
<td>- buyers are confused of PayPal getting in-store as they label PayPal as a tool to pay in the online world according (Senior Consultant 1) - they are not convinced of the value added services PayPal provides in-store</td>
</tr>
<tr>
<td><strong>Value towards the merchants</strong></td>
<td>+Easier, because it is faster, as they can service more customers +Increase sales, as they can process more low value payment transactions according (Bank 1) +can achieve lock-in of the customers through loyalty and couponing;</td>
<td>+ can deliver targeted couponing -they are not attracted to PayPal because it is a rather expensive method of payment - they have to come up with a separate terminal to accept PayPal payments and have difficulties in organizing the cash registers in a unified manner</td>
</tr>
<tr>
<td><strong>Security of the value proposition</strong></td>
<td>+based on the standardized manner of storing of the credentials inside the Secure Element in the UICC; transport of information is securely performed through TSM; +mPIN to make a payment with the handset(^{46}), according (Bank 1)</td>
<td>+ security as the payment information is not given to the merchants, only the PayPal authenticating information of the buyer - credentials not stored in the SE, but in the OS of the handset which is vulnerable</td>
</tr>
<tr>
<td><strong>User interface for the buyer customer attraction:</strong></td>
<td>+The digital wallet that integrates couponing, loyalty and payment management; this contributes to the ease of use of the service; + interface between client and merchant with NFC, the card becomes virtual from physical; the clients does not need to know how complex is the payment process behind, they just have to easily use the handset for payments according (Bank 1)</td>
<td>+ The digital wallet that integrates couponing, loyalty and payment management - barcode not so fast and convenient to use as NFC, which is more attractive</td>
</tr>
<tr>
<td><strong>Platform openness: technological</strong></td>
<td>+Conditioned from the technological point of view: both buyers and merchants have handsets/POS that have to be enabled with NFC; payment should follow the infrastructure</td>
<td>+Technological Open: Every user with a handset that has bar code scanning possibilities/NFC can access the platform; however, in order to be able to download the wallet, the users has to have access to the wallet services provided on the location; merchants however need specific terminals with PayPal software so that they can accept payments</td>
</tr>
</tbody>
</table>

\(^{46}\) With the aim of increasing convenience, by reducing time spent at the store, the clients can in several cases pay without introducing the PIN (ex. MBNO 5 times 10 euros transactions); however, in case they need to feel more secure, clients can chose to insert the PIN before every transaction;
<table>
<thead>
<tr>
<th><strong>Platform openness:</strong> organizational</th>
<th>+Organizational Open: The buyer has to be subscribed to the service of MNOs for being able to make use of the SE in the UICC; banks and MNOs should have an agreement for payment credentials deployment in the UICC; the buyer has to have a bank account with one of the banks from the model;</th>
<th>Organizational Open: Every buyer can create a PayPal account and activate a customization option that allows them to pay in-store; however, in order to pay in-store, the stores have to be subscribed to PayPal network</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-sided market:</strong> current number of users for payment services, outside payment services</td>
<td>There are two sides of the market: the buyers and the merchants that interact in the buying process through NFC</td>
<td>There is a two sided market: the buyers and the merchants that relate in the payment process through remote payment using barcode or NFC</td>
</tr>
<tr>
<td><strong>Indirect network effects (the more clients on one side of the platform, the more valuable is the platform for the other part )</strong></td>
<td>The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes.</td>
<td>The more merchants offer the possibility of accepting PayPal mobile proximity payments, the more buyers are tempted to use the service; the same goes the other way around</td>
</tr>
<tr>
<td><strong>Direct network effects (the more users, the more intrinsic value of the product increases)</strong></td>
<td>The more merchants are offering loyalty and value added services the more valuable the digital wallet is for the buyers</td>
<td>The more merchants offer loyalty and couponing through the wallet, the more valuable the payment services are.</td>
</tr>
<tr>
<td><strong>Ability to create critical mass</strong></td>
<td>+ because of the large access MNOs and banks have to the public</td>
<td>+They face the chicken and egg problem and the value proposition is not tempting for neither of the merchants nor the buyers at the moment; however, PayPal has a huge customer base that can be educated to start using in-store payment service through the network; + following a study commissioned for the US market, PayPal has a 72% awareness of the digital wallet47</td>
</tr>
<tr>
<td><strong>Reputation in the market</strong></td>
<td>The banks are perceived as trusted entities in the markets by their customers and have good connections in the ecosystem; the MNOs possess a large public exposure and connection with the</td>
<td>PayPal has a good reputation in the payment market; however, customers can be confused as they see the company belonging to the virtual payment world;</td>
</tr>
</tbody>
</table>

---

47 according to (K. John, 2013), the level of awareness is the biggest among wallet providers, no other wallet providers scores over 50%;
### Financial viability : Pricing for customers (merchants and buyers)

- **Handset producers, however not trusted as much as the banks:**
  - The pricing model does not change from the standardized payment four corners model; merchants pay the same amount of fees to their acquiring bank, the buyers pay a small fee for the card issuing and the acquiring bank pays interchange to the issuer. The MNOs receive a fee for hosting the payment credentials in their SE and the TSM and POS suppliers are paid for providing the network. The model is viable form a financial perspective.
- **The solutions seems rather expensive for merchants and in the absence of other value added services, cannot be adopted by them.**

### Lock-in effect

- **Customers are locked-in the NFC operator driven model, because the offering of loyalty programs through the wallet, the trust of the transaction; Not clear if customers are locked-in because of the phone factor according (Bank 1):**
- **Lock-in effect can be achieved, due to existence of network effects, loyalty programs and trust built by PayPal towards its customers.**

### Novelty

- **It consists of a new manner of enabling a payment transaction from the perspective of the buyers who can tap their phones and perform the payment fast; the merchant can also accept the payment fast and move to the next client:**
- **Novel manner of combining remote payments of an existing infrastructure with proximity, contactless relation between customer and merchant (barcode/NFC).**

### Complementarity to existing payment networks

- **Complementarity to existing contactless infrastructure from the perspective of merchant; ability to complement the offline payment model, by only replacing the payment card, but maintain the back-end model:**
- **Complementarity to the existing infrastructure through which PayPal provides.**

### Efficiency of payment solution

- **The efficiency is related to the enhanced speed, simplicity of the transaction and lower search costs of the consumer due to the personalized offers; decrease costs of handling cash and decrease queuing in-stores:**
- **Speed and efficiency are less in case of the barcode than compared to NFC;**

### A.5.4 Strategies recommended for the less critical actors

This section takes into consideration strategies that should be deployed by PayPal in relation to less critical actors in their business ecosystem.

**In-store merchants: (Group 2)**

**Role change: Saviors/Sleeping Giants-> Sleeping Giants:** in the collaborative model the assumption is that they are already contributing as Saviors, thus actively to support NFC mobile payments; for the case of PayPal, the main challenge is to convince the merchants that the new service comes with numerous value added elements for them, such as increased loyalty and couponing redemption benefits and personal funds management;

**Strategy towards success:** PayPal aims to obtain involve the merchants as a sourcing party for their value proposition. For this, they should start to build redundancy and be reputed as a player that looks forwards to grow not only in the virtual world, but also in the physical payment world. PayPal needs to
activate the merchants in their network, thus it can also think of lowering the fees so that it becomes attractive as an acquirer. In addition, PayPal should also be able to integrate its payment proposition in the existing terminals of the merchants. As a strategic choice in their business model, PayPal should also frame the perception of success much aggressive towards the merchants, by constructing national, regional web portals where merchants can subscribe to PayPal’s wallet.

**In-store buyers: (Group 2)**

**Role change: Saviors/Sleeping Giants-> Sleeping Giants**; in the collaborative model the assumption is that they are already actively contributing to the network as Saviors; for the case of PayPal, the buyers face the chicken and egg problem and have to be convinced that the new services brings added value for them; this is not the case yet as it results from the analysis

**Strategy towards success:** The situation is in a way similar to that from the merchant’s case. PayPal already has a large exposure towards clients in the virtual world. In order to activate buyers in the in-store payment world, should aggressively position itself as an in-store player and offer more value added services to the buyers. In addition, it can use the reputation of other actors such as banks to send the message that they are taking very serious a proactive attitude in the in-store market.

**Mobile Network Operators (MNOs): (Group 3)**

**Role change: Dominators (Saviors)-> Acquaintances** they do not feel yet threatened to this initiative as it is small and does not involve and relation to the Secure Element in the handset; they could support PayPal because they see them as a Service Provider, that are handling the payment part; however, they can also end up in competition over the staged wallet; currently, however, the model is not to interesting for them and not disruptive;

**Strategy towards success:** PayPal should try to activate the MNOs and enable them to contribute to the sourcing part of the mobile payment proposition as well. By broadening the problem and enlarging the complexity of the situation, PayPal can “trade” its customer acceptance in the virtual world, for a much higher awareness in the physical world, where the MNOs are good at. The MNOs do not consider PayPal’s wallet interesting according (MNO 1), but they might appreciate the payment business model that runs in the virtual world and that PayPal wants to push in-store. They see PayPal as a payment service provider, thus from these positions negotiations can start. As a consideration, it is important that PayPal keeps all the options on the table when communicating with the MNOs. If PayPal becomes a wallet provider, they could play a role in the model involve renting space on the Secure Element, with the MNOs as SEI. However, PayPal plays in another ecosystem than its own.

**Handset manufactures: (Group 3)**

**Role change: Friend (Niche player) -> Friend (Niche player);** they follow their goal of supplying the market with as many handsets as required; they prefer all initiatives that enable the phone factor and thus create more demand; the difference is that they manifest less interest for PayPal compared to the collaborative model;

**Strategy towards success:** As PayPal is not using the digital wallet with connection to credentials stored in the Secure Element, the relation with handset manufactures is not vital. However, PayPal can build redundancy in this field, so that the extra functional relations created in this area might be useful in the future. However, that should not be the priority of the company in their attempt to be with their mobile proximity payment solution.

**POS terminal supplier: (Group 3)**

**Role change: Friend (Niche player) -> Friend (Niche player);** similar to the handset manufactures, they have niche and supportive position for both initiatives; they are more proactive in PayPal compared to the handset manufactures as they have closer contact in supplying terminals specific for this ecosystem

**Strategy towards success:** Following the problem merchants have with integrating the acquiring mechanism of PayPal to the existing ones, PayPal can already build alliances with terminal suppliers and come with a common proposition to the merchants. In this case, one can identify a win-win situation between PayPal and terminal suppliers, which can strengthen the position of both parties in the ecosystem. If PayPal buys new POS terminals suppliers, then the value of the proposition at least from the perspective of the suppliers increases, so is the overall success in the network.
A.6 A Handset Manufacturer: Details on identifying the roles

A.6.1 Role determination based on power, attitude and dedication

The interviews followed the question format from below focused on power, attitude, and dedication. The role identifications starts with assessing the Attitude/Position of the actors involved in A Handset Manufacturer’s payment ecosystem. For the Attitude/Position, part the respondents were asked to grade this indicator from ++ towards -. In most the cases, they did not provide the responses using the indicators, thus the researcher assigned himself these weights, according to their position. In addition, several insights gathered through the exploration with VISOR were added in some cases as well, in order to complement the opinions of the interviewees. Where citations and references are not employed, the researcher makes use of the coded results of the interviews. This fact is referenced properly in the table. When the researcher has not cited the interviewees accordingly, but only paraphrase them he made use of the construction according (Interviewer).

Table A15: The attitude of the selected actors in relation to the NFC mobile payment model around the A Handset Manufacturer

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude/Position for A Handset Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Handset Manufacturer</td>
<td>++ keystone player of the ecosystem, they provide their embedded SE with a card payment application preloaded (VISA now) to the banks to offer the possibilities of secure storing of credentials and payment; they also offer a Key Management System that can be integrated in the TSMs of the Service Providers; A Handset Manufacturer supports this payment method because they want to get strong in the market of embedded SE</td>
</tr>
<tr>
<td>Card payment schemes:</td>
<td>++ The initiative is fully supported by VISA and is not an attack to MC or other payment schemes, as more transactions could be generated through the phone factor; in addition, the platform is open to the other payment schemes, an in case of success they can also join the model</td>
</tr>
</tbody>
</table>
| In-Store Merchants   | /: they do not have a strong position, for them it does not matter as long it is contactless, to which they cannot say No  
|                      | -: they can be against, in the case payment schemes become more important and impose a higher fee for transactions |
| Acquiring bank of the merchant | /: Conflicting positions, because the announcement is at its beginning and the banks are not completely sure how to position: the researcher concludes they have a diffuse power position:  
|                      | -: some banks are already involved into NFC mobile payments on the UICC, [not embedded]  
|                      | - they want to discuss separately with A Handset Manufacturer and not in a cooperation with VISA or other payment schemes; Bank 2 wants a one to one relation with A Handset Manufacturer in which MNOs are also included according (Bank 2)  
|                      | - a cooperation between A Handset Manufacturer and VISA cannot give them satisfaction because of the issue of wallet control; the bank as acquirer has a stronger impact here due to the fact that the main revenues towards the wallet comes from the merchants and not from the consumers according (Bank 2)  
|                      | - They are not sure they can reach the target for public they want by collaborating with A Handset Manufacturer instead of the MNOs, according (MNO 1) |
+ the banks will be happy, due to the fact that they can reach the SE through a single deal with A Handset Manufacturer: until now banks do not have good connections with the MNOs, so a lot of complexity of dealing with the MNOs will be eliminated; for instance in Europe, there is a lot of struggle of handling the situation with the MNOs: it is easier to address directly a card scheme as a bank, so you have a direct access to all the handsets, according (Card Payment Scheme 1) /: neutral on which initiative brings contactless to market, according (Senior Consultant 2)

<table>
<thead>
<tr>
<th>In-store Buyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ No difference for them, they do not care who is organizing the infrastructure as long as it works; it can represent a small advantage the fact that there is another wallet on the market, so “they can choose the one that is the most convenient for them” (Bank 2)</td>
</tr>
<tr>
<td>- they trust their banks, thus if the initiative is not supported by the banks it is not attractive for them</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Issuing bank of the in-store buyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ for the banks with no collaboration with the MNOs, the initiative is appreciated, for the fact that in order to reach the public they can rent a space at A Handset Manufacturer and not from multiple MNOs worldwide, according (Card Payment Scheme 1), but from A Handset Manufacturer</td>
</tr>
<tr>
<td>+ banks and MNOs come from different world, “banks are from Mars, MNOs are from Venus” (Senior Consultant 2), thus banks can be happy that they find a manner of deploying mobile payment services without the need of MNOs; banks are positive, as they have an alternative manner of storing the payments credentials securely (Bank 1)</td>
</tr>
<tr>
<td>- for the banks that have current collaboration with MNOs, they do not support a single discussion with A Handset Manufacturer on which the MNO to be involved ; they are also afraid of the power of the card payment schemes, according (Bank 2); they are also aiming wallet control, so they are not sure which party owns the wallet in this scheme</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MNOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- They are the most against, they are furious! “They would go to any boundaries to stop this happening” (Senior Consultant 2)</td>
</tr>
<tr>
<td>-- defensive mood, the MNOs the want to control of the keys, switch the embedded SE off, so that to prevent that other parties will do the same on the UICC and the security for the mdevice will hurt the SPs; do not like A Handset Manufacturer alone and not cooperating with them for this, according (MNO 1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Handset manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ attractive for the other handset manufactures, as they can see whether it has success, “they will get inspired” (Senior Consultant 2)</td>
</tr>
<tr>
<td>+ they might be triggered to continue building the SE in the handsets, according (MNO 1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POS suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ whether you tap a card, a SIM card, it is the same, it should just be contactless, according (Senior Consultant 2); as it may trigger a higher demand from the market they can also support the initiative as technology vendors;</td>
</tr>
</tbody>
</table>

The power is assessed from the combination of resources and the degree to which that actor in replaceable in the network. The last indicators are only considered from the perspective of the generic role of the actor in the network and not by considering the competition between actors from the same type on various markets. Thus, the researcher considers whether the certain actor can be replaced by another actor in the ecosystem that makes use of similar resources. In this manner, the complexity of the research is reduced and the research can be managed. The critical actors are marked with red and the less critical with orange. The evaluation of this indicator is based mainly by the interviews. However, the reader should be acknowledged that these represent only the coded version of the conversations. Specific reference to the name of the interviewee are made only were strictly necessary.
Table A16: The power of selected actors in relation to the NFC mobile payment model around the *A Handset Manufacturer*

<table>
<thead>
<tr>
<th>Actors</th>
<th>Important resources importance (limited, great)</th>
<th>Replacebility (limited, easy)</th>
</tr>
</thead>
</table>
| *A Handset Manufacturer*    | **Great:** Position in the network, largest smartphone manufacturer in the world, brand and reputation  
**Great:** Position in the market, reach to *A Handset Manufacturer* consumer as largest smartphone manufacture in the world                                                                                   | Limited: rare, valuable                                                                                              |
| Card payment schemes:       | **Great:** Position in the network, control of the organizational openness (Clark Sarah, 2013b), enables the payment between two different banks, “users can roam, because of standardization”                                                                 | Limited: rare, non-imitable, valuable only deliverable by payment schemes                                              |
| In-Store Merchants          | **Great:** Position in the network: access to their clients, thus they have the means of not utilizing the services of *A Handset Manufacturer* and “install their own infrastructure (bar-code, not contactless), according (Senior Consultant 2) | Limited: Valuable, rare, they are one side of the chicken and egg                                                   |
| Acquiring bank of the merchant | **Great:** Position in the payment infrastructure, access to merchants and control of merchants terminals; they are responsible for “accepting payments and integrate them into the same, integrated cash register”  
**Great:** Position in the payment network: Good and tight relationship with the merchants, they give trust to the merchants, they provide other offers than the terminals | Limited: Not easy to replace the banks are payment infrastructure  
Limited: rare, valuable there are parties that have a good relationship with the merchants, but do not offer as many payment services |
| In-store Buyer              | **Great:** Position in the network, they are the users of the service and part of the chicken and egg problem;                                                                                                                                   | Limited: Valuable, they provide the money flow from the other side of the chain                                      |
| Issuing bank of the in-store buyer | **Great:** Good relationship with the customers to whom they issue cards;  
**Great:** they give trust to the buyers,                                                                                                                                   | Limited: valuable                                                                                                   |
| TSM                         | **Limited:** Position in the network, contact between banks and *A Handset Manufacturer*;  
**Limited:** Control of technology of managing the transmission of payment credentials, however they do not have the power of refusing to supply the resource if there is demand on the market, because they are a technology vendor | **Limited:** valuable, non-imitable, rare                                                                             |
| MNOs                        | **Great:** Position in the network: they are the main distribution channel of the handsets, they own the handsets; they control the functionality of the mobile device, can also change firmware in the handsets  
**Great:** control of the keys of the SE in the UICC  
**Great:** control the access control to the wallet to the digital SIM  
**Great:** financial potential in investing in                                                                                                                                   | **Limited:** non-imitable, the MNOs as distribution channels for Google  
Easy: can use the embedded SE and store the payment credentials there  
Limited: non-imitable, cannot control the access |
The last aspect assessed during the interview was the level of dedication and activation in the network of the actors listed. The dedication was assessed from 1 to 5 (most dedicated actor). Sometimes, the respondents did not give a precise answer to this question and the result had to be coded from the previous two sections: attitude/position and power. The roles are furthermore computed based on the combination between power, attitude and dedication.

**Table A17: The dedication of the selected actors towards the NFC mobile payment model around the A Handset Manufacturer, placed besides power and attitude**

<table>
<thead>
<tr>
<th>Actors</th>
<th>Attitude</th>
<th>Dedication Activation: 1..5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Handset Manufacturer</td>
<td>/+</td>
<td>5: they are dedicated to become a known a reputed handset manufacturer of the embedded SE</td>
</tr>
<tr>
<td>Card payment schemes: (MasterCard, VISA..)</td>
<td></td>
<td>5: VISA is collaborating with A Handset Manufacturer, the others are keeping close contact to A Handset Manufacturer for a collaboration</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td></td>
<td>1: They do not care, for them it is still a contactless technology, they are not involved</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td></td>
<td>4: They are interested as they can deploy NFC mobile payments without the need of the MNOs</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td></td>
<td>1: Not too interested, especially because of the trust issue; they cannot become more interested if they could trust A Handset Manufacturer more or be attracted by value added services</td>
</tr>
</tbody>
</table>
Issuing bank 3: They are interested to see in which way they can deploy mobile payment services??
MNOs 5: They are extremely involved in the problem, as it affects one of their core activities
Handset manufacturers 3: For now they are waiting and see what is happening, they will be more interested in case of success
POS suppliers 3: they have a medium interest, because it affects their core business of deploying mobile payment services

Based on the determined indicators for power, attitude and dedication, the final list of roles is determined. The final list regarding the role of each single actor is stated in the table below. It should be noticed that this represents the interpretation performed by the researcher based on the insights gathered in the three previous steps, on the basis of the theoretical framework provided. This is the first analysis step performed on the gathered information of the results.

Table A18: The roles of the selected actors in the NFC mobile payment model around the A Handset Manufacturer

<table>
<thead>
<tr>
<th>Actors</th>
<th>Role of the actor</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Handset Manufacturer</td>
<td><strong>Keystone</strong> player, they support the proposition as offer the possibility of hosting the payment application for the banks in their mobile handsets</td>
</tr>
<tr>
<td>Card payment schemes:</td>
<td><strong>Savior</strong>: they support the initiative, it is not disruptive for their role and they can benefit in the business ecosystem, as more contactless transactions can be enabled</td>
</tr>
<tr>
<td>In-Store Merchants</td>
<td><strong>Sleeping giant</strong>: they are powerful, as they represent on side of the chicken and egg problem; they are not involved, because this is a contactless initiative that has no influence to their existing contactless terminals and cash registers; they might feel a bit threatened by the strong positions card payment schemes can build up in such as case;</td>
</tr>
<tr>
<td>Acquiring bank of the merchant</td>
<td><strong>Savior</strong>: They are generally in favor, in case they are not part in other mobile payment initiatives together with the MNOs; they support the initiative, as they do not have to reply on the MNOs to host their credentials, their role in the payment network is not disrupted; However, they would prefer to discuss with A Handset Manufacturer separately, as they are afraid the card payment schemes can become too powerful</td>
</tr>
<tr>
<td>In-store Buyer</td>
<td><strong>Sleeping giant</strong>: they have a similar attitude with that of the merchants, not too interested; they are part of the chicken and egg problem; they trust their banks, so if initiative is supported by the banks they might get on board</td>
</tr>
<tr>
<td>Issuing bank for in-store buyer</td>
<td><strong>Savior</strong>: same attitude as acquirers, if not extensively involved in projects with MNOs on mpayment, they support the attitude, because they do not have to rely on the MNOs; they prefer to discuss to A Handset Manufacturer separately, as they do not like the growing power of the card payment schemes</td>
</tr>
<tr>
<td>MNOs</td>
<td><strong>Saboteurs</strong>: fierce against the proposition, they would do anything in their power to stop it; they do not like the fact that they are taken out of the payment game, as the bank credentials are not stored in the SE in the UICC; they are powerful, they buy handsets from A Handset Manufacturer and control the distribution channel; they are extremely involved;</td>
</tr>
<tr>
<td>Handset manufacturers</td>
<td><strong>Friend/Acquaintance</strong>: they are not powerful in this value proposition and have no direct interest in this case; however, they are following the game and if successful they can also step in; they are hard to be considered an actor with decision making power</td>
</tr>
<tr>
<td>POS suppliers</td>
<td><strong>Niche (Friends)</strong>: they are positive about any initiative that increases demand for terminals; they see this as a continuation of the NFC mobile payment infrastructure deployment, so they support that</td>
</tr>
</tbody>
</table>
A.6.2 Successfulness evaluation

Below the reader can consult the consumer oriented critical factors emerging from VISOR and platform theory valid for the model around A Handset Manufacture. In this case, the researcher performed the evaluation based on the prior exploration using VISOR.

Table A19: Successfulness evaluation of the NFC mobile payment model around the A Handset Manufacturer according to consumer oriented critical factors

<table>
<thead>
<tr>
<th>Category</th>
<th>Value towards the buyers</th>
<th>Value towards the merchants</th>
<th>Security of the value proposition</th>
<th>User interface for the buyer customer attraction:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+efficiency, conveniences; it is easier to leave their wallet at home and pay in a faster manner, according (Bank 1)</td>
<td>+Easier, because it is faster, as they can service more customers +Increase sales, as they can process more low value payment transactions according (Bank 1) +can achieve lock-in of the customers through loyalty and couponing;</td>
<td>+based on the standardized manner of storing of the credentials inside the Secure Element in the UICC; transport of information is securely performed through TSM; +mPIN to make a payment with the handset, according (Bank 1)</td>
<td>+The digital wallet that integrates couponing, loyalty and payment management; this contributes to the ease of use of the service; + interface between client and merchant with NFC, the card becomes virtual from physical; the clients does not need to know how complex is the payment process behind, they just have to easily use the handset for payments according (Bank 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+Loyalty, trust, convenience of storing all the payment cards in single wallet for the buyers</td>
<td></td>
<td>+The digital wallet which is easy to use for the client, not clear yet which party owns and designs the wallet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+building lock-in effect with their buyers, due to loyalty and couponing;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+Security based on storing the payment information in the embedded SE in the handset; this solution is less standardized than the UICC solution, however it has the same level of security according (MNO 1); TSM to transport credentials from banks to the handset</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platform openness: technological</td>
<td>+Conditioned from the technological point of view: both buyers and merchants have handsets/POS that have to be enabled with NFC; payment should follow the infrastructure</td>
<td>Conditioned from the technological point of view: both buyers and merchants have handsets/POS that have to be enabled with NFC; payment should follow the infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platform openness: organizational</td>
<td>+Organizational Open: The buyer has to be subscribed to the service of MNOs for being able to make use of the SE in the UICC; banks and MNOs should have an agreement for payment credentials deployment in</td>
<td>Organizational Open: The buyers have to have a A Handset Manufacturer NFC enabled handset, which already has the payment application installed; they also have to possess a bank account, with a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

48 With the aim of increasing convenience, by reducing time spent at the store, the clients can in several cases pay without introducing the PIN (ex. MBNO 5 times 10 euros transactions); however, in case they need to feel more secure, clients can chose to insert the PIN before every transaction;
<table>
<thead>
<tr>
<th>Multi-sided market: current number of users for payment services, outside payment services</th>
<th>The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes.</th>
<th>The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect network effects (the more clients on one side of the platform, the more valuable is the platform for the other part)</td>
<td>The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes.</td>
<td>The more merchants offer contactless services and loyalty through the NFC wallet, the more buyers are attracted to participate in the scheme; The more buyers are using a digital wallet to store their payment cards, the more merchants are attracted to using couponing and loyalty schemes.</td>
</tr>
<tr>
<td>Direct network effects (the more users, the more intrinsic value of the product increases)</td>
<td>The more merchants are offering loyalty and value added services the more valuable the digital wallet is for the buyers</td>
<td>The more merchants are offering loyalty and value added services the more valuable the digital wallet is for the buyers; however, it is not yet clear who owns the digital wallet in this case;</td>
</tr>
<tr>
<td>Ability to create critical mass</td>
<td>+ because of the large access MNOs and banks have to the public</td>
<td>+ hard to do that in markets where A Handset Manufacturer does not have a high penetration; for instance in the according the (MNO 1) - the MNOs can block the access to the application in the embedded SE; from this perspective, the research considers that the model has a less ability to create critical mass compared to the collaborative;</td>
</tr>
<tr>
<td>Reputation in the market</td>
<td>The banks are perceived as trusted entities in the markets by their customers and have good connections in the ecosystem; the MNOs possess a large public exposure and connection with the handset producers, however not trusted as much as the banks;</td>
<td>A Handset Manufacturer has the reputation of the largest handset manufacturer in the world; The banks are perceived as trusted entities in the markets by their customers and have good connections in the ecosystem</td>
</tr>
<tr>
<td>Financial viability : Pricing for customers (merchants and buyers)</td>
<td>The pricing model does not change from the standardized payment four corners model; merchants pay the same amount of fees to their acquiring bank, the buyers pay a small fee for the card issuing and the acquiring bank pays interchange to the issuer. The MNOs receive a fee for hosting the payment credentials in their SE and the TSM and POS suppliers are paid for providing the network. The model is viable form a financial perspective</td>
<td>The pricing model does not change from the standardized payment with the card; the merchants pay the same amount of fees to their acquiring bank, the buyers pay a small fee for the card issuing and the acquiring bank pay interchange to the issuer. However, card payment schemes can ask a higher fee from banks and thus merchants might pay a higher fee as well;</td>
</tr>
<tr>
<td>Lock-in effect</td>
<td>Customers are locked-in the NFC operator driven model, because the</td>
<td>Still not clear whether customers are locked in because of the phone factor;</td>
</tr>
</tbody>
</table>
offering of loyalty programs through the wallet, the trust of the transaction; however, the research argues that from the perspective of A Handset Manufacturer, it is more likely that the buyers develop a closer relation with them than with other handset manufactures; this is argued from the perspective that A Handset Manufacturer offers customers value added services such as mobile payments which are easier to use; the lock-in effect is then centered around using A Handset Manufacturer as a payment device inside the phone factor category;

Novelty

It consists of a new manner of enabling a payment transaction from the perspective of the buyers who can tap their phones and perform the payment fast; the merchant can also accept the payment fast and move to the next client;

Complementarity to existing payment networks

Complementarity to existing contactless infrastructure from the perspective of merchant; ability to complement the offline payment model, by only replacing the payment card, but maintain the back-end model

Efficiency of payment solution

The efficiency is related to the enhanced speed, simplicity of the transaction and lower search costs of the consumer due to the personalized offers; decrease costs of handling cash and decrease queuing in-stores

A.6.3 Strategies recommended

This section takes into consideration strategies that should be deployed by A Handset Manufacturer in relation to less critical actors in their business ecosystem.

In-store merchants: (Group 2)

Role change: Sleeping Giant -> Sleeping Giant; their position does not change compared to the collaborative mode between banks and MNOs; however, they might feel a bit threatened by the increased power card payment schemes have regarding the banks, as they are dependent on the fees perceived by the banks;

Strategy towards success: The largest challenge the model including A Handset Manufacturer is that of making the whole payment system work, so that they generate revenues from the banks. They do not have any contact with the merchants however, thus they should manage well the relation with the banks that are the end parties to relate to the merchants.

In-store buyers: (Group 2)

Role change: Sleeping Giant -> Sleeping Giant; there is no change compared to the collaborative model; they are still waiting to be convinced by the suitability of the contactless payment method for their needs.

Strategy towards success: The same attitude as in the case of merchants, the largest challenge for A Handset Manufacturer is that of making the whole payment system work so that they generate
revenues from banks. They do not have any contact with the merchants however, thus they should manage well the relation with the banks that are the end parties to relate to the merchants. In addition, as A Handset Manufacturer has direct contact with buyers, it can use proper strategies in order to activate this pool of customers. It can do that by influencing the perception of the buyers and thus make the opportunity of paying contactless with the NFC in A Handset Manufacturer as appealing.

**Handset manufactures: (Group 3)**

*Role change: Niche (Friend) -> Acquaintance:* While in the collaborative model the analysts focused on all handset manufactures when talking about the access to the buyer, in A Handset Manufacturer case it is only the A Handset Manufacturer handsets that are part of the proposition; the other handset manufactures are not part of the decision making process; they have a positive attitude, because if the proposition works they can pair up with payment schemes, in the same manner as A Handset Manufacturer does; however, they do not have the power in influencing the ecosystem;

*Strategy towards success:* A Handset Manufacturer and the other handset manufactures are traditional competitors in the market; this will stay the same following this new initiative, thus A Handset Manufacturer should continue to build redundancy so that it can benefit of extra functional relations that could turn out into coincidental information disclosure. However, the relation with other handset manufactures is of key importance for reaching success.

**POS terminal supplier: (Group 3)**

*Role change: Niche (Friend) -> Niche Friend* their role does not change, they are seen as niche players, important technological vendors, which have the interest that contactless initiatives functions so that their sales are increased;

*Strategy towards success:* it is not the responsibility of A Handset Manufacturer to manage this relation. In addition this player is not crucial for the ecosystem.