

The logo consists of several blue squares of varying sizes and orientations, arranged in a cluster on the left side of the page.

Smart Card Alliance

Proximity Mobile Payments Business Scenarios: Research Report on Stakeholder Perspectives

A Smart Card Alliance Contactless Payments Council White Paper

Publication Date: July 2008

Publication Number: CPC-08001

Smart Card Alliance
191 Clarksville Rd.
Princeton Junction, NJ 08550
www.smartcardalliance.org

About the Smart Card Alliance

The Smart Card Alliance is a not-for-profit, multi-industry association working to stimulate the understanding, adoption, use and widespread application of smart card technology. Through specific projects such as education programs, market research, advocacy, industry relations and open forums, the Alliance keeps its members connected to industry leaders and innovative thought. The Alliance is the single industry voice for smart cards, leading industry discussion on the impact and value of smart cards in the U.S. and Latin America. For more information please visit <http://www.smartcardalliance.org>.

Copyright © 2008 Smart Card Alliance, Inc. All rights reserved. Reproduction or distribution of this publication in any form is forbidden without prior permission from the Smart Card Alliance. The Smart Card Alliance has used best efforts to ensure, but cannot guarantee, that the information described in this report is accurate as of the publication date. The Smart Card Alliance disclaims all warranties as to the accuracy, completeness or adequacy of information in this report.



Table of Contents

1	Introduction	5
	Alternative Business Models Considered	6
	Survey Participants	7
	Survey Findings.....	8
2	Operator-Centric Model	10
	Operator-Centric Model Description.....	10
	Consensus View on the Future of Operator-Centric Model	10
	Reference Cases.....	11
	Pros and Cons for Stakeholders	11
3	Bank-Centric Model	14
	Bank-Centric Model Description.....	14
	Consensus View on the Future of the Bank-Centric Model	15
	Reference Cases.....	16
	Pros and Cons for Stakeholders	16
4	Peer-to-Peer Model	19
	Peer-to-Peer Model Description.....	19
	Consensus View on the Future of the Peer-to-Peer Model	20
	Reference Cases.....	21
	Pros and Cons for Stakeholders	21
5	Collaboration Model	24
	Collaboration Model Description	24
	Consensus View on the Future of Collaboration Model.....	25
	Reference Cases.....	25
	Pros and Cons for Stakeholders	26
6	Conclusion: Industry Awaiting Bold Mover	28
7	Publication Acknowledgements	31
8	Appendix: Survey Invitation	32
9	Appendix: Glossary	33



List of Figures

Figure 1: Mobile Payments Ecosystem Stakeholders.....	5
Figure 2: Operator-Centric Model: Stakeholder Scenario	10
Figure 3: Operator-Centric Model: Value Chain.....	11
Figure 4: Risks and Benefits for Operator-Centric Model Stakeholders.....	13
Figure 5: Bank-Centric Model: Stakeholder Scenario	14
Figure 6: Bank-Centric Model: Value Chain	15
Figure 7: Risks and Benefits for Bank-Centric Model Stakeholders	16
Figure 8: Peer-to-Peer Model: Stakeholder Scenario	19
Figure 9: Peer-to-Peer Model: Value Chain.....	20
Figure 10: Risks and Benefits for Peer-to-Peer (P2P) Model Stakeholders	22
Figure 11: Collaboration Model: Stakeholder Scenario	24
Figure 12: Collaboration Model: Value Chain.....	25
Figure 13: Risks and Benefits for Collaboration Model Stakeholders.....	27
Figure 14: Responses by business model to the question, “Which stakeholder should receive the majority of the payment revenue?”	29

List of Tables

Table 1: Twenty-One Survey Participants Interviewed From 5 Stakeholder “Camps”	7
Table 2: Pros and Cons for each Operator-Centric Model Stakeholder.....	12
Table 3: Pros and Cons for each Bank-Centric Model Stakeholder.....	17
Table 4: Pros and Cons for each Peer-to-Peer Model Stakeholder.....	22
Table 5: Pros and Cons for each Collaboration Model Stakeholder	26



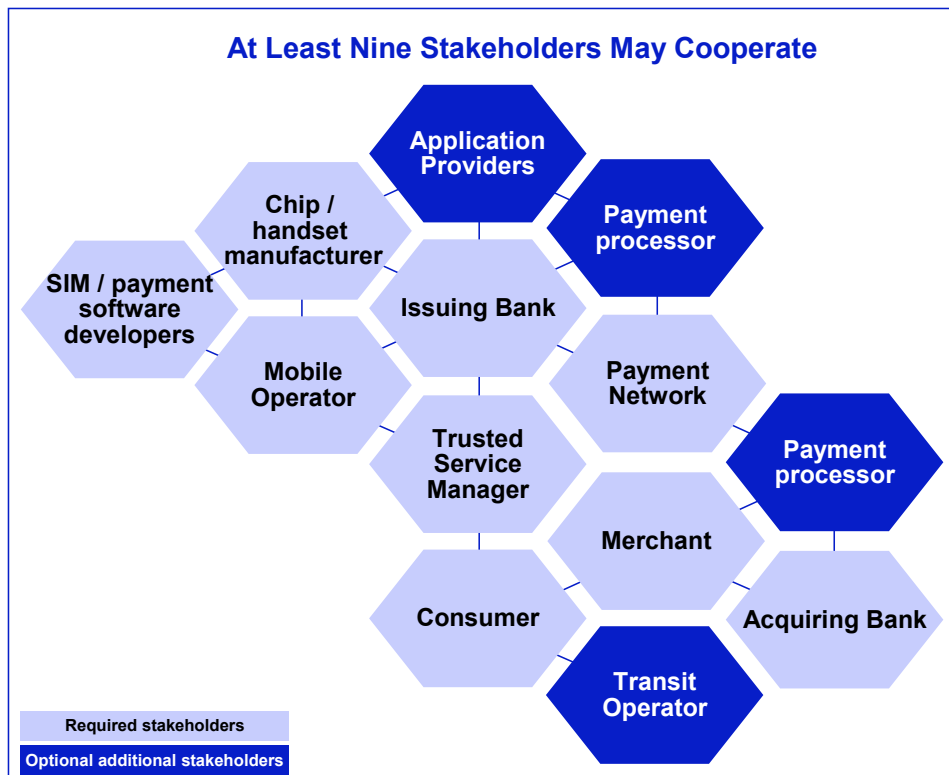
1 Introduction

The smart card industry and media alike continue to focus on mobile payments, regularly reporting on interest being shown in the new payment method.

In 2007, the Smart Card Alliance Contactless Payment Council published its white paper on proximity mobile payments¹ in which the opening statement was, "The convergence of payments and mobile communications is not just logical—it is inevitable."² The purpose of this new research report is to look further at the journey towards the "inevitable" by examining the progress that is being made to define a sustainable business model. While the logic behind mobile proximity payments is generally accepted, precisely when they will become widely available and how the industry will get there are still being debated. The convergence of mobile and payment is extremely complex, requiring the cooperation of many players and stakeholders, as shown in the figure below.

"Whenever form factors are tested with consumers, mobile scores extremely highly – people have an almost scary attachment to their cell phones. If that's true, then banks risk losing customers if they don't offer it."
Financial Institution

Figure 1: Mobile Payments Ecosystem Stakeholders



¹ *Proximity Mobile Payments: Leveraging NFC and the Contactless Financial Payments Infrastructure*, Smart Card Alliance white paper, September 2007 (<http://www.smartcardalliance.org/pages/publications-proximity-mobile-payments>)

² John Philip Coghlan, then CEO of Visa USA, made this announcement at the CTIA Wireless Conference in March 2007.



As a result, the mobile payments³ landscape continues to evolve with various business models emerging worldwide. The Contactless Payment Council has considered four different business models for mobile payments deployment and surveyed key industry stakeholders on critical questions pertaining to the success of each model. The purpose of the survey was to develop a point of view on the emerging business models for the North American market. Expert opinion and even speculation were sought on the following topics:

- Likely business models
- Global examples where these business models have been implemented
- Relative business model advantages
- Relationships among ecosystem stakeholders for each model
- Benefits and business case drivers for each stakeholder
- Emerging “killer app” capabilities

Alternative Business Models Considered

The survey was conducted by members of the Smart Card Alliance Contactless Payment Council Mobile Payments Work Group, by either in-person or telephone interviews during December 2007 and January 2008.

The four potential mobile payments business model scenarios discussed with interviewees were as follows:

1. **Operator-Centric Model:**

The mobile operator acts independently to deploy mobile payment applications to NFC-enabled mobile devices. The applications may support a prepaid stored value model or the charges may be integrated into the customer’s wireless bill.

2. **Bank-Centric Model:**

A bank deploys mobile payment applications or devices to customers and ensures merchants have the required point-of-sale (POS) acceptance capability. Payments are processed over the existing financial networks with credits and debits to the appropriate accounts.

3. **Peer-to-Peer Model:**

An independent peer-to-peer service provider provides secure mobile payments between customers or between customers and merchants.

4. **Collaboration Model:**

This model involves collaboration among banks, mobile operators and other stakeholders in the mobile payments value chain, including a potential trusted third party that manages the deployment of mobile applications. Payments in this model are processed over the existing financial networks with credits and debits to the appropriate accounts.

Additional detail on each model is described in the Sections 2-4, including the roles of all of the stakeholders.

For each business model, the industry experts that were interviewed were asked to comment on the following topics:

- What are the pros and cons of each model?

³ Mobile payments are defined as payments enabled through mobile devices. While the analysis in this research report focused primarily on proximity mobile payments using Near Field Communication (NFC) technology, peer-to-peer models, possibly circumventing the traditional payment networks, were also considered because of their popularity in some business scenarios and geographies.



- What are the incremental benefits and business case drivers for each stakeholder?
- What is the reasonable split of the potential revenues to stakeholders?
- Are there other potential sources of revenue?
- Which stakeholder owns financial liability, risk, security and privacy?
- Are they aware of real-world commercial-scale implementations?

Interviewees were also asked to comment on the following topics:

- Which model holds the greatest potential for success?
- Are there other potential models or stakeholders that should be considered?
- What emerging capabilities will be “killer apps?”
- Which will reign supreme -- remote mobile payments or proximity mobile payments?

Survey Participants

Stakeholder views were sought from financial institutions, mobile operators, merchants, potential trusted service managers, service providers and non-traditional players. Conclusions were drawn on points of agreement, points of disagreement and surprising findings, including any notable quotes.

The objective was to find 20 willing participants from key organizations in the mobile payments arena. The Work Group successfully conducted 21 interviews from the five stakeholder ‘camps.’ The composition of the survey participants⁴ was as follows:

Stakeholder Camp	Participants
Financial Institutions (6)	<ul style="list-style-type: none"> ▪ Chase ▪ U.S./Canadian issuers (2) ▪ Payment brands (2) ▪ Mobey Forum
Mobile Operators and Technology Providers (3)	<ul style="list-style-type: none"> ▪ Leading U.S. mobile operator ▪ NTT DoCoMo ▪ Motorola
Merchants (2)	<ul style="list-style-type: none"> ▪ U.S. retailers (2)
Service Providers (7)	<ul style="list-style-type: none"> ▪ CPNI ▪ First Data ▪ Gemalto ▪ Giesecke and Devrient ▪ Mobile Candy Dish ▪ Venyon ▪ ViVOtech
Non-Traditional Providers (3)	<ul style="list-style-type: none"> ▪ EnStream (formerly WPS) ▪ OboPay ▪ PayPal

Table 1: Twenty-One Survey Participants Interviewed From Five Stakeholder “Camps”

⁴ Note: Only organizations willing to be named are disclosed. For commercial reasons, some participants requested that their comments and organization be anonymous at this time.



Survey Findings

The various stakeholder camps are in different postures concerning their involvement in deploying mobile payments.

- Banks appear to be taking a “wait and see” attitude because they have the ability to take a step towards mobile payments by issuing contactless credit and debit cards. The deployment of contactless payments has the additional benefit of driving merchant acceptance in key retail segments such as quick service restaurants, convenience stores and movie theaters.
- Operators are demanding their fair share of revenue and will refuse to be sidelined. Many support the Collaboration Model, recognizing the inadequacies of the Operator-Centric Model.
- Non-traditional service providers are focusing on the person-to-person market.
- Merchants feel “in the dark,” yet merchants play a large and critical role in the evolution of the NFC mobile payments ecosystem. Merchants would be required to upgrade their systems to accept a new payment type. If merchants do not accept this method of payment, deployment of both technology and services will stall. In order to accept payments, merchants must incur the expense of adding POS equipment capable of communicating with NFC-enabled mobile devices. A well-defined business case must be developed to demonstrate the return on investment to merchants.
- Potential trusted service managers are angling for new services revenue.

Consumers will not view mobile payments as convenient until they can use their NFC-enabled mobile device at merchant locations where they frequently shop. Until a consumer can use an NFC-enabled device almost anywhere at any time, another form of payment must still be carried.

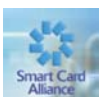
The revenue-sharing arrangements associated with any of the potential business models represent both a point of great potential competitive friction and ultimately the key to a break-through for rapid deployment of NFC-based mobile payments. When addressing the question of the appropriate revenue split for each of the models, interviewees recognized that a majority share of the revenue should go to the entity that assumes the greatest share of risk. Respondents further perceived the stakeholder central to the model was the entity that held the greatest risk. Accordingly, an operator in an Operator-Centric Model and a bank in a Bank-Centric Model hold the greatest risk and therefore deserve the greatest share of the revenue.

For the Collaboration Model, it was widely viewed that the current transaction fee structure that forms the business foundation of the credit card payments industry would remain the same. This view reflected a general acknowledgement that each entity should be financially rewarded for the value that they bring to the table. While the banking industry can contribute the transaction capture, processing and credit risk management infrastructure, the operators and trusted service managers offer handsets, application management, and application loading services. Accordingly, respondents generally felt that an appropriate business model would compensate operators and trusted service managers for their services, but sit on top of the current payment network business model and not compete for the same transaction revenues. In addition, there was a general belief that NFC-based mobile payments would lead to greater service volumes for the operators, which would translate into greater revenue.

The majority of interviewees believed that the Collaboration Model makes the most sense for the industry. The Operator-Centric Model is not expected to gain traction, despite DoCoMo’s success, due to structural and regulatory differences between Japan and North America. The Bank-Centric Model is not expected to materialize due to marginal bank business cases and unwillingness of mobile operators to cooperate. Although PayPal and other peer-to-peer payment providers are



gaining traction, interviewees felt that the long-term viability of the Peer-to-Peer Model is challenged by unsustainable revenue and inconvenience for POS transactions.



2 Operator-Centric Model

Not expected to gain traction, despite DoCoMo's success

Operator-Centric Model Description

In this model, the mobile operator acts independently to deploy mobile payment applications to NFC-enabled mobile devices.

The mobile operator loads the mobile payment application on its customers' NFC mobile devices. The customer may prepay, or the operator may add charges to the customer's existing wireless bill.

- **Scenario 1:** Operator provides the merchant with a wireless POS system.
- **Scenario 2:** Operator enables the proximity payment application on the merchant's NFC mobile device.

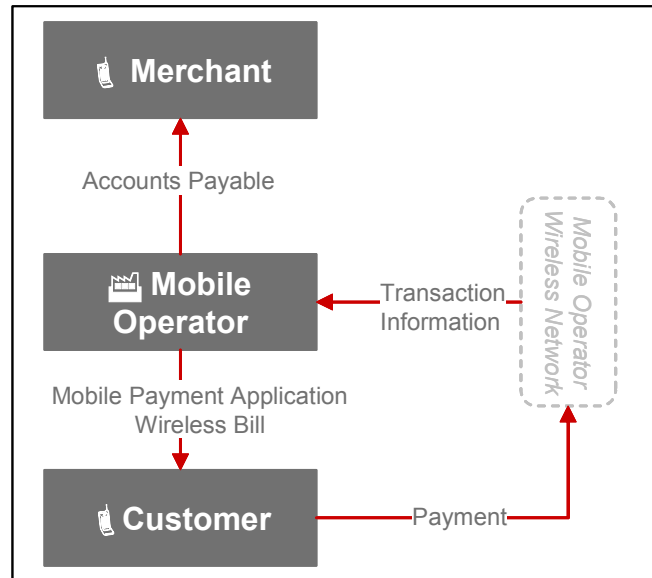


Figure 2: Operator-Centric Model: Stakeholder Scenario⁵

Consensus View on the Future of Operator-Centric Model

The consensus of participants interviewed was that the Operator-Centric Model does not adequately address all business concerns from all associated stakeholders. While it appears that sufficient profits can be recognized and allocated to all parties, stakeholders need to further define their roles and responsibilities.

Almost all respondents noted that the mobile operators⁶ would benefit from additional service fees as well as increased value-add to the consumer who would be able to conduct quick, convenient payment transactions. This benefit could lead to customer loyalty, increased revenue, and potential reduction in customer turnover.

The Operator-Centric Model faces several challenges. Mass adoption from merchants and consumers will be difficult due to:

- Concerns of risk, privacy, and fraud.
- Deployment of additional point-of-sale equipment at merchants.
- Billing and customer service requirements challenge to mobile operators.
- Lack of business relationships between merchants and operators.

⁵ Sources: IBM Analysis; Ovum "Mobile payment value chain and business models"

⁶ Mobile operators are also referred to as mobile carriers and mobile network operators (MNOs).



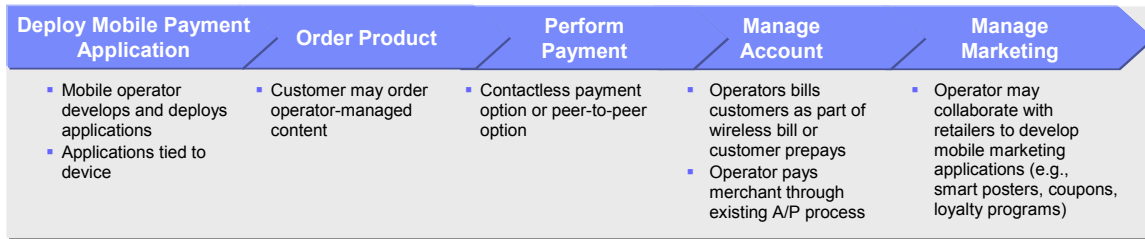


Figure 3: Operator-Centric Model: Value Chain

Reference Cases

Pilots using this model have been launched outside of North America under alternate infrastructures and regulation. Several respondents noted the NTT DoCoMo pilot in Japan and the MobiPay trial in Spain have occurred, but that these pilots operate under different circumstances in a different economic infrastructure as compared to North America.

No known trials have been conducted in North America that use a pure Operator-Centric Model.

Pros and Cons for Stakeholders

The Operator-Centric Model has some benefits if it provides expedient deployment. From a logistical standpoint, this model provides the fastest and easiest approach to get an application to the mobile device since customer initiation of a download is not required. The primary benefit to mobile operators is sole control over the revenue stream. Brand recognition is an additional benefit to the operator. If the merchant acceptance infrastructure becomes widely available, consumers may view the technology as a convenience and purchase products or services that are NFC-enabled.

While not specific to this model, the potential business benefits to all stakeholders are revenue growth, increased customer retention and the delivery of marketing and advertising campaigns.

When utilizing this model, operators would have ultimate control of the infrastructure and the associated revenues. However, they would also incur the corresponding risks and liability.

A large deployment of the Operator-Centric Model is severely challenged by the lack of connection to existing payment networks.

Table 2 summarizes the pros and cons for each Operator-Centric Model stakeholder.

Surveyed respondents are skeptical of the Operator-Centric Model's success due to several risks, including:

- Merchant deployment
 - Additional point-of-sale devices
 - Lack of business relationship between merchant and operator
- Consumer attitude on perceived convenience
- Deviation from core competencies
- Fraud/privacy/risk management concerns
- Billing/customer service issues



Stakeholder	Pros	Cons
Bank	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ Disintermediation from mobile payments value chain
Mobile Operator	<ul style="list-style-type: none"> ▪ Control over majority of the revenue stream ▪ Leverage of existing infrastructure to bill customers and to pay merchants ▪ Customer loyalty ▪ Reduced customer turnover 	<ul style="list-style-type: none"> ▪ Assumption of risk of additional customer credit ▪ Assumption of cost of theft and fraud ▪ Potential for low merchant acceptance of new payment approach and reluctance to adopt new POS mechanism ▪ Management of integration with multiple issuers
Merchant	<ul style="list-style-type: none"> ▪ Reduced cash-handling costs, including theft, shrinkage and cash deposit charges ▪ Increased efficiency, throughput, and convenience ▪ Reduced counterfeit exposure ▪ Potential for increased impulse spending 	<ul style="list-style-type: none"> ▪ Fee for low value payments ▪ Reimbursement dependent on operator's payment cycle (delay in payment) ▪ Exposure to mobile operator with limited payments processing experience ▪ Investment required for new payment mechanism
Customer	<ul style="list-style-type: none"> ▪ Customer convenience 	<ul style="list-style-type: none"> ▪ Billing complexity ▪ Security risk

Table 2: Pros and Cons for each Operator-Centric Model Stakeholder

Mobile operators may also not fully understand the features, functionalities and value-add and therefore may have a difficult time properly marketing NFC-based mobile payments to consumers and merchants.

Mobile operators do not have traditional merchant relationships. Acquiring such relationships would require a shift in the mobile operator's business model, would be extremely costly and time consuming, and was viewed by interviewees as a serious flaw to the Operator-Centric Model.

"In this model, parties are stepping out of their core competencies – this will mean it will take longer to get done with a greater opportunity for failure. The concept of core competency is very important."

Survey Participant

Respondents also viewed the idea of mobile operators being involved in customer service issues and payment resolution concerns (e.g., bad debt, receivables, transaction inaccuracies) as flawed. Many feel that the existing financial stakeholders are better suited to handle these business areas vs. mobile operators.

Additional concerns include privacy, fraud and risk management. Again, mobile operators may not be best suited to handle data that is as sensitive as financial information.

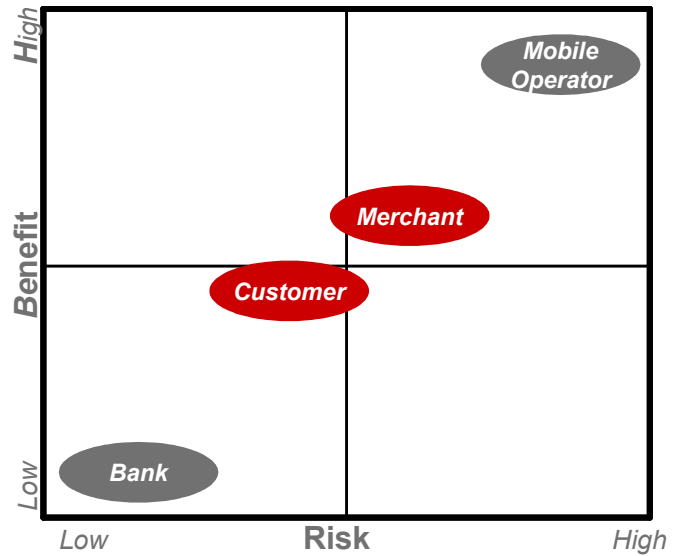
Lastly, most respondents were concerned about mobile operators moving away from their core competencies in order to deploy mobile payments using the Operator-Centric Model.

While no model seems to be a perfect fit for bringing the NFC ecosystem to market quickly, painlessly and inexpensively, the surveyed respondents clearly felt that the Operator-Centric Model is not optimal for widespread deployment.



This model requires a significant change to the mobile operator's business, focusing on roles and responsibilities that are not historically part of its core competencies. Regardless of the model implemented, some level of collaboration is expected to be necessary, allowing businesses to focus on what they do best.

Figure 4: Risks and Benefits for Operator-Centric Model Stakeholders



3 Bank-Centric Model

Not likely to materialize due to marginal bank business case and unwillingness of mobile operators to cooperate; however, others believe that if you look harder, the benefits are there

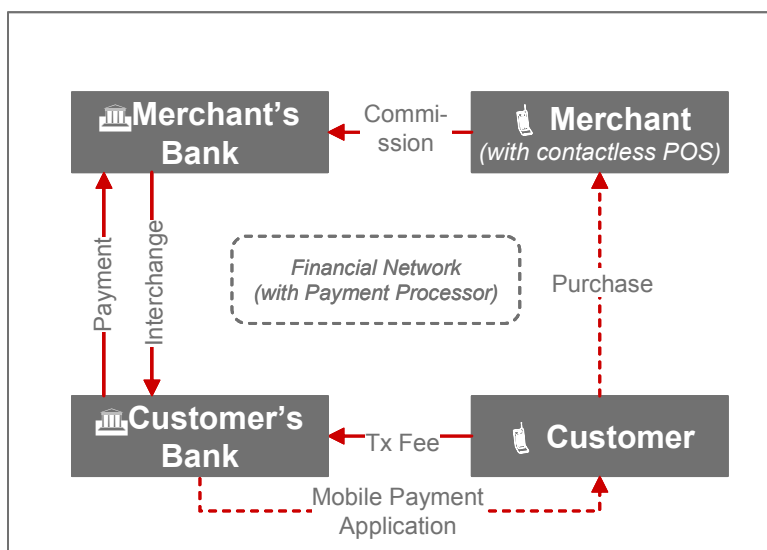
Bank-Centric Model Description

The Bank-Centric Model extends the existing four-corner model used for credit cards into the mobile space. An issuing bank owns the relationship with the customer and is responsible for getting the payment token, in this case an NFC-enabled phone, into their customers' hands in much the same way as bank cards are currently distributed.

“This model places the carrier in a low value position. The carrier won't allow this. If the banks try to circumvent this by becoming a MNO, it's a tough road. Most fail. The capital required is immense.”

Mobile Carrier

The extent to which the bank takes responsibility for this role could vary. At one extreme the bank could actually give (or sell) its clients a fully-featured NFC phone, while at the other extreme the bank could simply provision an existing NFC phone with a suitable payment application.



The merchant relationship is owned by the acquiring bank. In many cases the acquirer provides the merchant with the appropriate acceptance device for the point-of-sale.

Close alignment to the existing operational model for payments has the benefit of role familiarity for the four players in the transaction. Payment fees and mechanisms are already established. There remains room for debate over the actual level of fees, should this payment channel cost more or less than existing channels, but this debate is simpler than devising an entirely new fee structure.

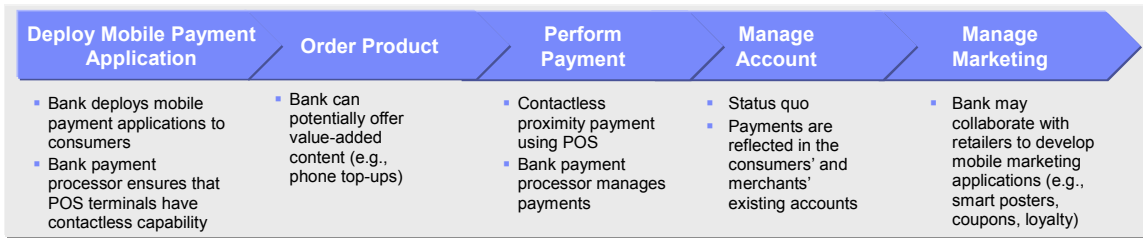
Figure 5: Bank-Centric Model: Stakeholder Scenario⁷

Implementing the Bank-Centric Model is further simplified by the fact that the value chain for each participant is relatively clear and easily understood. An issuing bank gets greater client loyalty and more direct contact with their customers in return for the technology investment. A merchant gets faster transaction times and increased spend. The acquirer gets electronic transactions which would otherwise have been cash purchases. And the customer gets convenience and flexibility.

⁷ Sources: Smart Card Alliance industry research and Interviews; IBM Analysis; Ovum “Mobile payment value chain and business models”



Figure 6: Bank-Centric Model: Value Chain



The revenues an issuing bank could collect from marketing companies represent a new opportunity brought about by the mobile payments infrastructure, and one requiring careful consideration. Too much of the wrong kind of messaging to the consumer will very quickly be recognized as annoying spam and could damage the reputation of the bank as well as harm the adoption of mobile payments. However, with appropriate and relevant messaging, this new channel could help to revolutionize the way consumers shop.

Consensus View on the Future of the Bank-Centric Model

The interviewees felt there was a role in the Bank-Centric Model for the mobile operators to share the benefits. The banks could pay a “rental fee” to have their application resident on the mobile operator’s chip. This fee could be a one-time payment when the application is provisioned, or a smaller monthly fee.

“Major pro for the customer is he trusts the bank but may not trust the MNO and can use his financial payment product.”
Financial Institution

“Consumers will want more choice – they will want a wallet that holds the same cards they have in the actual wallet. So consumers will drive toward more than one financial institution. Would be confusing to have multiple wallets on the same phone.”
Service Provider

Under this business model, only the banks would collect transaction-based fees. This could be either a flat fee or a percentage of the transaction, such as the current interchange fees. It was generally felt that under an NFC payment model, the interchange fees would be most readily accepted if they were the same as the fees are today on credit card transactions.

There was general agreement among survey respondents that a purely Bank-Centric Model is unlikely to be materialize for a number of reasons including:

- Banks may be reluctant to invest in a new form factor given that many are rolling out contactless credit and debit cards.
- Partnerships and revenue sharing with mobile operators would be impossible to avoid.
- Customers would not want to manage multiple wallets on their phones or have different applications for each of their accounts, resulting in hesitation and slow adoption.
- Operators would be unwilling to “unlock” NFC on the phone if they don’t receive a share of the benefits. This is especially true in North America where phones are subsidized by the operators and customers cannot easily switch handsets.
- Banks may be forced to support various operator-specific standards, which happened in a Benelux trial.

“The problem is that banks don’t want to fund the money or take risks for new technology.”
Retailer



The risk / reward profile for the Bank-Centric Model is also telling. The highest risks fall upon the typically risk-averse banking industry. The benefits to the consumer may be limited, perhaps, to extended banking arrangements rather than the full range of possible features.

It was interesting to note that, in general, the issuers themselves were most negative about the long-term viability of the Bank-Centric Model. One issuer felt new applications were “interesting,” but noted that banks would not include this revenue in any business case because it was too speculative and impossible to quantify. Another found it difficult to see incremental benefits especially when they had embraced contactless cards and felt that marketing-related revenues would go to partners.

“There will be no real adoption by the operators if there is no clear revenue stream, which seems unlikely with the bank-centric model.”

Service Provider

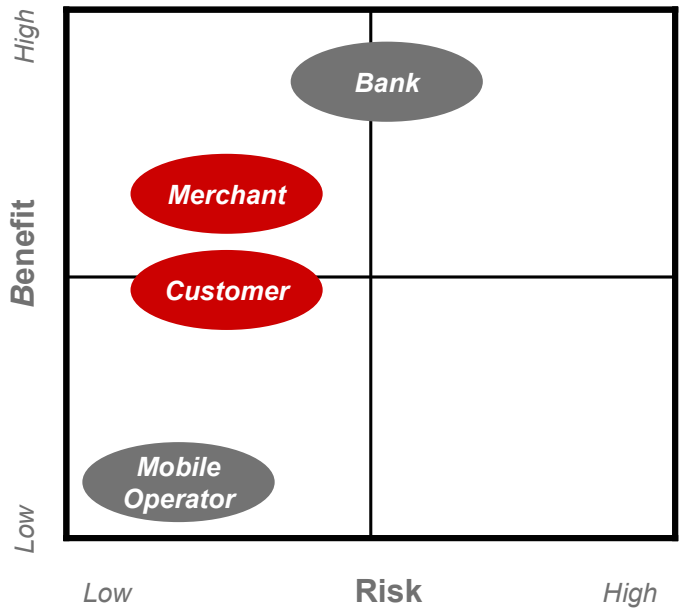


Figure 7: Risks and Benefits for Bank-Centric Model Stakeholders

Reference Cases

Although primarily known as a mobile banking provider, Monitise provides the best example of nearly ubiquitous bank-centric platform. Monitise UK’s platform is available to fully one-third of U.K. bank accounts because customers of HSBC, first direct, NatWest, Alliance and Leicester, RBS and Ulster Bank all have access to a single consistent user interface for banking and payments, regardless of mobile operator. It has 111,000 registrants and uses a ubiquitous ATM instruction set.⁸

Pros and Cons for Stakeholders

The key strength of this model is that it closely mirrors today’s four-corner payments model and consequently is readily understood. However, the consensus of the survey respondents suggests that this model fails to reward key participants for their contributions and so will struggle to dominate long term.

⁸ http://www.monitisegroup.com/our_story



The survey exposed an interesting parallel when considering who is an active participant in the payment transaction. When a payment is made over the Internet, neither the Internet service provider nor the browser manufacturer takes a cut. So, for mobile payment, a reasonable question is why should mobile operators get paid for transporting the transaction or enabling the user to make the transaction? In reality, this issue is one that the industry may struggle with for sometime before a compromise is reached.

Table 3 provides a detailed assessment of the benefits of this model for the key stakeholders.

Stakeholder	Pros	Cons
Bank	<ul style="list-style-type: none"> ▪ Revenue stream capture for micro-payments ▪ Reduced cash/check handling ▪ Potential to include value-added advertising to retailers for a fee ▪ Potential for new customer acquisition (including unbanked) ▪ Enhanced security features ▪ Increased value of customer relationships and retention 	<ul style="list-style-type: none"> ▪ Limited experience in application distribution or phone accessories ▪ Added cost of installation and maintenance of mobile applications for multiple operators, each with unique platforms ▪ Potential for paying “rental” fees to operators. Operators can block usage. ▪ Competing form factor to cards
Mobile Operator	<ul style="list-style-type: none"> ▪ Possible increase in data transaction volumes and revenues ▪ Potential incentive fees for introducing new customers 	<ul style="list-style-type: none"> ▪ Operators bypassed in mobile payments value chain
Merchant	<ul style="list-style-type: none"> ▪ Reduced cash-handling costs, including theft, shrinkage and cash deposit charges ▪ Increased cashier efficiency and throughput and shorter queues ▪ Reduced counterfeit exposure ▪ Increased impulse spending ▪ Faster payment directly into merchant's account 	<ul style="list-style-type: none"> ▪ Commissions/transaction fees for low-value transactions ▪ Merchant resistance to increasing card-based transactions due to interchange
Customer	<ul style="list-style-type: none"> ▪ Speed and convenience ▪ Less disruptive -- provides access to transaction history for low-value purchases ▪ Alternative to costly “white-label” ATM fees. 	<ul style="list-style-type: none"> ▪ Limited to specific bank offering a service – may not be permitted to add other applications

Table 3: Pros and Cons for each Bank-Centric Model Stakeholder

The real struggle with full deployment of the Bank-Centric Model is how disruptive the mobile operators could be if they so choose. The accepted paradigm today is that operators have seeded the adoption of mobile telephony through the supply of discounted handsets, and can therefore control what applications are loaded on

“The incremental benefits and drivers are not from payment but from additional services that can be realized though NFC.”

Industry Association



those handsets.

The Bank-Centric Model for NFC-enabled mobile payments most closely follows the four-corner model established today, but the consensus of the survey respondents was that this new payments paradigm needs a business model with appropriate rewards for all of the stakeholders.

With historically risk-averse banks driving the Bank-Centric Model, the full potential of the channel may never be realized. It takes innovators and facilitators to bring in meaningful loyalty programs, smart posters and revolutionary shopping experiences, which are viewed to be key to adoption.



4 Peer-to-Peer Model

Although PayPal and others are gaining traction, long-term viability of model challenged by sustainable revenue and inconvenience for POS transactions

Peer-to-Peer Model Description

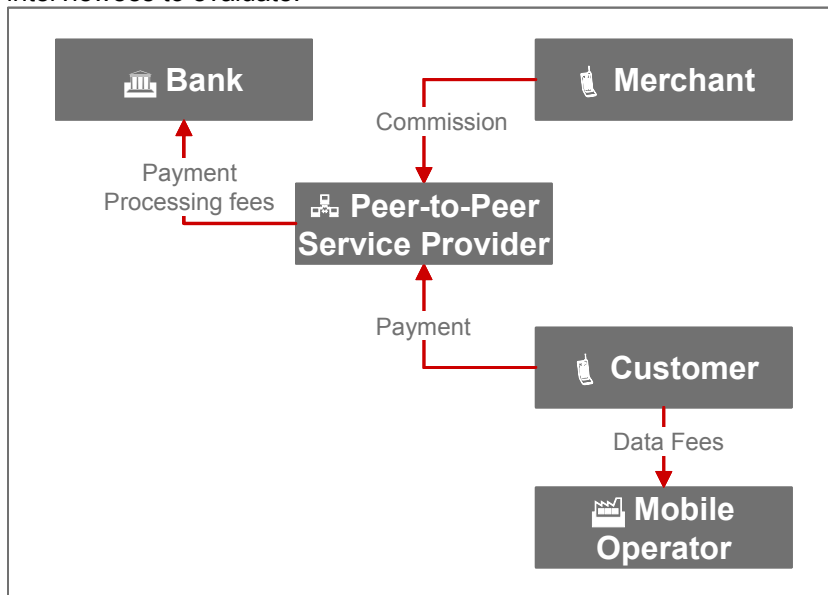
The Peer-to-Peer Model is an innovation created by payments industry newcomers who are trying to find ways to process payments without using existing wire transfer and bank card processing networks.

The ability to send money from one person to another, even across great distances, has existed for many years through providers such as Western Union. While the Internet has made this service even more convenient, the high fees associated with the transfers can make them cost prohibitive and not for everyday use. Internet bill payment services provided by most banks have made remote payments to merchants convenient, but cannot be used for real-time purchases. Mobile phones with peer-to-peer capabilities overcome these obstacles.

“Banks worry about peer-to-peer especially with the growing use of PayPal for online transactions. These are closed loop models and banks lose sight of customers’ transactions.”

Issuer

In this study, the following peer-to-peer payment implementation strategies were presented to the interviewees to evaluate:



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

Figure 8: Peer-to-Peer Model: Stakeholder Scenario⁹

This model is significantly different from the other models discussed in this report. Bank-Centric, Operator-Centric, and Collaboration Models are methods for bringing contactless payments and mobile loyalty to the marketplace. The Peer-to-Peer Model is a way to use the mobile phone to eliminate the existing payments ecosystem that consists of POS terminals, the ISOs and acquirers that deploy them, and the processors and payment networks that route and settle the transactions.

⁹ Sources: Smart Card Alliance industry research and Interviews; IBM Analysis; Ovum “Mobile payment value chain and business models

Industry stakeholders believe that while Scenarios 1 and 2 are possible, it is unlikely that a peer-to-peer start-up will be able to implement these models in the near future. In addition to encountering the same obstacles that banks and mobile operators are currently facing with NFC mobile payments, they must also overcome the lack of an existing customer base, lack of payment processing infrastructure and lack of an established brand, and invest a large amount of capital to overcome these obstacles. Established banks and operators have the capital and infrastructure, but fail to see a large revenue opportunity with peer-to-peer payments. Transaction volumes and processing fees to date have not been compelling.

“Ultimate end-game is evolution to POS-less world where all transactions go through cell phones.”
Non-Traditional Player

However, new peer-to-peer providers such as Obopay and PayPal Mobile are implementing Scenario 3 today (see Figure 8) where they provide a transaction routing service for banks, merchants, and customers.

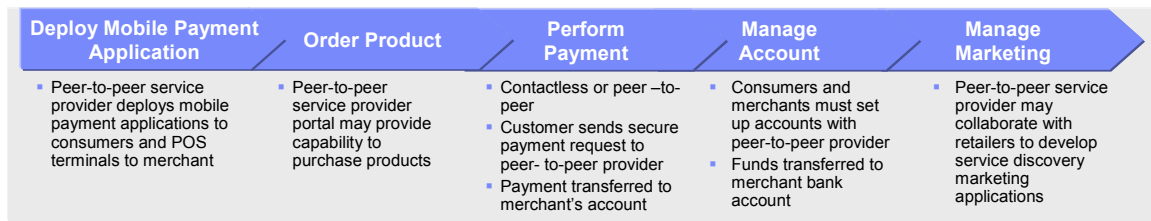


Figure 9: Peer-to-Peer Model: Value Chain

Revenue earned by the peer-to-peer provider can take the form of transaction fees for loading and unloading the account or licensing fees from merchants or end-users for downloading software. There is also the opportunity to earn customer marketing revenue from merchants and issuers, as well as opportunities to take advantage of stored value account float. The opportunity for merchant interchange exists as well.

“The benefit to the peer-to-peer provider and consumer is that this product can serve as a lifeline service to the underbanked and to the 3rd world.”
Mobile Operator

Consensus View on the Future of the Peer-to-Peer Model

The Peer-to-Peer Model is attractive to merchants looking to decrease the costs of processing credit and debit payments, to underbanked customers who cannot obtain a traditional bank card, and to customers seeking to send money to friends and family overseas (cross-border remittance). Some also see promise for the peer-to-peer provider playing an intermediary role for merchant loyalty programs.

However, the majority of interviewees questions the long-term viability of this model for mobile payments at the physical point-of-sale since it will eventually need to overcome the issues that all payment networks face:

- Providing a significant number of merchant locations to be meaningful to customers.
- Ensuring that transactions, whether at POS or online, are convenient.
- Providing sustainable revenue to the banks so that they will drive transaction volume to this channel.
- Educating customers and merchants that the

“Lessons from Dexit, Speedpass, Freedom Pay, all of which were closed loop: it’s slow and very expensive to build a merchant network. It takes decades and billions of dollars. A successful new payment method MUST have a ubiquitous footprint.”
Mobile Carrier



peer-to-peer provider's brand is just as reliable as the credit and debit cards provided by the long-established financial institutions that they trust.

- Overcoming negative media reports on money laundering and security.
- Resolving disputes and chargebacks.

"Not clear who would hold most of liability. If servicing problem, this may negatively impact customer experience and could open banks to lawsuits."

Issuer

Reference Cases

While numerous peer-to-peer mobile payments implementations have been announced in India and Asia/Pacific, the two main deployments in the U.S. are PayPal Mobile and Obopay.

PayPal Mobile. Using a mobile device rather than the Internet, PayPal Mobile leverages eBay's PayPal functionality to allow customers to transfer funds from one PayPal customer to another, to purchase goods on eBay, or to purchase goods online from merchants who accept PayPal as a form of payment.

Obopay. Using a mobile phone, Obopay allows one customer to transfer funds to another for \$0.10 per transaction. If the second customer doesn't have an existing Obopay account, funds can be downloaded to a bank account using Obopay's website. With Obopay's partnership with Citibank, funds can be loaded to the stored value account using an Obopay/Citibank co-branded MasterCard for a 2.5% transaction fee or a demand deposit account (DDA) for no cost. Funds can be drawn from the stored value account by using the Obopay card at any MasterCard merchant or ATM, by depositing them into the customer's bank account, or by purchasing goods from Obopay's online merchants.

Pros and Cons for Stakeholders

Interviewees identified the pros and cons shown in Table 4 for the stakeholders of the Peer-to-Peer Model.

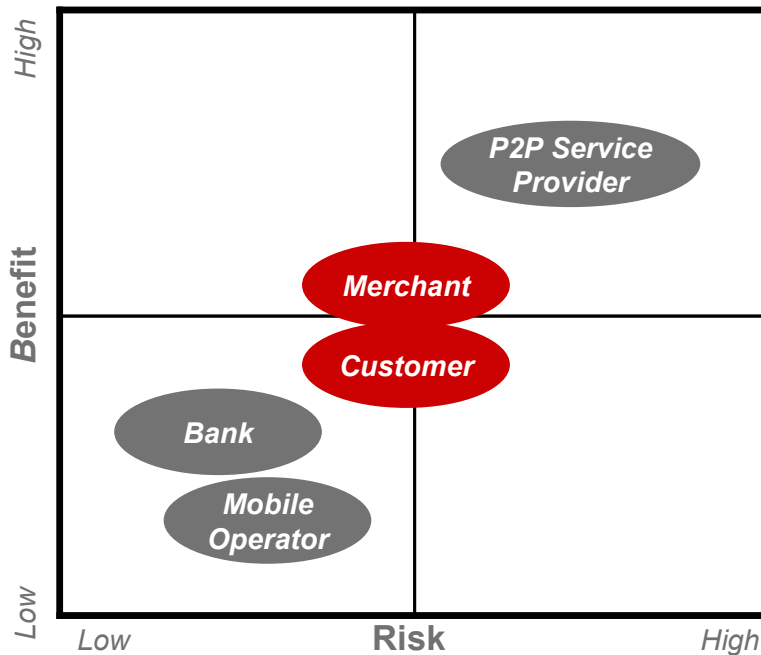
Stakeholder	Pros	Cons
Bank	<ul style="list-style-type: none"> ▪ Revenue stream capture from processing fees ▪ Access to broader set of customers from peer-to-peer provider ▪ Potential to form partnerships 	<ul style="list-style-type: none"> ▪ Potential disintermediation if the service provider utilizes another bank as the payment processor ▪ Lack of visibility to customer's transactions ▪ Certification of device security
Mobile Operator	<ul style="list-style-type: none"> ▪ Possible increase in data transaction volumes ▪ Potential to partner with peer-to-peer provider 	<ul style="list-style-type: none"> ▪ Disintermediation from mobile payments value chain ▪ Customer service issues: customers may call with peer-to-peer issues or inquiries
Peer-to-Peer Service Provider	<ul style="list-style-type: none"> ▪ Revenue capture from transaction fees and potential commissions ▪ Marketing revenues ▪ Cross-sell opportunities for other offerings or products 	<ul style="list-style-type: none"> ▪ Significant entry costs to gain wide acceptance by merchants and customers ▪ Assumption of risk for theft/fraud ▪ Need for new competency for marketing/loyalty ▪ Low usage to date



Stakeholder	Pros	Cons
Merchant	<ul style="list-style-type: none"> ▪ Reduced cost of cash handling and increased processing speed ▪ Potential for increased transactions ▪ Faster payments ▪ Access to loyalty programs 	<ul style="list-style-type: none"> ▪ Commissions to peer-to-peer service provider for low value purchases ▪ New service provider with limited equity in reputation ▪ Risk of loss in case of dispute or fraud
Customer	<ul style="list-style-type: none"> ▪ Potential for less expensive remittance/payment option ▪ Inexpensive or free ▪ Remote option 	<ul style="list-style-type: none"> ▪ Need to transfer funds to peer-to-peer provider (tying up funds) ▪ Need to manage new bill ▪ Potential fees charged by the service provider ▪ Difficulty of managing disputes

Table 4: Pros and Cons for each Peer-to-Peer Model Stakeholder

While there was a high degree of consensus among the various stakeholders, individual respondents had differences in a number of areas, including:



- Financial institutions are concerned that texting money at the POS will fail because of lack of speed. Also, the peer-to-peer providers could disintermediate the mobile operators and banks, with the major revenue stream then going to the peer-to-peer provider.
- Mobile operators see this as a temporary solution -- a good concept that works well for the underbanked and for overseas money transfer, but expect little revenue to come of it.
- Non-traditional payment stakeholders believe obstacles can be overcome by the peer-to-peer provider becoming an ingredient brand within a trusted financial institution's product offering.

Figure 10: Risks and Benefits for Peer-to-Peer (P2P) Model Stakeholders

- Merchants believe that peer-to-peer payment is compelling since fewer stakeholders simplify implementation and collaboration and the Peer-to-Peer Model allows stakeholders to focus on core competencies.

To gain widespread adoption, interviewees felt that the Peer-to-Peer Model must overcome many of the same challenges that contactless payments currently face -- specifically consumer, merchant, and issuer adoption. Merchants may embrace the concept of peer-to-peer payments because of its potential for lower interchange, but if customers and banks do not adopt the technology, it will be



irrelevant. In addition, unlike contactless payments, the peer-to-peer merchant infrastructure will not be subsidized by the payment brands because it disintermediates them and their card-issuing banks. Banks offering DDA accounts may show some interest, but will most likely not offer strong support.

If peer-to-peer providers can eliminate the traditional POS with their technology and gain widespread merchant acceptance of the new form of payment, they could turn the payments industry upside down. However, respondents felt that it is more likely that peer-to-peer payments will become one element in a card issuer's mobile wallet.



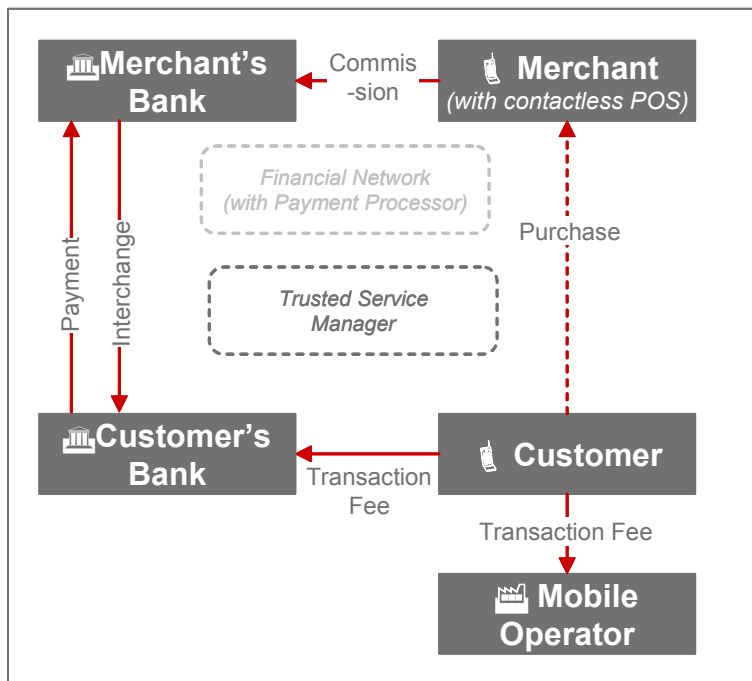
5 Collaboration Model

Both banks and mobile operators believe that the collaboration model will prevail ... but it will take time to emerge.

Collaboration Model Description

The Collaboration Model involves collaboration among banks, mobile operators and other stakeholders in the mobile payments value chain, including a potential new stakeholder -- a trusted third party to manage the deployment of mobile applications. This model includes two possible scenarios:

- **Scenario 1:** A mobile operator partners with one bank to offer a bank-specific mobile payments service.
- **Scenario 2:** Industry associations representing mobile operators and financial institutions negotiate and set standards for applications that reside on secure elements in mobile devices, allowing multiple card types from different banks to be used.



In both cases, NFC-enabled mobile devices and compatible POS devices are deployed that meet the standards set by the partner bank or industry associations.

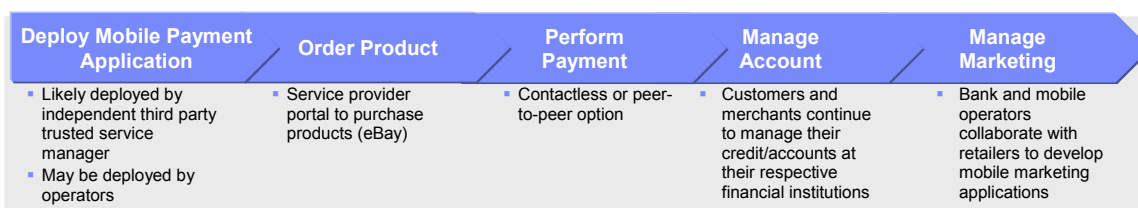
Potential sources of revenue include merchant commissions, merchant and consumer transaction fees, new customer acquisition fees, and marketing fees. The amount paid and collected by each stakeholder is the source of considerable contention. Generally it is expected that merchant fees are split between banks, mobile operators, and perhaps third-party trusted service managers (TSMs). Comparable models exist in the credit card industry for customer acquisition and marketing fees between partners.

Figure 11: Collaboration Model: Stakeholder Scenario¹⁰

¹⁰ IBM Analysis; Ovum "Mobile payment value chain and business models", GSMA Nov 2007 'Pay-Buy-Mobile Business Opportunity'



Figure 12: Collaboration Model: Value Chain



Consensus View on the Future of Collaboration Model

The overwhelming support for the future of the Collaboration Model is illustrated by the fact that 86% of survey participants supported the model as having greatest potential for long-term success. This enthusiasm, however, is tempered with full knowledge of the difficulties ahead, such as slow adoption due to the number of players who must agree on standards and business models. Rapid adoption is also hindered by the lack of a clear business case for all stakeholders.

“Has to be the collaboration model, however relies on keeping key processes unchanged. Banks do what they do best – financial transactions for standard payment methods; mobile operators do what they do best – securing the mobile network. Collaboration model offers the customer the best flexibility in how he pays and will increase his usage.”

Financial Institution

Most survey participants agreed that the Collaboration Model is most feasible because it focuses stakeholders on their own core competencies, opens the door for new revenue from incremental services, drives customer retention and loyalty, and responds to fundamental demand from customers. On the down side, most respondents did not immediately see sufficient incremental revenue to justify the additional costs of deploying NFC.

Regarding the controversial issue of revenue sharing, most survey participants believed that payment transaction revenue belongs to the bank, while airtime, operator services and fees for application residency on the handset or wallet belong to the mobile operator. There were differences of opinion regarding which stakeholder should be the beneficiary of coupon offers, cross-selling of services, and fraud and identity protection services. Financial institutions foresee creative sharing arrangements patterned on today’s co-branding arrangements. In the U.S., anti-trust regulations may also have an impact on the degree of collaboration that is possible.

Most feel that banks own financial liability while mobile operators own network security. There was surprisingly broad support for TSMs owning some risk, entitling them to revenues from risk assumption for services provided. There was no consensus on the liability for privacy risk between banks and mobile operators.

Reference Cases

There are no concrete examples of real-world commercial rollouts of the Collaboration Model, and the technology is still in the trial phase in most parts of the world. Although the Collaboration Model is ideal because it allows each stakeholder to focus on their core competencies, the model has the most complex implementation as it requires agreement on revenue-sharing models.

“DoCoMo’s biggest motivation [for deploying mobile payments] was customer retention and additional revenue source with the minimum additional investments. They have 99% retention.”

Financial Institution

NTT DoCoMo launched e-wallet mobile phones in Japan in July, 2004, using Sony’s FeliCa technology. This launch has achieved positive results due to NTT DoCoMo’s largely dominant position in the Japanese mobile market. Its DCMX mobile credit service is backed by a Visa or MasterCard card issued by an NTT-owned bank.



There is also a collaboration aspect to DoCoMo's business model. The DoCoMo "Osaifu-Keitai" mobile wallet service acts as a platform for multiple stakeholders to deploy their applications, including payments by other banks, transit passes, airline tickets, membership cards, physical identification and building entry. Unique services offered by DoCoMo include disabling or finding lost devices.

Pros and Cons for Stakeholders

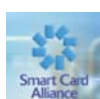
Stakeholder	Pros	Cons
Bank	<ul style="list-style-type: none"> ▪ Alternative channel ▪ Additional revenue from transactions ▪ Potential for new customer acquisition if partnering with mobile operator 	<ul style="list-style-type: none"> ▪ Less need for customers to withdraw cash from ATMs resulting in lowered ATM revenue ▪ Investments – creating applications, setting standards
Mobile Operator	<ul style="list-style-type: none"> ▪ Focus on core competency ▪ Potential for new customer acquisition ▪ Revenue from transactions and data transmission 	<ul style="list-style-type: none"> ▪ Complexity (cost/time) of negotiating with banks/association
Trusted Service Manager	<ul style="list-style-type: none"> ▪ Potential for new transaction-based business model ▪ Potential to offer value-added content 	<ul style="list-style-type: none"> ▪ Assumption of risk of managing sensitive customer data and authentication ▪ Lack of experience in integration/implementation
Merchant	<ul style="list-style-type: none"> ▪ Faster transaction times ▪ Reduced cash handling costs and queues ▪ Customer satisfaction ▪ Targeted marketing and loyalty programs 	<ul style="list-style-type: none"> ▪ Transaction fees in place of cash
Customer	<ul style="list-style-type: none"> ▪ Banking services available from preferred bank ▪ Reduced wait time ▪ Convenience 	<ul style="list-style-type: none"> ▪ Need to obtain and activate bank-specific application on device

Table 5: Pros and Cons for each Collaboration Model Stakeholder

Many believe that the incremental benefits and drivers are not from payment but from additional services that can be realized through NFC, such as location-based services, marketing, and new economic activity unleashed by NFC-driven innovations. Co-brand and banking partners could realize profits through regular commercial contracts, following the same patterns as today's co-brand and affinity credit card programs.

The revenue sharing model is wide open and would be determined by the value that partners create for each other. The payments business is much more open than the telecommunications business, and the potential for creative partnering is broad.

On the down side, some mobile operators report only lip service being paid to mobile payments due to questions about NFC's value proposition and the disputed role of wallet providers and non-traditional players. Mobile operators claim that merchants have not realized the reported benefits of contactless implementation such as faster checkout, and claim these benefits are all "hype."



The future role of wallet providers, such as mFoundry and Firethorn, is also disputed. Some wallet providers will plug into any mobile operator's network, and could become ubiquitous and pre-loaded onto most handsets. Others see wallet providers as short-term solutions.

Somewhat surprisingly, despite the hype, mobile operators and handset manufacturers have generally dedicated only a handful of resources to NFC mobile payments development.

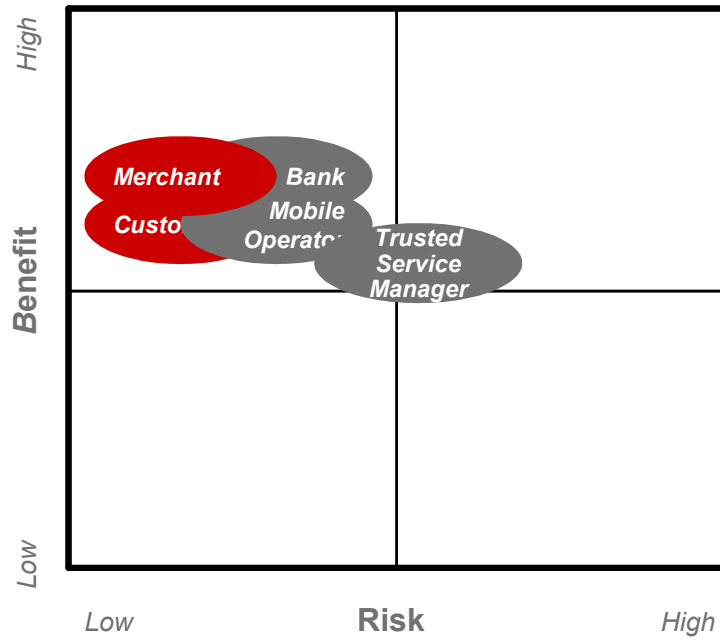


Figure 13: Risks and Benefits for Collaboration Model Stakeholders

6 Conclusion: Industry Awaiting Bold Mover

Overwhelming agreement that collaboration model is most promising, along with ideas for loyalty and other “sweet spot” applications to drive daily usage

The consensus of 86% of the industry stakeholders interviewed was that NFC-based proximity mobile payments will be adopted, and that the business model will require collaboration among banks, mobile operators, merchants, handset manufacturers and other service providers. Although the Collaboration Model appears most feasible, rapid adoption is hindered by the number of players.

Although the industry appears poised to deploy mobile payments, it is a classic case of strategic deadlock in which stakeholders are waiting for someone else to make the first move. A bold move is needed by a player in the role of trusted service manager to orchestrate the activities of collaborators and competitors.

The activities that require orchestration include final selection of handset and chip standards, merchant enablement, standards for certifying and deploying secure payment applications, and, finally and most controversially, development of a model for revenue-sharing arrangements among stakeholders.

A further barrier to widespread adoption is the business case. Whenever a new business model has emerged in the past, over-worrying of the revenue sharing arrangements has served to stifle innovation¹¹, while instead imagining how to “expand the pie” has energized innovation. The burning question is, “What new economic activity can be unleashed with mobile payments?”

Only a few bank visionaries who participated in the survey foresee economic growth from new NFC-enabled services, or risk of customer attrition if banks do not offer what consumers seek.

Collaboration Model-based mobile payments offer several potential new revenue sources, including:

- **Advertising** by banks and merchants. Mobile marketing through smart posters (posters incorporating embedded tags containing text, audio or other kinds of data that can be read by NFC-enabled devices) and couponing. When the NFC-enabled mobile phone is positioned near or tapped on a target area on the poster, information is transferred to the handset. Utilizing a smart poster, a consumer could receive information about a product and/or an electronic coupon on their NFC-enabled handset for presentation during checkout.
- **Loyalty and rewards.** This data currently resides on a host system with the customer identification number on a magnetic stripe or

“The payment brands have very successfully managed an ecosystem of competitors who are required to collaborate. Mobile payments bring a new stakeholder (mobile operator) into an established ecosystem. The associations and networks should be trying to mitigate competing interests and finding ways to collaborate. This is a familiar problem.”

Financial Institution

“Collaboration model with NFC will create other applications and services, the payment application acting as an enabler. Thus resulting in a much larger cake where each of the key stakeholders can realize new additional revenues”

Financial Institution

“U.S. and Canadian carriers are pressured by the Open Alliance (Google, et. al.) to dispute the oligopolistic practices on the public air waves.”

Service Provider

¹¹ Examples include the slow adoption of SMS messaging until industry-wide standards were set to all messages to cross mobile operators' networks and the slow adoption of online music sales until Apple offered its iTunes service.



in a barcode on a card. The same data could be securely programmed into a chip in the NFC-enabled handset. Electronic coupons could also be used to solidify customer loyalty. These electronic coupons could be loaded using mobile text messaging or a kiosk terminal, generated automatically by the rewards/coupons application on the secure chip, or transmitted to the application (via the NFC interface) by the POS terminal during the checkout process. In addition, these electronic coupons could be view/managed by the consumer using the handset user interface.

- **Co-branding arrangements** among banks, merchants, operators and other players, that are analogous to today's affinity and co-branded credit cards, could yield profits through a regular commercial contract among stakeholders. The revenue share is wide open and determined by the value partners create for each other. Commissions and revenue sharing could use a number of levers to benefit all parties to the relationship, such as:
 - Partners could open new accounts, brand or take on receivables risk.
 - Existing frameworks could incorporate custom features enabled on the phone.
 - New fees could include gateway, real-estate rental on the handset's secure element, bounties and incentives.
- **Customer fees** for new services, such as:
 - Application load fees for an open wallet approach
 - Secure identification
 - Home or building access
 - Location-based services such as finding a lost device
 - Top-up transactions
 - Mass transit ticketing systems

The interviews showed no broad consensus on fees and revenue sharing arrangements. As shown in Figure 14, there was a wide variety of responses to the question of which stakeholder should receive revenue. In the Operator-Centric Model, many believed that the mobile operators should receive most of the revenue. Similarly, in the Bank-Centric Model, many felt that the bank should receive most of the revenue following today's payment network model. There was no clear direction on the Peer-to-Peer Model. However, the Collaboration Model revenue choices were most similar to the Bank-Centric Model, with a tendency to follow today's payment network model with some revenue going to mobile operators for application download or secure element space rental.

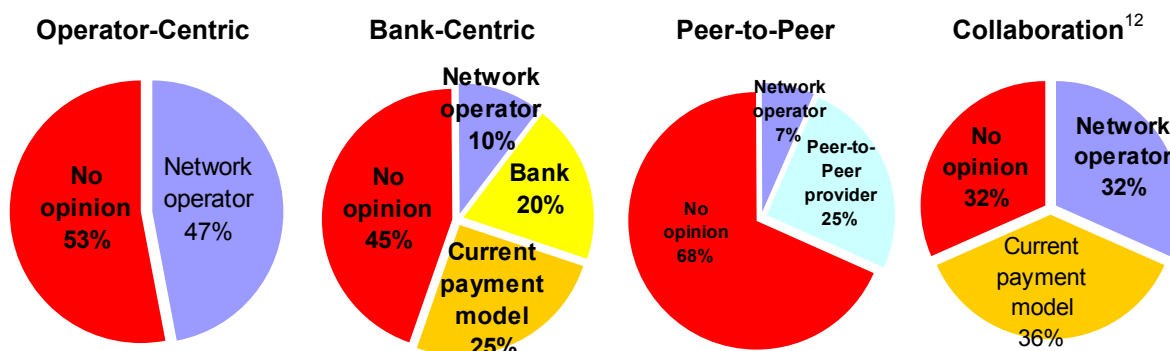


Figure 14: Responses by business model to the question, “Which stakeholder should receive the majority of the payment revenue?”

¹² 33% indicated that mobile operators should receive revenue for loading and/or storing application on the mobile phone, while only 14% indicated that operators should receive a majority of the revenue in the Collaboration Model.



Finally, an open question is the future of “open handsets” – those that can be used with any mobile operator. The rumored emergence of Google as mobile operator and its introduction of Android, the first complete, open, free mobile platform, make the industry wonder aloud what impact an open handset platform will have.

The future belongs to the bold players who break the strategic deadlock, imagine the future possibilities, and rapidly “test and learn” with consumers and merchants to determine which choices for expanding the pie can realize success.



7 Publication Acknowledgements

This report was developed by the Smart Card Alliance Contactless Payments Council Mobile Payments Work Group to document the perspectives of industry stakeholders regarding possible proximity mobile payments business models. Publication of this document by the Smart Card Alliance does not imply the endorsement of any of the member organizations of the Alliance.

The Smart Card Alliance wishes to thank the Contactless Payments Council Mobile Payments Work Group members for their contributions to this report, including: Bank of America, Chase, Collis America, CPI Card Group, Discover Network, Gemalto, Giesecke & Devrient, IfD Consulting, IBM, Infineon Technologies, INSIDE Contactless, JCB, Meijer Stores, Oberthur Technologies, Power2Process, Venyon, VeriFone and ViVOtech.

Special thanks go to Deborah Baxley, IBM, Work Group Chair, who led the project, to the individuals who were interviewed for the project, and to the following members of the Smart Card Alliance Mobile Payments Work Group who made substantial contributions to this report:

- Deborah Baxley, IBM, Work group chair
- Guy Berg, Collis America
- Rod Donnelly, CPI Card Group
- Troy Bernard, Discover Network
- Jennifer Garcia, Discover Network
- Hilda Leo, Discover Network
- Andrew Lee, Discover Network
- Reid Holmes, Giesecke & Devrient
- Ian Duthie, IfD Consulting
- Mona Kiragu, IBM
- Neil Ringwood, IBM
- Jonathan Valenti, IBM
- Eric Duprat, INSIDE Contactless
- Mike.Kutsch, Chase
- Nancy Baunis, Power2Process
- Cathy Medich, Smart Card Alliance
- Sunil Dewan, Venyon
- Derek Forcher, Venyon
- Christopher Tomczak, Venyon
- Erica Savka, VeriFone

Other work group members and contributors included:

- John Suchanec, Bank of America
- Christy Hart, Discover Network
- Joe Mendoza, Gemalto
- Paul Legacki, Infineon Technologies
- Julie Krueger, JCB
- Andrea Brandt, Meijer Stores
- Michael Cymbrowsky, Oberthur
- James Sufrin, Oberthur
- Michael Gargiulo, Venyon
- Tom Zalewski, Venyon
- Mohammad Khan, ViVOtech

About the Smart Card Alliance Contactless Payments Council

The Contactless Payments Council (<http://www.smartcardalliance.org/pages/activities-councils-contactless-payments>) is one of several Smart Card Alliance technology and industry councils. The Contactless Payments Council was formed to focus on facilitating the adoption of contactless payments in the U.S. through education programs for consumers, merchants and issuers. The group is bringing together financial payments industry leaders, merchants and suppliers. The Council's primary goal is to inform and educate the market about the value of contactless payment and work to address misconceptions about the capabilities and security of contactless technology. Council participation is open to any Smart Card Alliance member who wishes to contribute to the Council projects.

Trademark Notice

All registered trademarks, trademarks, or service marks are the property of their respective owners.



8 Appendix: Survey Invitation

Invitation Letter

Subject: Participate in survey of mobile payments emerging business models

I am an active participant in the Smart Card Alliance – Contactless Payments Council, an industry working group that aims to accelerate the adoption of contactless payments. Our activities in the past year included webinars and white papers on contactless payments. Our next project is to develop a point of view on the emerging business models for mobile payments. We plan to survey approximately 20 industry stakeholders, including merchants, banks, mobile operators, processors and vendors.

I would like to interview you as input to our survey. I would be asking your point of view, expert opinion and even speculation on the following topics:

Topics for Survey on Mobile Payments Emerging Business Models

- Likely business models
- Global examples where these business models have been implemented
- Relative business model advantages
- Relationships among eco-system stakeholders
- Benefits and business case drivers for each stakeholder
- Emerging “killer app” capabilities

I would not ask any proprietary information about your organization. Your responses will be confidential and only published in aggregate. I will provide you a comprehensive version of our survey results once they are available, likely during the first quarter of 2008.

If you agree, please respond with some available 1-hour time slots for us to talk over the next 2 weeks. And thank you in advance for your participation.

Sincerely,

Xxx



9 Appendix: Glossary

Contactless payments	Payment transactions that require no physical contact between the consumer payment device and the physical point-of-sale (POS) terminal. In a contactless payment transaction, the consumer holds the contactless card, device or mobile phone in close proximity (less than 2-4 inches) to the merchant POS terminal and the payment account information is communicated wirelessly (via radio frequency (RF)).
Acquiring bank	The merchant's banking partner that approves and settles the card transactions.
DDA	Dynamic data authentication: one of the authentication options used on a payment chip. DDA authentication requires a unique certificate per card. Other authentication options are SDA (static data authentication) which incorporates a single certificate across all cards and CDA (combined data authentication).
Four-corner payments model	The parties who participate in a credit card transaction today: <ul style="list-style-type: none">• the cardholder• the merchant• the merchant's bank (the acquirer)• the cardholder's bank (the issuer)
ISO	Independent sales organizations. Specialist companies that provide payment equipment and services to merchants.
Issuing bank	The bank that provided the credit card to the cardholder.
Mobile operator	The mobile telecommunications company that has the relationship with the end user.
POS	Point of sale. This term is also used to describe the equipment used by the merchant to complete the payment transaction.
Proximity mobile payments	A payment to a physical merchant that is initiated from an NFC-enabled mobile phone held in close proximity (less than 2-4 inches) to the merchant's point-of-sale equipment.
Mobile wallet	A software application that is loaded onto a mobile phone for the purpose of managing payments made from the mobile phone. A mobile wallet application can also be used to hold and control a number of other applications (for example, payment and loyalty), in much the same way as a physical wallet holds a collection of physical cards.
M-payment	A payment initiated from a mobile phone.
MNO	Mobile network operator. The mobile telecommunications company that has the relationship with the end user.
NFC	Near Field Communication. A standards-based wireless communication technology that allows data to be exchanged between devices that are in close proximity (less than 2-4 inches). NFC-enabled mobile phones incorporate smart chips that allow them to be used for payment. NFC payment transactions be-



tween a mobile phone and a POS terminal use the same standard contactless communication protocol used by contactless credit and debit cards.

Remote mobile payments

A payment initiated from a mobile phone to a recipient (person or device) where the recipient is not in the immediate vicinity.

Secure element

The location of the security components within the mobile phone. This can be the SIM, a separate secure chip in the phone, or an external plug-in card.

SIM

Subscriber Identification Module. A SIM is the smart card that is included in GSM (Global System for Mobile Communications) mobile phones. SIMs are configured with information essential to authenticating a GSM mobile phone, thus allowing a phone to receive service whenever the phone is within coverage of a suitable network.

Trusted service manager (TSM)

A neutral third party service provider that provides a single integration point to all mobile operators for financial institutions, transit authorities and retailers that want to provide a payment, ticketing or loyalty application to their customers with NFC-enabled mobile phones. The TSM provides services to manage the secure download and life-cycle management of the mobile NFC applications on behalf of the financial institutions, transit authorities and retailers. The TSM does not participate in the transaction stage of the service, allowing existing business models to be implemented.

