

# Designing Business Models for Mobile Payment Services

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## Abstract<sup>♦</sup>

Designing business models for mobile services is a complex undertaking because it requires multiple actors to balance different requirements and interests such that a 'win-win' situation is created. A business model can be seen as a blueprint of four interrelated components: service offering, technical architecture, and organizational and financial arrangements. Although little attention has been paid to how these different components are related to one another, this knowledge is needed to enhance our understanding of what constitutes a viable business model. In this paper the connections between two of these components, namely service offering and organizational arrangements, are explored by analyzing the business models of three recent mobile payment initiatives. The cases reveal that similar value elements can be realized in different ways and that, depending on the target group, dominant actors can be bypassed in the value network.

## 1 Introduction

The mobile telecom industry currently faces a number of opportunities that may radically change the field of mobile telecommunication. The development of new networks like GPRS (2,5 G), UMTS (3G) WLAN (WiFi), and Personal Area Networks (beyond 3G) will spark the development of mobile services. With 'mobile services' we mean all kinds of innovative services that combine technologies from the domains of telecommunication (e.g. mobile services), information technology (e.g. the Internet, PDA's) and consumer electronics (e.g. cameras). These new technologies, in combination with the

'convergence' of these domains, and concepts of content and services providers, offer opportunities for the mobile telecom industry.

To exploit the opportunities companies need to buy licenses, build networks and develop new services. Since most industry players currently lack the resources and capabilities to do so, mobile services are increasingly being developed and provided by networks of cooperating organizations. It is assumed that flexible 'value webs' will arise and replace traditional, static and linear 'value chains'. In such a 'value web' each player has different capabilities and resources, and innovation thrives on the combination of these capabilities and resources. Compaq HP, Microsoft and KPN Mobile, for instance, recently started the joint development and marketing of a mobile office application called Lucio.

Cooperation in value webs is by no means straightforward. Various studies [20,15,3] indicate that companies encounter serious difficulties in achieving the anticipated benefits from cooperation. First of all, partner organizations may use the cooperation to pursue different strategic goals, which may induce partners to act against what is agreed upon, hide the truth or try to extract confidential information from their partners. Secondly, partner organizations often come from different industries (e.g. network operators, financial institutions, and retailers) each with their own peculiar business logic. Such diversity may be necessary for the development of new innovative services, yet at the same time disrupt cooperation. Finally, cooperation gives rise to complex interdependencies between organizations because none of the partners has formal authority over the others. Hence, every adjustment has to be discussed and jointly agreed upon [17].

Given the disappointing success rates of inter-firm co-operations and the risks and cost involved in the introduction of new mobile services, it is not surprising that practitioners and academics pay a great deal of attention to the concept of business models. In our view a business model is a blueprint for how a network of

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organizations co-operates in creating and capturing value from technological innovation [10]. Designing business models is a complex issue because technical, financial, organizational and professional user or consumer's needs and requirements need to be balanced. For instance, what makes sense from a technical point of view (better specs of positioning technology) may not make sense from a financial (higher costs) and user perspective (privacy concerns). Moreover, organizations have to balance their different interests and business logics to create a 'win-win' situation, in which each player has incentives to co-operate, and in which the combined benefits are higher and the combined efforts are smaller compared to each player working separately.

Although extensive literature on strategic alliances [7], network formation [24] is available it fails to provide insight into the subtleties involved in the design of viable business models for the provisioning of mobile services in value webs. Existing literature on business models is extensive [1,16,21,26,32]. However the predominant focus has thus far been on defining and classifying business models. Little attention has been paid to the way the various elements of a business model are and have to be related to one another. This knowledge is needed to enhance our understanding of what constitutes a viable business model.

The objective of this paper is to explore the relationship between two important business model elements: customer value and value network. The paper is structured as follows: first, a descriptive framework for studying the interrelatedness of business models elements is developed. This framework is then used to analyze the business models of three recent mobile payment initiatives, focusing on the relationship between the customer value of service offerings and the value network required to realize a service offering. The paper concludes with drawing conclusions on important issues regarding the design of viable business models and providing directions for further research.

## 2 A descriptive framework for studying business models

We view a business model as a blueprint of the way a network of organizations co-operates to create and capture value from the implementation of technological innovations. We look beyond the individual firm and consider the business model for a network of companies: a collaborative effort of a number of companies to offer a joint proposition to their customers. When comparing the various existing definitions of business models it is possible to distinguish some common components that are network-oriented or can easily be extended to be so [13]:

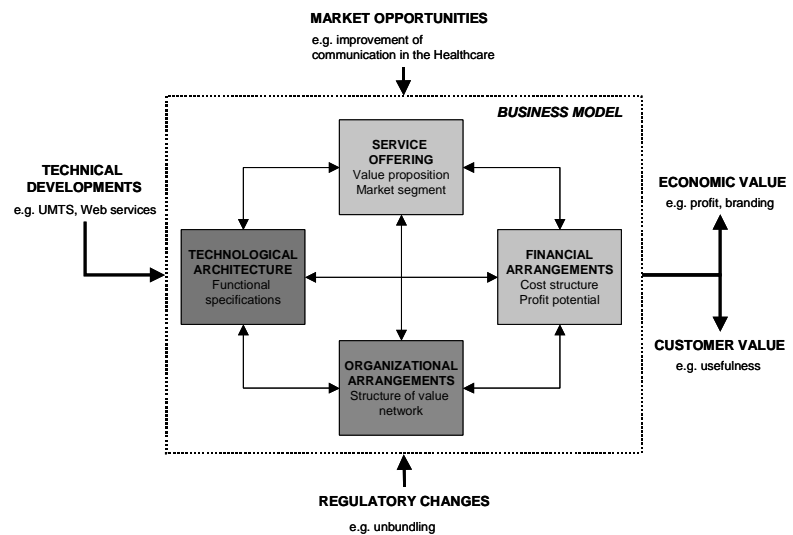
- *Service offering*: a description of the value proposition (added value of a service offering) and the market segment at which the offering is targeted

- *Technological architecture*: a description of the technical functionality required to realise the service offering
- *Organizational arrangements*: a description of the structure of the multi-actor value network required to create and distribute the service offering, and to describe the focal firm's position within this value network
- *Financial arrangements*: a description of the way a value network intends to generate revenues from a particular service offering and of the way risks, investments and revenues are divided across the different actors in a value network.

Furthermore the governance of the process of developing a business case has to be taken care for. The challenging aspect of analyzing and designing business models is that it requires managers to connect and balance different business model components (technological architecture, service offering, organizational arrangements, and financial arrangements) in the face of technical, market, and legal developments (see Figure 1), the ultimate aim being to create sufficient economic and customer value.

As the focus of this paper is on the connection between the customer value of services and the value network offering them, these components are elaborated in more detail below.

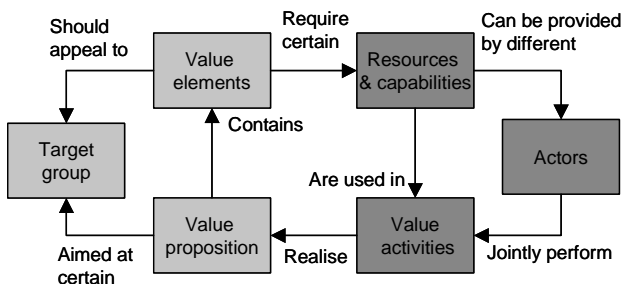
Figure 1: high level descriptive framework



An important element of a *service offering* is customer value. Value is seen as part of an equation in which customers in target markets compare the perceived benefits and total costs (or sacrifice) of (obtaining) a product or service [9, 27]. The value proposition must be

considered better at delivering the desired satisfaction more effectively and efficiently than competitors. Customer experience is the key factor here [5]. In many cases customer value as perceived by the end-user has little to do with the customer value that is envisaged in initial business models and greatly depends on the user's context as a person, professional or consumer [9]. In general, we will draw the distinction between new-to-the-world products or services and new versions of existing products or services (see also the concept of versioning: [29]). Newness is quite a troublesome concept. It concerns products that are new to the world [4], or disruptive innovations [11].

In general, *organizational arrangements* revolve around the resources and capabilities that have to be made available. In their analysis of business models Hedman and Kalling [16] conclude that in the final analysis economic value is determined by a firm's ability to trade and absorb ICT-resources, to align (and embed) them with other resources, to diffuse them in activities and manage the activities in such a way as to create a proposition at uniquely low costs or with unique qualities in relation to the industry in which the company is operating. Increasingly, organizations have to work together to deliver customer value in so-called 'value networks'. Depending upon which actor(s) contribute key assets in the creation of value and the operating risks involved, different configurations of actors are likely to result, with some taking on structural, integrative roles in the alliance and others taking supporting, facilitating roles [8,14,18,28,30,31,33].



**Figure 2: Connection between customer value and value network**

The customer value of service offerings and the value network needed to realize customer value are closely related, as depicted in Figure 2. An important research question is how the design of a value network influences the customer value of a service offering and vice versa. This relationship will be explored by analyzing the business models of three mobile payment services. Before doing so we will first elaborate on mobile payment services.

### 3 Mobile payment

Mobile payment services are payment services using a mobile device, such as a PDA or a mobile phone, to initiate and confirm electronic payments. Mobile devices can be used to pay for goods and services on the Internet, ticketing machines, and at payment terminals in stores. Mobile devices are generally expected (see e.g. Krueger, 2001) to play an important role in commercial transactions. This expectation is based on the high penetration of mobile phones in many countries, the opportunities provided by 2.5 (GPRS) and 3<sup>rd</sup> generation telecommunication networks (e.g. UMTS) and applications (such as WAP and I-mode), and the positive market forecasts for m-commerce. A recent international survey conducted among 5600 mobile phone users by AT Kearny [23] indicates that 46% of the respondents would use mobile payment if it becomes widely available.

Given these high expectations it is not surprising that there have been many mobile payment initiatives in the past few years. However, the introduction of mobile payment proceeds at a slow pace, not in the last place because of the difficulty of developing feasible and viable business models. Any provider of mobile payment services has to come up with a proposition that is interesting to both consumers and merchants. This dual focus and the subsequent 'critical-mass problem' complicate the introduction [22,25]. Moreover, businesses need to account for the business logic not only of the financial services sector, but of the business logic of the retail and telecommunication sector as well. This creates a multi-party, cross-sector problem whose solution is fundamental for the successful development of mobile payment services.

An important issue in designing business models for mobile payment services is how to create enough customer value and who to involve in the value network. With respect to customer value, trust, ease of use, cost and reach are generally accepted as important elements in the value proposition of a mobile payment service. With respect to value network design an important question is the indispensability of financial institutions in offering a mobile payment service.

### 4 Research method

The research reported in this paper has been conducted within the BITA and B4U project<sup>1</sup>, in which not only mobile payments cases, but also cases dealing with mobile information and entertainment services, location based services, community's, tracking and tracing, and personalised instant messaging. The findings that are discussed in this paper are based on an exploration of three mobile payment services initiatives. Before the

<sup>1</sup>For more background information on the BITA project see: <http://www.telin.nl/NetworkedBusiness/BITA> and for the B4U project see: <http://www.freeband.nl/projecten/b4u/>

actual cases were being researched, industry reports, academic literature and company web sites have been consulted. This exploration allowed us to produce an overview of mobile payment initiatives and to narrow down the scope of the case studies. For every case representatives from mobile payment providers, retailers, and financial institutions were consulted. We conducted semi-structured interviews and talked informally with dozens of company representatives. Given the exploratory nature of the subject the interviews were semi-structured [2]. The interviews were recorded and transcribed. The data from the interviews were supplemented with information from company websites, industry reports and academic literature. We made case descriptions, which we used for cross-case analyses. To ensure internal validity, all involved researchers used the same interview and case description templates. In addition, the researchers conducted the interviews in different combinations and reviewed and discussed each other's case descriptions. The informants reviewed the case descriptions. Cases were stored in a database that was accessible for all involved researchers, for analysis.

## 5 Cases

In the remainder of this paper we will take a closer look at the business models of Mobipay, Moxmo and Mobile2pay in terms of service design and value network. The cases have been selected because they represent different market introduction strategies.

**Table 1: cases**

Case	Characterization
Mobipay	Bank-oriented: customer base of financial institutions is used to introduce mobile payment
Moxmo	Independent: customer base is built independent of financial institutions, existing payment infrastructure is bypassed
Mobile2Pay	Independent: customer base is build independently from financial institutions. Financial institution has role as trusted third party

Since both consumers and merchants play an important role in the distribution and acceptance of mobile payment products, the value proposition has been analyzed from the perspective of both actors.

### 5.1 Mobipay

Mobipay is a mobile payment initiative started in December, 2000, initiated by the leading Spanish financial institutions Banco Bilbao Vizcaya Argentaria (BBVA) and Santander Central Hispano (SCH), as well as all Spanish mobile telephone operators: Telefónica Móviles, Vodafone and Amena. The initiative's objective is to develop and promote an international mobile

payment solution, based on a co-operative model between mobile operators and financial institutions. Mobipay International is the holding company that owns the local initiatives in different countries.

#### 5.1.1 Value proposition

Mobipay's value proposition provides mobile and single access to the existing payment infrastructure. Mobipay provides a transaction platform capable of supporting all kinds of payment methods. With Mobipay the consumer can pay through existing and trusted electronic payment methods using their private mobile phone as an authentication terminal. Mobipay focuses primarily on the financial institutions and telecom operators. Although Mobipay provides banks and telecom operators with reasons as to why mobile payment is of added value to end-users it does not directly offer a value proposition to these end-users. In Spain the main selling argument towards financial institutions is increased intermediated payments.

#### 5.1.2 Value network

Mobipay provides a mobile transaction platform to financial institutions that can be used with existing payment methods. The mobile operators are more or less part of the distributed platform by integrating their mobile access services in this platform. The mobile network operator provides mobile communication services to Mobipay, which are used to access the payers' verification terminal. Mobipay offers financial institutions single and mobile access to the existing payment infrastructure. For Mobipay the support of financial institutions is important because of their relationship with customers and retailers, the users and acceptors of mobile payment solutions. Mobipay receives a fee per transaction for its services. The financial institutions handle the payment of the transactions. Mobipay is responsible for the authorization, authentication, electronic assembly and delivery of payment transactions. Financial institutions are also responsible for the distribution of mobile payment. The retailer's role is to provide payment methods to the consumer and in return is paid for the products and services in an appropriate way. The payment services are provided by the financial institutions (or third party payment providers) and will be paid for by the retailer.

Table 2 and 3 summarize the value configuration of Mobipay in terms of target group, value elements, resources & capabilities, and actors.

**Table 2: Value configuration consumer side**

Value element	Customer value offered	Resources and capabilities	Actors
Trust	Secure payment	Secure authentication & authorization	Mobipay
	Control over transactions	Transaction management	Financial institutions
	Trusted Third Party	Institutional rules of conduct	Financial institutions
Ease of use	Mobile phone as access device	System integration	Mobipay
Cost	Not different from normal transactions	Cost efficient payment infrastructure	Different financial institutions
Reach	Increasing number of retailers in different countries	Customer base	Financial institutions and mobile operators

**Table 3: Value configuration merchant side**

Value element	Customer value offered	Resources and capabilities	Actors
Trust	Secure payment	Secure authentication & authorization	Mobipay
	Trusted Third Party	Institutional rules of conduct	Financial institutions
Ease of use	No changes needed in POS	System integration	Mobipay
Cost	Cheap electronic point of sale	Secure authentication & authorization	Mobile operators and financial institutions
Reach	Increasing number of retailers in different countries	Customer base	Financial institutions and mobile operators

## 5.2 Moxmo

Moxmo is a recent Dutch payment initiative that provides mobile payment solutions to merchants, primarily on the Internet and non-POS situations. Moxmo was introduced by Global Payways and operates independently from banks and (mobile) telecom operators, which distinguishes it from most other mobile payment solutions.

### 5.2.1 Customer value

Moxmo is a mobile wallet service that allows consumers to make secure and direct payments to anyone who has a mobile or accepts Moxmo as a method of payment. Since mobile payment itself is not a product, Moxmo is collaborating closely with service providers to develop new innovative service concepts that may incorporate mobile payment. This is seen as an important prerequisite for the further growth of mobile payment, and thus of Moxmo in particular. The value proposition of Moxmo towards consumers is that it offers convenient (any time any place) and secure electronic payment.

Moxmo currently focuses on the micro-payment product-market segment. It focuses in particular on person-to-person payments, Internet payments, topping-up of prepaid accounts and ticketing. At a later stage Moxmo aims to extend these services to include parking, international transfers, debit card payments, customer cards, and ultimately payments in stores.

### 5.2.2 Value network

Moxmo is a start-up company owned by Global Payways. Global Payways plays three roles in Moxmo, which are divided into distinct business units. First, it is involved in developing service propositions in co-operation with third parties. These propositions should result in high-end value services and products using Moxmo. Second, it processes the transactions generated by Moxmo. Third, it wants to control the deposits stored on the electronic wallets of its customers. To do this Moxmo needs to acquire a license for Electronic Money Institution (EMI). As far as we know Moxmo is still in the process of obtaining such a license. In the meantime customer deposits are controlled by ABN-Amro. Retailers may play a role as acceptor and distributor of Moxmo. In their capacity as distributors retailers are actively promoting the Moxmo payment method to their consumers. Moxmo offers revenue sharing for each payment that is performed by consumers acquired by the retailer. Thus Moxmo hopes to win over consumers and merchants, and thus build its brand. Recently, it also took over the customer base of Paybox in Germany, which cancelled all its activities. The operational management of transaction platform and mobile wallet administrator is outsourced to an Application Service Provider. Finally, mobile operators facilitate the mobile access between the users' mobile phone and the Moxmo transaction platform.

Table 4 and 5 summarize the value configuration of Moxmo in terms of target group, value elements, resources & capabilities, and actors.

**Table 4: Value configuration consumer side**

Value element	Customer value offered	Resources and capabilities	Actors
Trust	Secure payment	Secure authentication & authorization	Moxmo
	Control over transactions	Transaction management	ABN-Amro
Ease of use	Mobile phone as prepaid wallet	License for EMI	Moxmo
Cost	Low cost through bypassing of existing payment infrastructure	Cost efficient independent payment infrastructure	Moxmo
Reach	Increasing number of retailers in the Netherlands and Germany	Access to customer base	Moxmo and retailers

**Table 5: Value configuration merchant side**

Value element	Customer value offered	Resources and capabilities	Actors
Trust	Secure payment	Secure authentication & authorization	Moxmo
	Guaranteed payment	Risk management	Moxmo
Ease of use	No clear value offering	No clear value offering	No clear value offering
Cost	Low cost through bypassing of existing payment infrastructure	Cost-efficient independent payment infrastructure	Moxmo
Reach	Revenue sharing is offered for those that become a distributor	Distribution channel	Retailers themselves

### 5.3 Mobile2pay

Mobile2Pay is a mobile payment initiative initiated in October 2002 by Smart Concepts. Its main objective is to create an interactive mobile sales channel that enables the payment and delivery of goods, in particular impulse purchases.

#### 5.3.1 Customer value

Mobile2pay formulates its value proposition as ‘seeing is having’. Consumers can respond directly to advertisements published in magazines or broadcast on radio, using their mobile phone as a transaction device. The main advantages of Mobile2pay for consumers are speed of use (impulse buying and fast processing), ease of use (small smart device) and benefits (discounts).

Mobile2pay focuses on retailers, and its main objective is to set up a mobile sales channel rather than to provide a mobile payment system. With this idea Mobile2Pay defines a strategy for mobile commerce in general and uses mobile payment as an enabling functionality. Mobile2pay focuses on medium-sized and macro payments.

#### 5.3.2 Value network

The retailers’ role is to provide payment methods to the consumer to get paid for their products and services. By offering an interactive transaction channel to its consumers retailers are able to improve their service to consumers. Fortis bank acts as trusted third party in the payment transaction between the consumer and the retailer. The bank receives an authorized and complete payment transaction from Mobile2Pay, and returns a bank guarantee. This guarantee is based on the consumer’s creditworthiness. After receiving the guarantee the retailer will ship the goods. If the retailer receives confirmation from the consumer, the bank will transfer the money to the retailers account. By deploying a dynamic spending limit, Mobile2pay filters out defaulters. Customers are rewarded for keeping their promises (faithful payment) by an increased spending limit. Mobile2Pay handles the consumer authentication and the authorization of the payment process. Finally, mobile operators facilitate the mobile access between the users’ mobile phone and the transaction platform of Mobile2Pay.

Table 6 and 7 summarize the value configuration of Moxmo in terms of target group, value elements, resources & capabilities, and actors.

**Table 6: Value configuration consumer side**

Value element	Customer value offered	Resources and capabilities	Actors
Trust	Secure payment	Secure authentication & authorization	Mobile2pay
	Control over transactions	Transaction management	Mobile2pay
	Guaranteed delivery	Trusted Third Party	Financial institution (Fortis)
Ease of use	Mobile device as debit card	Automatic collection	Mobile2pay
Cost	Price reductions when ordered with mobile phone	Access to customer base	Retailers
Reach	Increasing number of retailers in the Netherlands	Access to customer base	Retailers

**Table 7: Value configuration merchant side**

Value element	customer value offered	Resources and capabilities	Actors
Trust	Secure payment	Secure authentication & authorization	Mobile2pay
	Guaranteed payment	Trusted Third Party	Financial institution (Fortis)
	Guaranteed payment	Dynamic spending limit for users	Mobile2pay
Ease of use	No clear value offering	No clear value offering	No clear value offering
Cost	Increased sales through impulse buying	Anytime and anywhere payment	Mobile2pay
Reach	No clear value offering	No clear value offering	No clear value offering

## 6 Discussion and conclusion

The mobile payment providers we examined in this study follow different strategies to obtain critical mass. Whereas Mobipay invests most of its effort in bringing together financial institutions and telecom operators, Moxmo and Mobile2pay directly try to convince merchants and customers of the added value of mobile payment. However customer groups have different needs and wishes.

*Trust* All mobile payment providers are aware that trust is of crucial importance. However, they make use of different mechanisms. In the case of Mobipay, consumers deal with their trusted home banks. Due to this Mobipay can profit from the generally trusted laws and codes of conduct of banks and the relationship that already exists between the banks and their consumers. Moxmo, on the other hand, has to prove its trustworthiness to consumers by recurrent positive experiences. To merchants it promises guaranteed payment. However, it is not clear if it can live up to its promises. Finally, Mobile2Pay uses an escrow service to eliminate the risks for consumers and merchants. By doing so it can guarantee product delivery to consumers and guarantee payment to merchants. Moreover, by deploying a dynamic spending limit Mobile2pay filters out defaulters.

*Ease of use* The entry barriers for consumers vary among the studied payment initiatives. With Mobipay consumers do not need to register at all, provided that they have opened a bank account. With Moxmo users need to register and open a new bank account and with Mobile2Pay they need to register and authorise an automatic direct debit. One thing that remains to be seen is how users will value these entry barriers. For merchants the integration with existing payment products is an important issue. They are not all that eager to implement a new payment product in addition to already existing payment products such as debit and credit card payments. Mobipay is the only initiative that presents a convincing case with respect to this value element.

*Cost* Mobipay focuses primarily on financial institutions (banks and payment brands) and to a lesser extent on telecom operators. It leaves the promotion of mobile payment to the financial institutions and telecom operators. Moxmo sees mobile payment not as a product in itself and is collaborating closely with service providers to develop new innovative service concepts in which mobile payment can play a role. Moxmo offers revenue sharing and new service concepts to merchants. Consumers are offered convenient and secure payment. These elements of the value proposition can hardly be regarded as order winners but rather are 'dissatisfiers' (their absence provides a negative experience). Mobile2pay tries to provoke consumers into purchasing goods by offering price reductions on products that are paid for with its payment service. The impulse character of purchases is stressed ('seeing is having') and promoted as a valuable experience for consumers. Mobile2pay offers merchants an interactive transaction channel next to the Internet and attended points of sale.

*Reach* Mobile payment providers use different strategies to acquire merchants and consumers. Mobipay relies on financial institutions to convince merchants and consumers of the value of mobile payment. Moxmo and Mobile2pay cannot rely on the customer base of financial institutions and have to acquire customers themselves.

Merchants regard mobile payment as yet another payment product that they need to support. They seem to be willing to adopt mobile payment if it resolves some of the problems they have with existing payment products. Guaranteed payment is especially valued highly. This can be realized in different ways, as illustrated by the Moxmo and Mobile2Pay cases.

Consumers do not consider payment a service but instead they see it as "a necessary evil". Low transaction fees, ease of use, guaranteed delivery are therefore 'dissatisfiers' rather than order winners. For mobile payment providers this means that it is important not to promote payment as a product in itself but as an enabler of new value adding services. The two independent initiatives provide nice examples of this.

Although both Moxmo and Mobile2pay were typified as independent initiatives, the findings show that financial institutions *do* play important roles in both initiatives. Until it is given an EMI-license Moxmo has to rely on the ABN-Amro for the management of wallet deposits. By making use of escrow services Mobile2Pay is able to guarantee payment to merchants as well as delivery to consumers. By including financial institutions in the value network mobile payment providers are able to reduce the risks for both merchants (guaranteed payment) and consumers (guaranteed delivery). This comes, however, at the expense of increased transaction costs.

An important decision is whether or not to include financial institutions in the value network. Required guarantees and transaction costs are important influence

factors. For micro payments, which require less guarantees and low transaction costs, it does not seem to be useful to consider including financial institutions. Financial institutions do seem to be required for medium and macro payments. However it can be debated if mobile payments limited to only micro-payments will be attractive enough for consumers. The cases reveal that certain value elements can be realized in different ways and that depending on the target group it is possible to bypass dominant actors in the value network. Still the financial institutions have a strong position and bypassing financial institutions is problematic.

Based on the three cases we can draw some conclusions on customer value. First of all it is important to realise that the customer value of the services offered although technically innovative, are not experienced as very innovative to the customer. The mobile services in itself are yet another way, next to money, credit and debit cards, to take care for payments. So the positioning of a mobile payment channel next to already existing payments channels is problematic. Although new to the world from a technical point of new customers don't see the customer value very clearly. Furthermore merchants, who have control over the customer relation between the mobile payment services and the end user: the customer will only accept the mobile payment channel as it solves some of their problems. So in the service offering the issue of value have to be addressed very carefully for both customers and merchants. A possible alternative is to make mobile payments an integral part of other innovative mobile services. The mobile payment service can be presented as an additional feature of the new service.

With regard to the value network we see that bypassing financial institutions is rather problematic. Seen their powerful position within the value network it is almost impossible to by-pass banks, especially if the service will not be limited to micro-payments.

As far as our conceptualization of the design of businesses models is concerned, it is clear that we not only have to look into the value of a service from the perspective of the customer but also from the perspective of the service provider. The mobile cases show that the mobile payment provider has to position it services in a relation between financial institutions and their customers, were there are many alternatives and the dominant role of players in the existing value networks leave ample space for new entrants.

We realise that our conclusions are based on only a limited set of cases. Yet some of the identified patterns are similar to those identified in other case studies conducted in the B4U and BITA project. We hope that this article inspires other researchers to study the complex interplay between the four business model domains and their impact on customer and economic value.

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