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CLASHING FRAMES AND FAILED COALITIONS  
IN MOBILE PAYMENTS**

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## Abstract

In this paper, we focus on a key, but understudied process that affects the development of the new market: the inter-firm negotiation process through which the interested parties agree on a business model to exchange resources in order to create the new product or service. We observed this process in the case of an emerging market around mobile payment services for over 40 months between 2006 and 2009. The results that emerge from our data illustrate that, when several of the negotiating parties come from dominant positions in their distinctive markets, the development of the new market may come to a complete halt despite the readiness of the technology and proven consumer interest. We also show that, when such deadlocks occur, the commercialization of the product may stop at the global level, but continue locally in places where the inter-dependency problem can be solved. By observing various countries, we describe three local pathways to commercialization: intra-firm coalitions, M&A, and the mediation of a trusted third party.

**Keywords:** market emergence, inter-firm negotiation, organizational frames, business models.

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# THE MARKET THAT NEVER WAS: CLASHING FRAMES AND FAILED COALITIONS IN MOBILE PAYMENTS

## Introduction

*“Mobile payments are the next big thing!”, 2002*

*“By 2006, we should see commercialization”, 2004*

*“By 2008, we will have a very solid infrastructure”, 2006*

*“Mobile payments is a market still half-baked...”, 2009*

*“Shall we all just pack up and go home?”, 2010*

Emergence of new markets is a topic of recent interest to organizational researchers. While earlier works (e.g., Williamson, 1979) assume that markets always existed, recent works explore the process through which new markets come into existence and mature (Jacobides, 2005; Santos and Eisenhardt, 2009). As the above quotes by key executives in the mobile market illustrate, the beginning of a new market can be a painstaking process for the firms involved. In fact, studies show that the development of a new market is a complex process where not only technical characteristics of the product, but also cognitive, social and political factors residing in and surrounding the organizations play a role (Anderson and Tushman, 1990; Tushman and Rosenkopf, 1992, Tripsas and Gavetti, 2000).

In this paper, we focus on a key, but understudied process that affects the development of the new market: the inter-firm negotiation process through which the interested parties agree on a business model to exchange resources in order to create the new product or service. We observed this process in the case of an emerging market around mobile payment services for over 40 months between 2006 and 2009. Given the lack of theoretical background and empirical evidence on the topic, we used a grounded theory approach with multiple-case embedded design, where we embedded multiple country-level cases in our global case of market development. The multiple country-level cases served as independent observations for how the new market developed in distinct ways depending on the inter-firm negotiation process at the local level.

The results that emerge from our data illustrate how inter-firm negotiations may play out during the emergence of a new product that creates interdependence among firms from different markets. We find that, when several of the negotiating parties come from dominant positions in their distinctive markets, the development of the new market may come to a complete halt despite the readiness of the technology and proven consumer interest. This occurs when the dominant players are impeded by the dominant position that they bring from their existing market and which they cannot leave behind when they face players from other markets which are also competing for dominance. Such competition between players with a history of dominance can halt further development of the market and force them to opt for inferior solutions which they can launch independently.

Our data also show that when such deadlocks occur in the inter-firm negotiation at the global level, the commercialization of the product may stop at the global level, but continue locally in places where the inter-dependency problem can be solved. By observing various countries, we describe three local pathways to commercialization: intra-firm coalitions, M&A, and the mediation of a trusted third party.

We contribute to theory by promoting a view of markets as coalitions. Our example of a new market at the interface of two traditionally separate markets illustrates the importance of the inter-firm negotiation process in the face of high inter-firm dependence. We argue that, although recent studies have given a central role to sense-making in new fields such as bio- or nanotechnology, in most markets, where the new product/service is a recombination of already existing products/services, there is less sense-making and more deliberate and strategic negotiation processes at center stage.

We also differ from previous studies on market emergence by showing the case of non-development. The case of Mobile Payments is the case of a market that did not happen despite a ready technology and high customer interest. We show that, despite a promising future, certain products/services may never come to market due to disagreements between market players on a favorable business model. In addition, our case illustrates the ramifications of such disagreements at the global level for market activity at the local level. Our multi-level approach to studying market emergence at global as well as country-levels helps us draw a picture of co-evolution between global and local level interactions and market development.

## Theoretical Background

Scholars in the fields of economics, sociology and strategic management have been interested in market emergence and growth for decades. Evolutionary economists emphasize the effect of technological change on market structure (Nelson and Winter, 1982; Murmann, 2003). Industrial organization literature, on the other hand, shows how technology innovation (Geroski and Pomroy, 1990) and demographic factors such as number and growth rate of entrants and incumbents (Klepper and Graddy, 1990) affect market characteristics such as concentration and growth. Endogenous models of evolution have also become more common recently (e.g., Klepper, 1996, 2002). Although these models do not deny the role of firm strategy in the development of the market, they do not examine such influence explicitly in the models.

In the recent years, scholars have also paid attention to the role of market players in shaping their environment through firm-level action. Jacobides' work in the mortgage banking industry (Jacobides, 2005) and the construction industry (Cacciatori and Jacobides, 2005) show how market structure and the actions of the industry players and new entrants co-evolve (Jacobides, 2005). Similarly, recent studies in entrepreneurial strategy examine how the actions of individual firms can play a role in the development of a new market. Santos and Eisenhardt (2009) show that small firms can shape new markets through strategic action by managing their boundaries through storytelling and marking their territory. Similarly, Ozcan and Eisenhardt (2009) find that, early during market emergence, those entrepreneurs that have a clear business model in mind can convince larger players to participate in the realization of their particular business model. These studies provide a solid stepping stone for researchers exploring the interaction between firms and their markets, but have shortcomings in that the former are narrowly focused on vertical scope and the latter on individual firm action rather than the interaction between various players.

In this paper, we go one step further in understanding firms' role in the development of a new market and argue that the *cognitive frames* that managers bring from their history in other markets into the new market is key in the inter-firm negotiation process around the new market. Extant literature shows that cognitive frames of the managers may play a significant role in making sense and reacting to ambiguous environments (Walsh, 1995; Kaplan, 2008). In their case study of Polaroid, Tripsas and Gavetti (2000) show that a firm's response to environmental changes depends largely on the managerial cognition of the change. The authors show that, due to their historical belief that profitability comes from selling accessories (film) to the main hardware (camera) (the razor and blade business model), senior managers at Polaroid missed the opportunity to become a dominant player in the new market although the range of their R&D activities would have allowed them to make a smooth transition into digital imaging. At her study at a large technology firm, Kaplan (2008) went further to show how a firm's response to a new technology is the result of long framing battles among engineers inside the firm. The author observed that, among different groups in the firm, different cognitive frames may be advocated depending on, among other factors, the political interests of the individuals inside the firm. The battle among different cognitive frames is a political process, which affects the final strategy of the firm.

In this study, we look at the response of several firms to the emergence of a new market, in which resources from traditionally separate markets, namely wireless communication and banking, need to be combined. With the premise that high inter-firm dependence makes agreement among the negotiating parties crucial for the take-off of the new market, we ask, *how do firms coming from traditionally different markets negotiate and agree on a business model for a new market conception in which they are interdependent?*

## Methodology

Given the lack of theoretical background and empirical evidence on the inter-firm negotiation process during market emergence, we used a grounded approach to examine our research question in the single case of an emerging global market, where we embedded the global case study with multiple cases that examine the same market at the local level. Multiple-case, embedded studies typically enable the induction of more accurate, generalizable and robust

theory than do single-case studies that yield more elaborate, but also more idiosyncratic (i.e., less generalizable and testable) accounts (Yin, 1984; Eisenhardt, 1989).

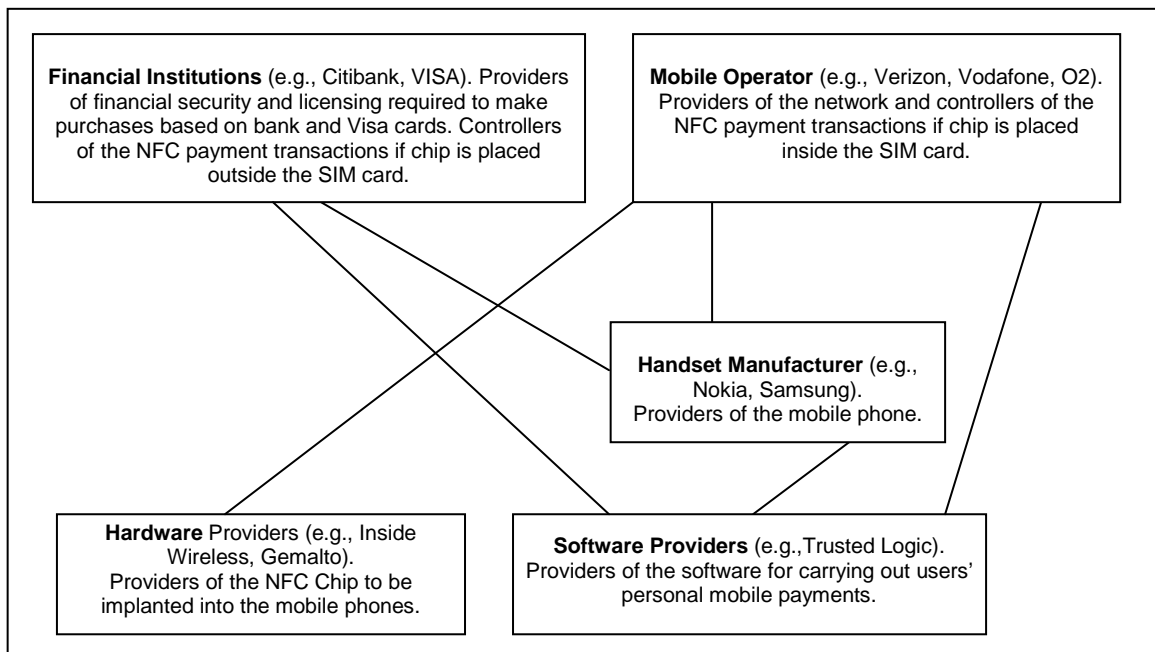
## Setting

Our research setting is the global market that emerged around a new service, called “mobile payment.” The concept of mobile payment (e.g., making purchases using a mobile phone) emerged in Japan in 1999 and quickly became popular worldwide as a new market opportunity. This setting is attractive for our research for several reasons. First, there are multiple types of firms that can potentially benefit from the take-off of this new service. Specifically, banks, carriers, handset makers, merchants and software and hardware developers all provide an essential part of the service, which makes their collaboration crucial for the development and commercialization of the service (see Figure 1 for a brief description of the players that were active during the observation period). This interdependence enables us to observe inter-firm relationships in a setting in which they are particularly important. Second, this setting is appropriate for the study because we had the opportunity to observe the market at a stage before a dominant business model was established and therefore monitor in real-time which factors played a key role in the development process.

We followed the development of the mobile payment services through global activities as well as in various geographic country cases over three continents (North America, Europe and Asia). Appendix 2 provides a list of the countries where interviews and observations were conducted. The depth of each country case was determined by the level of market activity in the country. Studying multiple local markets in addition to the global case allowed a replication logic in which we could treat the cases as a series of experiments, each serving to confirm or deny inferences drawn from the others (Yin, 1984)

## Figure 1

Types of players active in mobile payment services



## Data Sources

We collected data from several sources: 1) qualitative and quantitative data from in-depth semi-structured interviews over three years; 2) extensive archival data including business publications, Internet sources, and corporate materials, and 3) e-mails, phone calls, observations and follow-up interviews. Triangulation of data from multiple sources strengthens confidence in the robustness of the findings (Eisenhardt, 1989).

The primary data source is semi-structured interviews. We collected qualitative and quantitative data from over 65 interviews conducted between June 2006 and December 2009. The interviews included executives from various firms that are already active in the market as well as industry analysts, reporters and trade association members. The informants varied in their location and involvement. While certain executives were involved in mobile payment at the global scale (e.g., executives at the Visa Corporation, GSM Association and Nokia), others were focused on providing payment solutions in their local market (e.g., French supermarket chains, Dutch banks, etc.).

The interviews ranged from 60 to 150 minutes in length and were divided into three sections. In the first section, we asked short-answer questions about the firm's background and overall strategy. In the second section, we asked the informant to describe the major events in their involvement in the new market in an open-ended format and prompted by questions such as how the opportunity presented itself, who became involved in the process, and how it was executed. In the third section, we asked a set of open-ended questions about the current state of the market and asked them to draw the market network on paper. This interview structure enabled the collection of specific and factual information (e.g., dates, events, managers and other firms involved, etc.) as well as more open-ended narrative data including important relationships and challenges. With the industry experts and reporters, we followed a similar structure, but focused on descriptions of the events and alliances that the informant considered key in the overall development of the market. Interviews were tape-recorded and transcribed, most within 24 hours. We complemented the interview data with extensive archival information from media, Internet, and corporate sources such as press releases as well as observations in several industry conferences in three continents.

## Results

We explain our results regarding the market emergence process following the chronological order in which we observed the events, starting with the emergence of the concept for the new product/service, followed by the inter-firm negotiations regarding technology and business model, and concluding with the level of commercialization globally as well as in multiple local country cases.

### Emergence of the Concept

Mobile payment, defined as the payment services based on some function of the mobile phone, were first developed in Japan in 1999. Japan's leading mobile operator, NTT DoCoMo, introduced a portal-based financial service for mobile phone subscribers to monitor their bank accounts through their handsets and make payments using text messaging. The success of this service in Japan raised expectations worldwide of the revenue potential for mobile payment

services. In November 2001, financial institutions including American Express, MasterCard and Visa founded the Mobile Payment Forum to promote mobile payment services.

## Competing Technologies

Two technologies could be used to provide mobile payment services. The first one was text-messaging (“SMS”), which mobile subscribers were very familiar with. In this model, the consumer would send a payment request to their mobile operators via SMS. The merchant involved would then be informed of the payment success and could release the item. The price of the item would be added to the phone bill of the consumer. All our informants agreed that there were several drawbacks to using SMS for this service. First, it was not reliable and messages sometimes got lost. Second, messages could arrive late, causing the merchant to wait for a long time to receive the confirmation before releasing the purchased item.

The second option for mobile payment technology was Near Field Communication (NFC). NFC worked with the help of a chip inside the mobile phone and which communicated with a reader in the point of sale locations (supermarket checkouts, ticket offices, etc.) within a distance of 20 centimeters. In other words, a mobile phone equipped with the NFC chip would allow its user to hold the phone against a checkout in a supermarket to pay for groceries, or against a poster on the street to buy concert tickets within seconds.<sup>1</sup> All of our informants agreed that NFC technology is superior to SMS for mobile payments because SMS requires a much longer waiting time and is less reliable.

The establishment of the Mobile Payment Forum in 2001, led by financial institutions to promote mobile payments in general, was immediately followed by a specific effort by Philips semiconductors, Nokia, and Sony to advocate NFC for mobile payments. Over time, these three firms formalized their advocacy under the non-profit organization, the NFC forum, in 2004. Other firms quickly joined NFC forum as sponsor members (e.g., MasterCard, Microsoft, Motorola, Samsung, Texas Instruments, and Visa International). At this point, the NFC technology was fully developed and ready for commercialization in mobile payments.

## The Business Model

The nature of the activity, making NFC-based payments on a mobile phone, required several parties from traditionally different industries to be involved. First, mobile phone makers (e.g., Nokia) were needed for manufacturing NFC-compatible phones. Second, mobile operators (e.g., Vodafone, AT&T) needed to allow the mobile payment software as part of their wireless package. Third, banks and financial institutions (e.g., Bank of America, Visa, MasterCard) needed to provide access to the subscribers’ financial account and provide approval to enable payments. Fourth, the NFC chip itself was needed from hardware providers (e.g., Phillips). Fifth, software to manage the financial account over the phone (e.g., E-wallet) was needed from software providers (e.g., Vivotech). Sixth, additional software was needed for downloading the users’ personal data to each phone (Over the Air) and for ensuring security and privacy of each

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<sup>1</sup> NFC technology can be used with a variety of devices, from mobile phones that enable payment or transfer information to digital cameras that send their photos to a TV set with just a touch, PCs, office, house and garage doors, parking meters and ATMs. In this paper, we focus on the application of NFC in mobile phones.



transaction (e.g., Giesecke & Devrient). Seventh, POS (Point of Sale) terminals needed to be provided by hardware providers (e.g., CCV Holland, Vivotech) in places where mobile NFC-payment would take place. Finally, thousands of vendors (e.g., 7-Eleven, McDonalds, Macy's) needed to allow NFC payments and install POS terminals in their stores. The commercialization of the NFC technology required these various players to agree on a business model.

As the discussions began, disagreement emerged as different players wanted to place themselves in the center of business model and exclude other players that were competing for the same role. Interviews showed that, early on, mobile operators saw mobile payment as an opportunity to for them to become payment providers by creating financial accounts for their subscribers. Therefore, they preferred banks and other financial institutions to be peripheral to the business model. A mobile operator VP explained: *"This is one more thing we can do for our subscribers to differentiate ourselves from competitors out there. We are serious about this."* Financial service providers, on the other hand, saw this application as an opportunity to extend their brands and services into the mobile space. They envisioned this service to be a "Citibank service" rather than a "Verizon Wireless service." A financial consultant explained: *"The last thing was online payments. Now we move on to the mobile space. Everybody wants to show that they are the most innovative bank by doing this."* Handset manufacturers, on the other hand, had been in a long-running battle with mobile operators to gain more revenue from mobile services. For them, the new application meant higher bargaining power against mobile operators as their phones would be worth more when payment and other applications are embedded. Therefore, handset manufacturers preferred to team up with financial providers to deemphasize the role of the mobile operators. *"You need a new generation of phones to do this stuff. So it is an opportunity for us to show off our technology."*

The misaligned interests of these key players about who would take the central role in the business model surfaced in two practical ways during business model and product design negotiations. The first issue was regarding the ownership of the final customer, and the second, regarding the responsibility of securing the transaction. Below, we discuss the discussions of these issues in detail.

#### *Disagreement #1: Whose customer is it?*

The first issue was who would own the customer for this new service. In the financial sector, banks owned their customer. In the mobile sector, the same was true for mobile network operators. Both of these firm types were used to being the point of contact with their customer, monitoring and affecting customer behavior directly.

The question of who would own the customer arose early on, during the technical design of the NFC-enabled device. The NFC chip needed to be installed inside the mobile phone, and two possibilities existed. One was to place the chip inside the SIM card in the mobile phone. The placement inside the chip would give the SIM card provider, a.k.a. the mobile network operator (e.g., Vodafone, Telefónica, AT&T), a central role in the business model as it entailed the usage of the SIM card for storing financial data as well as for including security elements. In other words, the mobile payment service would go entirely through the mobile operator. A mobile operator executive explained: *"This makes us the landlord of the NFC chip."*

The second option involved the placement of the chip outside the SIM card, in a unique place inside the mobile phone. This would allow the financial institution to negotiate the relationship with the handset manufacturer directly and to continue to own the responsibility over financial

transactions. For banks, this meant higher visibility. A bank executive explained: “For banks, it’s important that every time you open your wallet, you see their logo on the card. With phones, this is a problem. Bank’s name will come up when user opens mobile wallet, but carriers will not allow the banks to brand themselves in the main screen of the phone. They are saying: *“We will not allow the phone to look like a Nascar!”*”

Banks had a lot to lose from the first option. A financial consultant explained:

“The financial industry is in a defensive position against this proposal. Until now, they owned their customer and whatever payments the customer was making. They have a lot to lose from sharing their card payment business with other players because cards are not just a source of revenue, but also way to create loyalty and an opportunity to cross-sell products and services. So banks are not excited about opening their business to MNO’s.”

Interviews show that handset manufacturers also preferred the second option, having the NFC chip outside the SIM card, because it gave them a greater role in the installation of the chip inside the phone. The rest of the players in the model were mostly indifferent on this decision.

From the first NFC Forum meetings in 2004 onward, discussions continued on which architecture to implement. While banks used the Mobile Payment Forum to push the second option, mobile operators used the GSMA Association to state their preferences for the first. Working with NFC technology providers (e.g., Gemalto, Nokia, Philips NXP and Sony), the GSMA Association evaluated different ways of creating a SIM-based NFC technology. Finally, in February 2007, a white paper, published by the GSMA Association, made an official recommendation to the rest of the players that the NFC chip be planted *next to the* SIM card, with direct communication with the SIM. This model did not place the NFC chip inside the SIM card, but still gave total control of the chip to the SIM. The communication between the chip and the SIM would be enabled by a wire, thus the technology was called the “Single Wire Protocol” (SWP). The GSMA Association quickly sent this protocol to the European Telecommunications Standards Institute<sup>2</sup> (ETSI) for standardization. An industry analyst explained the significance of this event as follows: *“Other players in the industry all were members of different consortia, but they could not organize themselves like the GSMA association to push their preferences forward. Those guys got it together and rushed to the ETSI to fight their corner.”*

The Association also initiated the Pay Buy Mobile Program, which consisted of a set of trials using the single wire protocol. They made an official call for handset makers to join the Pay Buy Mobile Program to *“avoid fragmenting the market”*. Handset manufacturers responded, but only slowly as they were not sure of the potential for NFC mobile without the support of the banks. A handset executive explained: *“I wish that they [banks and operators] could finally collaborate ‘cause then I would know that I am going to sell phones.”*

In April 2009, Nokia introduced the first NFC phone, the Nokia 6216, in the market. However, by that time many banks and financial institutions throughout the world had already rolled out contactless Visa and debit cards, which were entirely under their control, while many operators had launched simpler SMS-based payment services, which were also entirely under their control. These business models were inferior in customer value but could be more readily

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<sup>2</sup> The European Telecommunications Standards Institute (ETSI) is an independent, non-profit, standardization organization in the telecommunications industry (equipment makers and network operators) in Europe, with worldwide projection.

deployed as they avoided the need for negotiations between powerful players. Their existence offered competing solutions to the NFC market concept and further delayed its adoption.

#### *Disagreement # 2: Who deals with integration and security?*

Another disagreement between banks and mobile operators was about security. Mobile operators preferred to use the security platform on the SIM card to provide security for NFC transactions. Banks, on the other hand, used other security modules with a higher level of certification. A bank VP explained: *“Our security preferences imply a set of logistical issues that the mobile operators are not prepared to deal with.”* An industry analyst added: *“The big debate at the moment is really on the technical architecture. Banks want to enforce their high security measures, and mobile operators are resisting. Should [they] remove the certification constraints and use the SIM as it is, or should we push for a SIM that is certified?”*

Non-banking informants agreed that part of the banks' resistance was “emotional,” i.e., they wanted to remain in control. A mobile executive commented: *“Banks like to have control and thus face emotional problems putting applications on the neck of a telco.”* An analyst added: *“Banks have a hard time letting go. They are willing to settle for solutions where there is a separate security element in the handsets, but the governance of that security element is a big issue for them.”* Another executive explained: *“Banks are approaching NFC from a defensive position, suspicious that mobile operators are seeking to cut in on their relationships with credit and debit card customers. They fear that in some cases, the telcos will try to snatch away the business for low-value payments now conducted in cash.”*

Unable to decide the right level of security and who should be responsible for handling security issues, the parties struggled as debates continued. A conference attendee complained: *“The main problem is how to bring the two worlds together that are coming with their own expectations.”*

In 2007, the same GSMA white paper that proposed putting the NFC chip inside the SIM card also included a proposal to solve the security issue by bringing in a trusted third party. An executive in the GSMA-NFC project explained the proposal as follows: *“A TSM (total service manager) is a trusted third party that is needed to act across service providers (banks, credit card providers, and operators) and to distribute and manage NFC services to operators' customer base. This role can be performed by an operator as well, but it would probably be better with an independent third party that all parties can agree on.”* An analyst explained the role of the TSM from a different point of view: *“The bank doesn't trust the operator; the operator doesn't let the bank handle security. And neither the operator nor the bank can be the front desk for NFC because they would not accept each other, so a TSM could be the front/help desk.”*

In the NFC conferences in 2007, GSMA's proposal to invite a third party between banks and operators received positive feedback. Parties were happy to finally have a solution to the battle between the two large players. A technology provider commented: *“I am relieved to see that they [banks and operators] are finally agreeing on something. We've been waiting for this for years!”* But now, another difficult question was on the table: who would play the TSM role?

The TSM role was a powerful one. This party would be the integrator of the platforms and the front desk for NFC-related customer questions. It was important to both parties that the TSM would be “impartial.” An analyst explained: *“There needs to be a neutral platform where both telcos and banks have all their interests covered.”*

The TSM role and the best candidates for it were discussed intensively at the conferences we participated in starting late 2007. First, the parties discussed whether one single firm or type of firm would work. Unable to agree on who this firm would be, they moved on to discussing the possibility of having a group of TSM's instead just one. When we concluded data collection in 2009, the parties were still in discussions.

In summary, we observed that the parties involved in the emergence of the NFC-based mobile payment services ran into two sets of challenges in the development of the business model. First, the banks and mobile operators did not agree on the technical architecture of the application, as putting the NFC chip inside or outside the SIM card gave the central role to the mobile operators or to the banks, respectively. This disagreement continued for several years until 2007, when the mobile operators gained a competitive edge by solidifying the demands of their side through the GSM Association. Their suggestion of a separate, but SIM-controlled chip (a.k.a. the single wire protocol) gained acceptance. However, another disagreement, which involved the handling of the transaction security, still remained as banks and operators used different security standards in their traditional industries. In 2007, the parties invited a third party between themselves to handle security. This invitation was received positively from the rest of the players, but it did not end the disagreement because each party preferred a different type of firm to handle that role. Below, we describe the consequences of these disagreements for the commercialization of the service globally and in various specific countries.

## Commercialization of NFC Mobile

These disagreements on the business model significantly postponed the commercialization of the service. During a conference in late 2007, an e-payment solutions provider explained: *“The market would develop a lot faster if the banks and telcos just quit fussing about it and roll it out!”* While the banks and the mobile operators battled, nobody was willing to make the first investment. The rest of the players also came to a halt. Handset manufacturers announced that they would not start mass production of NFC-capable handsets until the business model and supporting infrastructure was in place. An executive confessed: *“Cell phone makers have been conservative about integrating NFC into handsets to date, given the uncertainties around the consumer application.”* Large merchants also postponed their investment in the new payment infrastructure until they had a large-scale commercialization in sight. In 2009, along the same lines, an executive at Visa Europe explained: *“It is a chicken and egg situation. Until the MNO's see the market developing and order phones, there won't be any NFC phones out there. Handset vendors, however, need orders before they will manufacture NFC phones in any volume. In addition, there needs to be an accepted infrastructure for all this work.”*

When we looked at mobile payment services in 2009, we saw that, although the NFC technology had been available since 2000, and high customer interest in mobile NFC was documented globally,<sup>3</sup> there was still no large-scale commercialization at a global level, in contrast with what had historically happened with other nascent markets in the mobile communications space. In a cross-case comparison among our multiple cases, we observed that NFC mobile was commercialized in very few specific markets, and alternative solutions were being looked for in most others. Below we provide details regarding how commercialization did

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<sup>3</sup> Trials worldwide showed that over 90% of customers and over 80% of merchants were “content” with the new payment solution due to its “speed and cutting-edge appeal”, Juniper Report, 2009.

or did not occur in different countries following the global deadlock in business model negotiations.

### *Commercialization of NFC across Geographical Markets*

Data show that when global disagreements continued regarding the business model, players came up with various solutions in order to go ahead with the commercialization at a local scale. For those operators that had access to a bank or credit card company within the same corporation, an intra-corporate coalition solved the problem. Similarly, other operators found the solution of acquiring a local bank. To other players, third parties that they trusted came to help. We observed that various global and local third parties tried to activate local coalitions with varying success. Below, we discuss and illustrate these local activities.

#### *1. Intra-Corporate Coalitions between Operator and Bank to Commercialize NFC*

As explained before, the concept of mobile payment had started in Japan in 1999 with the introduction of imode by NTT DoCoMo, which was built on SMS-based payment. Following this success, NTT DoCoMo executives decided to focus on mobile payments and immediately formed an alliance with Sony to jointly develop a mobile NFC chip. Developing the chip was not the critical part; that was getting the financial license in order to provide credit to mobile subscribers. The executives solved this tricky dependence when they realized that a small credit card company named ID happened to be part of the same holding company as the mobile branch. While the NFC chip, named Felica, was being developed, NTT DoCoMo also formed alliances with handset manufacturers and retailers. In July 2004, one month before the launch of the service, two NFC-enabled Fujitsu handsets were released to support the service. Within six months, Panasonic, Sony Ericsson and Sharp had also developed NFC mobile phones. A handset executive explained: “NTT’s large-scale investment showed us that we should all join the bandwagon now if we wanted to be part of this.” By late 2005, one year after the DoCoMo launch, their largest rivals, KDDI and Softbank (formerly Vodafone) also licensed the mobile wallet service from Sony and NTT DoCoMo. In the meantime, NTT DoCoMo was busy making partnerships with McDonalds, department stores and many other firms to make the system accepted across Japan in 9000 outlets within a few months. By September 2009, 60% of DoCoMo customers were using the service at 420,000 points of sale in Japan.

Why was mobile payment commercialized so quickly in Japan? Informants unanimously agree that it was, to a large extent, due to the dominant role of NTT DoCoMo in the Japanese wireless market. An NFC chip provider explained: “NTT DocoMo is an extremely cash-rich and powerful company in its geographic market. They decided to do it under their own leadership without waiting for the standardization... NTT organized the whole ecosystem and made it happen.” It was just as critical, however, that NTT DoCoMo could solve the dependence on a financial institution through an intra-corporate coalition. As part of the same holding company, they were able to quickly ally with a credit company, which provided the banking licenses needed to launch their own credit card branch, ID, to provide credit accounts to mobile customers.

Intra-corporate coalition was a way for NTT DoCoMo to solve the problem of dependence on financial institutions for a license and be able to launch the service on its own. This way, NTT DoCoMo did not have to wait for the global business model to become clear. Many years later, when global negotiations for the business model stalled, we observed firms in another country leveraging this same type of (intra-corporate) coalition to make the local market happen despite

global disagreements. In the case of Austria, the dominant mobile operator Mobilkom Austria announced in 2009 a partnership with Visa Europe and its own wholly-owned A1 Bank. This coalition was in order to launch a co-branded credit card (A1Visa), which combined features of a conventional Visa Classic Card with special mobile services. The operator announced that the next step in the coalition was to put the A1 Visa Card inside the mobile phone to function as a contactless payment tool. At the time of data collection, the mobile payment service had not been launched, but no major hurdles were expected for the launch in 2010.

Japan and Austria commercialized NFC mobile payment by locally solving the dependence problem by employing intra-corporate resources. For other local players that did not have this option, a close alternative was acquisition.

## *2. Forced Local Coalitions: Mobile Operators acquiring Banks to Launch NFC*

When two parties could not find a way to collaborate, one simple but expensive solution was for one to buy the other. We have seen this case in South Korea, where the large-scale commercialization of NFC mobile was the result of such an important acquisition in late 2009. South Korea's leading operator SK Telecom purchased a 49% stake in Korean card issuer Hana Card and announced that the acquisition had the aim of expanding the use of the credit card to the mobile space. The commercialization of NFC mobile services in South Korea was still in preparation at the end of the data collection period.

A few months later, in 2010, a similar development was announced in China where China Mobile bought 20% of the Shanghai Pudong Development Bank (SPD Bank) to become the second largest shareholder in the bank. At a press conference, the chairman of China Mobile stated "The co-operation between China Mobile and SPD Bank signifies the aspiration of a closer integration between mobile communication and e-commerce applications." The commercialization in China was also under preparation as the study came to a close.

## *3. Local Coalitions for NFC through Mediation of Trusted Neutral Third Parties*

Another way for local players to continue with NFC mobile payment despite global uncertainty was through the initiative of using trusted third parties to bring parties together. We observed that, between 2006 and 2009, several local mobile operators and banks were brought to the same table at the invitation of a third party. Below, we discuss these attempts of the third parties in three examples.

### *3a. Global Corporations as Mediating Third Party: The Case of Malaysia*

NFC payments service became live in Malaysia in 2009 through the mediation of Visa between Maxis (largest mobile operator in Malaysia), Nokia and Maybank (a large Malaysian bank). In 2008, Visa first came to an agreement with Maybank for the usage of Maybank Visa accounts on mobile phones through Visa's PayWave service. Next the mobile operator, Maxis, came to the deal, having seen that Maybank and Visa had already come to an agreement. The joining of Maxis allowed Maybank Visa account holders to download their Visa PayWave account details directly to their Nokia 6212 phones. In 2009, Malaysia became the second country after Japan to officially launch NFC Mobile Payment services.

### *3b. Government as Mediating Party: The Case of Singapore*

As explained before, the absence of a trusted third party was one of the major hurdles in the finalization of the NFC business model. In 2009, Singapore became the first country to create a central Trusted Third Party (TTP) for NFC mobile. Infocomm Development Authority (IDA), a Singaporean government agency, formed a roundtable group of banks, mobile network operators and transit companies in January 2008 with a view to putting together a national plan for the introduction of NFC. After one year of negotiations, the “Next Generation e-Payment Programme” was launched with the aim of enabling mobile payments in retail and transit. The agency invited merchants to join the initiative between November 2009 and May 2010 by providing economic incentives such as lower transaction fees and waived setup and monthly rental fees. A representative of IDA explained: “We will act as a neutral party and a single point of contact for all banks, payment providers and telcos in order to satisfy trust requirements of all parties.” One of the priorities of the agency is to enable compatibility between different systems such as Visa’s PayWave and MasterCard’s PayPass, two initiatives that have gained local traction after the failure of the global business model negotiations for NFC.

### *3c. Entrepreneurial Firms as Mediating Third Parties: The Case of the Netherlands*

In the Netherlands, the role of the trusted third party was played by a start-up company. Payter was launched in 2007 with the intention of rolling out an NFC-based services first in the Netherlands and then Europe-wide. Our interviews with the company revealed that they intended to become the Trusted Third Party that the banks and operators wanted. The CEO explained: “I think the telcos and the banks are looking at this totally differently from the current ways of doing business... The market could develop faster if the banks and telcos just quit fussing about it and roll it out. So we’re building the infrastructure to help with that, tying up all the back-ends of the large retail chains, hooking up the readers, developing software.” Between August 2007 and December 2008, Payter participated in a large NFC pilot of 1400 users in the Netherlands. However, when the time came to transition from pilot to commercialization stage, the company faced the ever-present problem of lack of agreement and commitment among the critical parties. In November 2009, Payter announced that it was closing down due to “an inability to gain sufficient scale with the current level of support from the market.”

To summarize the local pathways to the commercialization of NFC mobile, data show that, as global disagreements regarding the business model continued, players came up with various solutions in order to go through with the commercialization at a local scale. For those operators that had access to a bank or credit card company within the same corporation, an intra-corporate coalition solved the problem. Similarly, other operators found the solution in acquiring the necessary resource by acquiring a local bank. To some other players, third parties that they trusted came to help. We observed that various global and local third parties such as global companies, governments and technology start-ups tried to activate local coalitions with varying success.

When we looked at the state of NFC mobile payment services across the world at the end of our data collection in 2009, we saw that commercialization had officially taken place in only two countries, Japan and South Korea. While some geographic markets were witnessing local initiatives towards commercialization (e.g., Austria, China, Singapore), most other geographic markets (e.g., United States, Germany, United Kingdom, India) had gone through various pilot

studies (which had showed positive results), but had ended up nowhere afterwards. In these countries, players started giving up on NFC mobile and investing in alternative services.

## **Giving Up on NFC Mobile: Parties in Search of Alternative Services**

Interviews in different countries and at global conferences revealed that, starting from 2007, involved parties who were frustrated with the current state of the business model started choosing alternative services. This coincided with the white paper of the GSMA Association, which was published and presented in February 2007 and recommended that operators and banks should agree on a SIM card based (Single-Wire) technology and the business model. Interviews at that time revealed that many banks viewed this development as a sign that operators were “never going to meet [them] half-way.” Below, we list the alternative services that were developed in the following years.

### *Banks' Alternative Service: The NFC Plastic Card*

Interviewees explained that, just like many municipalities around the world have been using NFC plastic cards for transportation (e.g., London's Oyster Card), NFC chips can be used to pay with credit cards in retail stores. An NFC chip provider executive explained that this usage of the technology was not at all revolutionary and that, for banks, this had always been the back-up option: “Instead of signing the paper, you put your credit card close to the reader. It saves a bit of time in payments, but whether it is worth the effort is not clear to us given the investment required from merchants to enable this. They are gonna ask: why does it make sense to do this for me?”

For banks, however, the global failure of the NFC mobile service meant that, without the mobile operators' involvement, the NFC plastic card was the only service they could offer. In 2007, Wells Fargo issued the NFC plastic credit card in the United States. Many American banks followed, although they kept supporting simultaneous NFC mobile pilots. A bank executive explained at that time: “This is just something we do for our customers. It is the first step in using NFC while we wait for NFC mobile to happen.” In 2009, there were over 80 million contactless cards issued and over 500,000 card readers installed in over 40,000 merchants. Europe lagged behind in the usage of plastic credit cards. With the exception of Barclay's Bank, which issued the NFC plastic card in 2008, European banks held off on investments as they waited for NFC mobile to happen.

### *Operators' Alternative Service: SMS Payments*

While banks went ahead with the plastic cards, operators also looked for solutions other than the NFC. One solution that was feasible without the financial license from a bank was the SMS-based mobile payment. Although this technology was inferior to NFC, as we explained before, many operators felt that it was a good start in getting their customers used to using their phones for payments. An executive explained: “What are you gonna do, wait around to see if there is agreement? We are trying to use the time wisely by getting started on mobile payment services already.”

In 2007, Verizon Wireless became the first operator to launch mobile payment services based on SMS. In 2008, Sprint PCS partnered with PayPal to also offer SMS-based mobile payment services to the subscribers. As of 2009, AT&T had not invested in SMS, and continued testing



NFC mobile in different United States locations. In the meantime in the United Kingdom, Vodafone launched m-payment services, but based on the even older WAP technology.

We observed that, after 2007, several entrepreneurial firms emerged in SMS-based mobile payment technologies. In India, for instance, there is Paymate, an SMS-based mobile payment company, founded in 2006, which has been gaining traction in rural regions of India where people used simpler cheaper phones. In 2009, a new SMS-based payment platform was launched by the start-up Bling Nation. Founded in 2008 and backed up by two venture capital firms, Bling Nation first partnered with a New York City bank to launch SMS-based mobile payment services. Soon after, in Ireland, technology firm Vivotech partnered with Zapa Technology as its Trusted Service Manager (TSM) in preparation for launching SMS-mobile payment services in Europe. Zapa technology was founded in 2009 in the United Kingdom.

To summarize, we observed that, as global negotiations stalled, many local players started giving up on NFC mobile and looking for alternative ways to offer a similar service. Informants unanimously agreed that these alternative services were inferior to NFC mobile in terms of customer experience, but viable because they did not involve dependence on their main competitor in the NFC mobile business model.

Thus, our study reveals that, despite its promise to revolutionize payments and high customer satisfaction levels during pilots, NFC mobile services failed to take off as a market in a decade due to lack of agreement between highly interdependent parties. Instead, consumers in most countries today are being offered inferior services such as slightly faster plastic cards and SMS payments that involve the sending and receiving of several messages for a single transaction. As one informant expressed during a heated debate in a conference, this “should be an embarrassment for all [parties] involved.”

## Discussion

Emergence of new markets has been an interest of various fields from economics to sociology to industrial organization. Notably, studies on the emergence of markets around new products or services concentrate either on a technical comparison between competing designs at the market level or look at the entrance or performance of individual firms in the new market. What is less known about new markets is the process through which market players settle on a business model for a new the product/service. More specifically, if the emergence of new markets is an inter-organizational negotiation process (Wade, 1995; Jacobides et al., 2006), then how do players settle on a business model during the emergence of a new market?

In this paper, we answer this question through the rich empirical account on the development of a new service, mobile payment, observed globally and across multiple markets. The results that emerge from our data show that, during the emergence of a new product or service that requires resources and capabilities residing in different firms from different existing markets, the inter-firm negotiation is a very complicated process which may lead to the abandonment of the market opportunity due to lack of agreement. Particularly in the case of multiple players coming from dominant positions in their distinctive markets, the development of the new market may lag significantly as the priorities of these players clash and halt the negotiation process. In addition, we show that when such deadlocks occur in the inter-firm negotiation, the commercialization of the product may not happen and parties may be forced to opt for inferior products which they can launch independently.

Our findings provide multiple links to theory. First, we go one step further in understanding firms' role in the development of a new market. We argue that the *frames* that managers bring from their history in other markets into the new market are key to the inter-firm negotiation process around the new market. Extant literature shows that the managers' cognitive frames may play a significant role in making sense of and reacting to ambiguous environments (Walsh, 1995; Kaplan, 2008). The battle among different cognitive frames is a political process, which affects the final strategy of the firm. In our case, the mobile operators and banks both came into the market with a frame of market dominance, which they were unwilling to leave behind, even when it threatened the emergence of the entire market. We show that organizational frames are path-dependent and can become a roadblock to organizational strategy formulation, particularly in situations of high inter-organizational dependence.

Theoretically, we also aim to contribute to the debate on market development by promoting a view of markets as coalitions. Our example of a new market at the interface of two traditionally separate markets illustrates the importance of the inter-firm negotiation process in the face of high inter-firm dependence. We argue that, although recent studies have given a central role to sense-making in new fields such as bio- or nanotechnology, in most markets, where the new product/service is a recombination of already-existing products/services, there is less sense-making and more deliberate and strategic negotiation processes at center stage.

We also differ from previous studies on market emergence by showing the case of non-development. The case of Mobile Payments is the case of a market that did not happen despite a ready technology and high customer interest. We show that, despite a promising future, certain products/services may never come to market due to disagreements between market players on a favorable business model. A close look at the process of negotiation between the players suggests that the lack of agreement may come from the traditional dominant role that powerful firms (e.g., operators and banks) play in their traditional market. As many quotes used in the paper show, both mobile operators and banks had what they called "control issues" in that they believed that they should be responsible for the service and maintain direct contact with the customers. The executives were not able to let this idea go even when they realized that sharing the responsibility was the only way to make this new market happen. We suggest that the *logic of market dominance* that the players brought to the new market was a critical factor in their failure to agree on the business model for the market. Research has established that organizations pursue institutional logics, i.e., behavioral systems, which are characterized by persistence and stability (Hughes, Hertzler, Friedland and Alford, 1991). We add to this literature by showing how organizations carry their logic to new settings and how their logic affects their negotiations with new organizations with whom they have not dealt before. Finally, our case illustrates the ramifications of such global level disagreements for market activity at the local level. Our multi-level approach to studying market emergence at global as well as country levels helps us draw a picture of co-evolution between global and local level interactions and market development.

This study constitutes a potentially significant step towards understanding how markets come about through inter-firm negotiation. It is important to note that our results are limited to a single case study, and therefore inform us only about one emergent market. Future cross-industry studies are needed to expand our findings to different settings and prove their generalizability.

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