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FINANCIAL SERVICES

Monetizing mobile

How banks are preserving their place in the payment value chain

July 2011

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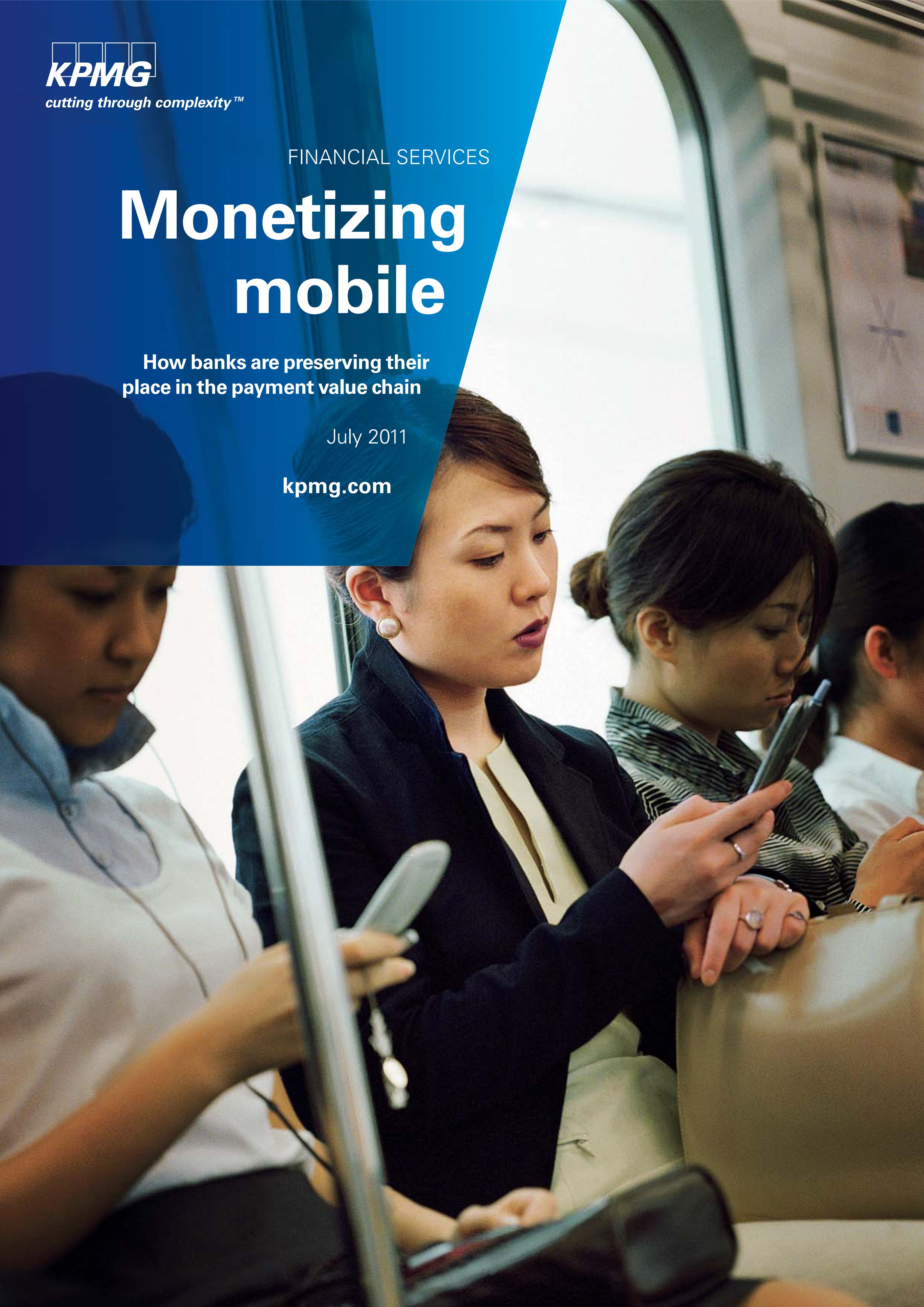

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Foreword

The era of mobile banking and payments is dawning. Around the world and across the banking value chain, everyone is waking up to the huge potential of a market that is emerging before their eyes and changing the way that customers interact with their financial institutions.

As you will see from this report, banks are responding to this mobile evolution in a number of different ways. Some are getting ahead of customer demands by developing and deploying innovative mobile solutions with an eye towards gaining market share and driving new sources of revenues. Others, however, are waiting for standards to be set and for customer demand to hit critical mass.

In the midst of this diverse and fragmented global approach, KPMG International conducted a set of complimentary studies to develop a clearer picture of the current – and more importantly, the future – mobile banking landscape.

We spoke with executives and mobile channel leaders at more than twenty retail and commercial banks, as well as a number of payment processors, acquirers and card services providers. Our interviews were conducted with industry leaders around the world including respondents from Asia, Australia, Africa, the US and Europe. We augmented our research with an online survey of more than 150 banks and other participants in the payment value chain.

The following report delivers the results of our findings and provides some valuable context and analysis from KPMG's global network of experienced mobile banking specialists.

We hope that this survey and related analysis acts as a catalyst to the industry and helps participants to focus their strategies, enhance their service offerings, and work together to achieve clear and consistent standards across the globe.

On behalf of KPMG, I would like to thank all of those who participated in our surveys and encourage you to contact your local KPMG member firm to learn more about the findings, the market and our services.

David Sayer

Global Head of Retail Banking,
KPMG in the UK

Executive summary

Terminology: Mobile banking vs. Mobile payments

Many consumers (and even a fair number of bankers) make the mistake of using these two terms interchangeably. But there is a difference: *Mobile banking* refers to platforms that enable customers to access financial services (such as transfers, bill payments, balance information and investment options). *Mobile payments*, on the other hand, is generally defined as the process of using a hand-held device to pay for a product or service, either remotely or at a point-of-sale.

Everybody wants to talk about mobile banking and payments. And no wonder: the heady combination of increasingly sophisticated mobile devices, banking services and payment options offers banks the opportunity to gain market share, tap into new revenue streams and reduce their overall cost to serve customers.

Customers, too, are looking ahead to the potential of mobile banking and payments with anticipation. In large part, this new market is being driven by the global uptake of mobile phones. According to some pundits, mobile phones will unseat PCs as the preferred method for accessing the internet by 2015[1]. But it is the introduction of innovative 'Smart Phones' that has been the greatest catalyst: in the US, the penetration of Smart Phones will surpass traditional mobile phones by the end of this year[2].

At the same time, consumers are becoming increasingly comfortable with using their mobile devices to support highly secure and mission-critical tasks. Already, around 20 percent of those in the Generation Y segment have used their mobile phones to make purchases, and an almost equal amount have made a donation to charity via text message[3]. Clearly, consumer adoption and acceptance of mobile services is ascending.

Indeed, for both retail and commercial banks, the question is no longer whether mobile banking and payments will be important to their business (84 percent of respondents to our survey say that it will), but how best to approach a rapidly changing and nascent channel to deliver better customer service, retain market share and protect or enhance revenues.

To achieve this, banking executives will need to overcome a number of complex challenges that are both internal and external to their organizations. Possibly some of the easier hurdles to clear will be those that are internal as banking institutions work to form a clear understanding of their objectives for the mobile channel (for example to gain revenues, protect or capture market share, or to reinforce a reputation for innovation) and develop strategies and business plans that take a long-term and customer-centric view of their progress.

The more daunting challenges, however, are systemic and largely outside of the control of individual banks. But not entirely: banks will be an important partner in the development of standards, the rollout of technologies and the adoption of services; they will also need to work with new and emerging value chain partners; and endorse new revenue-sharing models that properly acknowledge each player's role in delivering mobile services.

[1] Morgan Stanley Research 2010 [2] The Nielsen Company 2010 [3] Pew Research Center

	Opportunities	Risks
Innovators	First-to-market and reputational advantages	Large investments required on unproven technologies
	Increased market share (particularly in the youth and early-adopter segments)	Lack of benchmarking data and metrics
	Larger role in standards setting	Lack of global standards may result in isolated networks
	Build internal experience	Merchants do not accept payment type
	Capture new revenue streams	Low consumer education slows adoption
	Drive enhanced customer-centric initiatives	Security and privacy concerns impact uptake
Followers	Can wait until standards are developed	Lost market share in youth and early-adopter segments
	Allows the market to drive adoption and awareness	Disintermediated by new competitors in the value chain
	Focuses business on existing customer channels	Inability to influence standards and technology development
	Reduces the risk of investment into unproven technologies	Lack of time and resources to 'catch up' once a standard technology emerges
	Provides time for industry benchmarks to be developed	No active participation in the shaping of the market

Source: KPMG International

Innovators make early gains

One trend that repeated itself across the value chain and in every geography surveyed was the emergence of a core group of 'innovators' who, having already deployed robust mobile banking services into the market, were now making aggressive forays into the mobile payments world. For this group, the development of mobile payment solutions offers more than just a 'first to market' advantage. It also offers the opportunity to work with partners across the value chain to take a larger role in the development of standards, build early customer awareness and adoption, gain critical experience within their organizations, and – in some cases – even capture new revenue streams.

But for the vast majority of banks, the road to mobile payments may appear to be fraught with risk. And with a combination of nascent technologies, unproven demand, fractured approaches and the lack of standards and networks, it is not entirely surprising that many banks are taking a wait-and-see approach to mobile payments. But in an effort to reduce risk, these 'followers' may – in fact – be creating an entirely new set of risks (see chart above) to manage.

Flexible strategies and controlled risks

The simple truth is that there is no right or wrong path to creating a mobile solution. And until standards are developed and technologies mature, each bank will need to follow its own unique strategy based on sound objectives and a clear understanding of the risks and benefits that lie ahead.

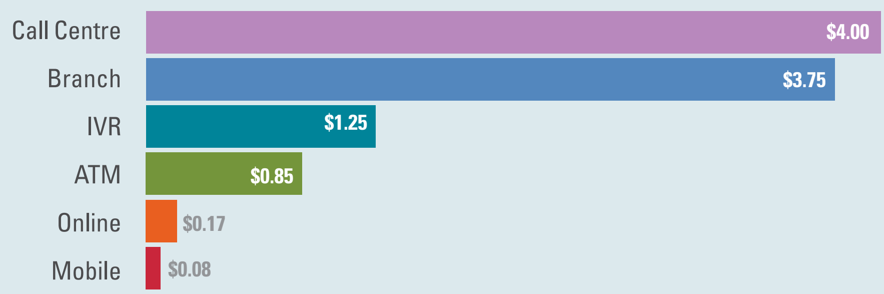
There are – as yet – very few certainties in the mobile payment arena. That is why we have developed the following survey: to help banking executives understand the need for action by providing a new and valuable view into some of the key challenges, considerations and opportunities facing banks as they develop their mobile banking and payments strategies.

In an effort to build consensus around the developing terms and solutions that are rapidly emerging in the market, we have included a comprehensive glossary and technology table at the back of this publication.

Mobile banking becoming mainstream

Around the world, banks of all sizes – both retail and commercial – are rapidly deploying an array of mobile banking solutions aimed at customer convenience and cost reduction.

Transaction costs by banking channel



Source: Tower Group, Fiserv, Mcom data, 2009

> **"The step from internet banking to mobile banking is a relatively small one."**
>
> *Western European bank executive*

Based on our survey, it would be safe to say that most large banks and many mid-sized banks already offer some form of mobile banking service. In fact, almost two thirds of respondents to our survey indicated that mobile banking was either already mainstream or on the verge of gaining major traction in their market.

Indeed, mobile banking is often a relatively straight forward proposition for retail banks. The new channel can be built at relatively low cost and risk by adapting existing internet platforms to mobile devices. And with little to no incremental costs for each additional mobile user, the financial justification for basic mobile banking services is easy to rationalize.

Mobile banking has also started to see widespread customer adoption, with a number of respondents indicating noticeable drops in telephone and internet banking inquiries accompanied by increased 'app' download rates and text inquiries.

And while most provide basic information services such as balance updates, payment alerts and account transfers, a number of banks have also started to incorporate remote mobile payment solutions as well. Peer-to-peer payments and remittances, in particular, are increasingly being offered through mobile devices, particularly in the developing world (see sidebar on page 7 and 13).

Delivering on brand promises

For banks that focus on customer service and innovation as key differentiators, mobile banking is a must. Key customer segments (particularly early adopters and families) are increasingly using mobile devices to manage all aspects of their daily lives and are looking to their banks to provide a similar level of access to their financial information through their mobile devices.

And largely as a response to growing consumer demand, many respondents suggested that they expected to gain competitive advantage and differentiation as key benefits of their mobile banking solutions. For the innovators, however, building an early presence in the mobile banking space promises a range of other qualitative and quantitative opportunities.

"Banks will have to quickly get into mobile banking if they haven`t already."

Australian banking executive

Mobile divide:
Developed and developing markets

For bankers, there is a significant difference between launching mobile services in the developed world and the developing one.

According to the UK Department for International Development, more than 2.7 billion people in the developing world have no access to financial services. What's more, the same study suggests that by 2012, there will be 1.7 billion people with access to mobile phones but not bank accounts[4].

And since a large proportion of the developing world is currently, unbanked, financial institutions generally do not have access to robust customer information, which in turn reduces service options, particularly in the extension of credit facilities.

Mobile phones in the developing world also tend to be less advanced, meaning that WAP and application-based solutions are not universally applicable in all markets.

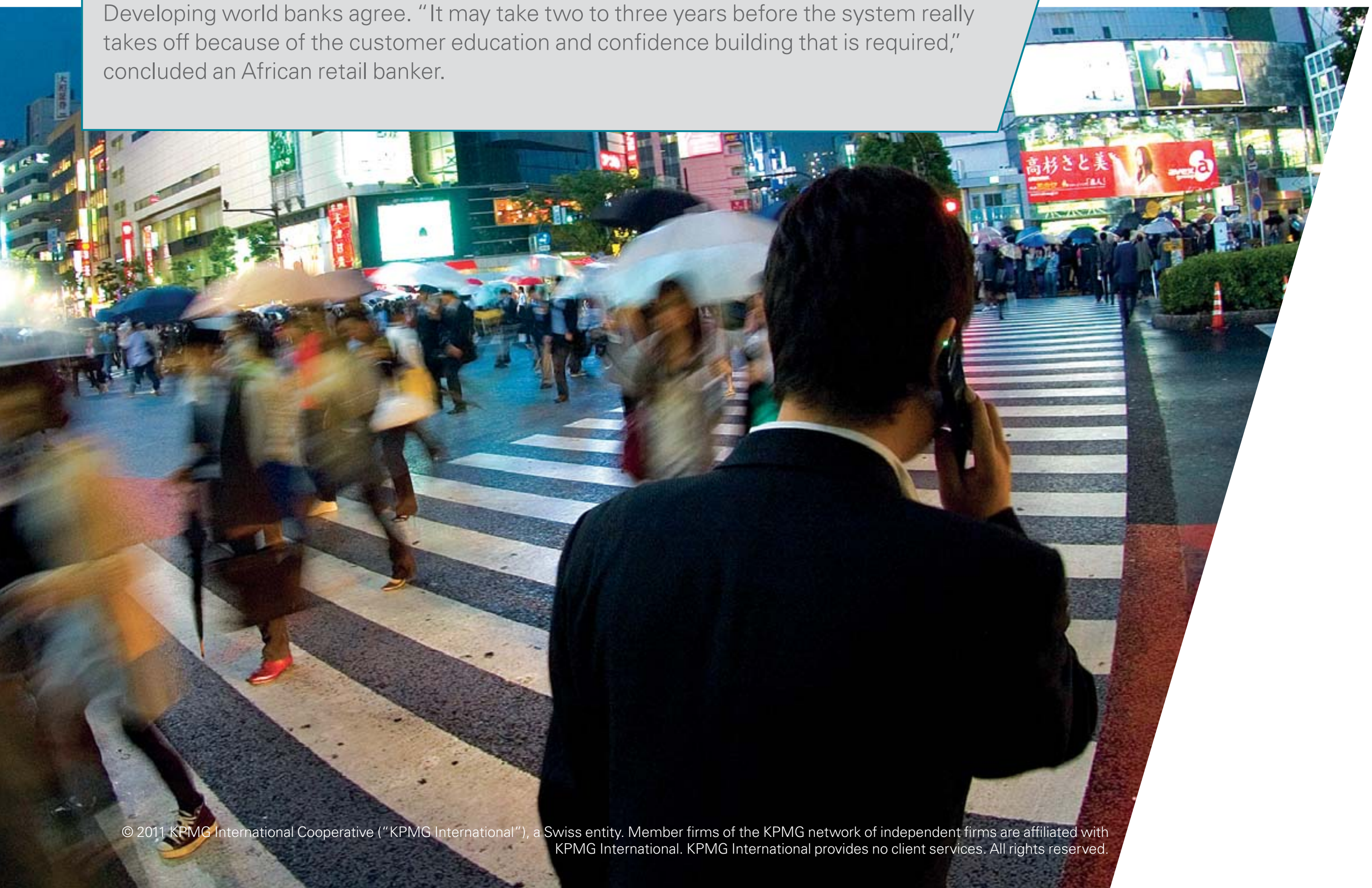
But for banks that are able to develop easy-to-use and low-technology solutions, mobile banking in the developing world offers massive opportunities and rewards. "We know there is a lot of money outside of the formal banking sector," said an executive at one Pan-African bank. "We believe that the amount of money involved is huge and any retail bank would be foolish to not play in this area."

Some see the developing world as a valuable testing ground for new mobile solutions and business models, with MNOs and telcos being particularly aggressive in this area.

However, the developing world may be a more fickle prize for developed world banks seeking to expand into new markets. "We learned that it's harder than you think," admitted one global bank working in Asia. "Regulation and financial literacy are all things that have to be considered very carefully before you can move into these countries. We're still refining the model to get it right."

Developing world banks agree. "It may take two to three years before the system really takes off because of the customer education and confidence building that is required," concluded an African retail banker.

[4] Scenarios for Branchless Banking in 2020, CGAP & DFID, 2009



More than first-mover advantage

For example, by taking early steps in the evolution of mobile banking, these organizations are able to gain valuable experience. A number report that – through early pilots and exploratory discussions – they have gained critical insight into some of the barriers and opportunities that will inform their future go-to-market strategy and partnership plans. Others cite a wealth of in-house technical and strategic experience as a result of their early entry into the mobile banking market.

Banking innovators are also confident that their mobile banking leadership will translate into greater customer loyalty, satisfaction and a stronger reputation for customer-centricity. In many cases, banks are leveraging their mobile applications and browser platforms to deliver targeted advertisements and promote cross-selling opportunities. At the same time, banks are also building customer acceptance and comfort with conducting financial transactions over mobile devices, creating a larger group of early adopters for future mobile services.

It should be noted, however, that there are still a number of bankers who remain unconvinced about the merits of mobile banking. During our interviews, for example, one European banker confided that he wasn't sure that ubiquity of banking really improved value for customers.

"There is a clear message coming out of our survey and reinforced by our experience in the market." noted Fred Schneidereit, Partner at KPMG in Germany, "and that is that banks that continue to wait on the sidelines of mobile banking will quickly find themselves left behind in the scramble to attract new and increasingly affluent mobile customer segments."

WAP or App?

While deploying mobile banking solutions may be relatively straight forward, bank executives will still need to wrestle with a number of key considerations as they deploy and evolve their mobile banking platforms.

The biggest consideration revolves around technology. Most banks have found that the simplest approach to creating a mobile channel is to adapt existing internet platforms to meet mobile standards. In effect, this process requires banks to create a WAP (wireless application protocol) site that can be securely viewed on mobile devices. WAP is relatively inexpensive to develop and requires very little work to integrate into existing banking channels.

For customers, a WAP site provides consistent access across multiple devices and maintains much of the same look, feel and functionality as existing internet-banking portals. And, in much the same way as they access internet portals, customers will be required to enter passwords and unique identifiers to access their accounts.

Platform-specific applications or Apps, on the other hand, deliver a very unique and dynamic user experience, often combining ease of use with dynamic content. Apps also tend to place a brand logo onto the user's mobile device, which can provide an additional brand awareness boost. But much like most other 'apps' in the market, mobile banking applications are generally developed to operate on specific operating systems (such as iOS or Android) and can therefore carry a higher development cost for banks.

"If you want to distinguish yourself, you need to come up with innovative solutions and mobile is the name of that game."

Eurozone banking executive

"Mobile phone/smart phone applications give us the opportunity to give a very rich customer experience no matter where the customer is."

Australian banking executive

However, platform-specific applications for banking services are quickly gaining traction in most markets, driven not only by the growing consumer appetite for smart phone based 'apps', but also by banks who see this option as the best way to retain and evolve their mobile customer base.

And while SMS text seems to be losing traction in many markets due to regulatory concerns regarding safety and high customer charges, many banks continue to offer basic SMS services as a primary stepping stone for consumers that do not enjoy consistent access to the internet or who do not have application-compatible handsets.

Changing value chains

Mobile banking has forced many banks to reconsider their traditional business models and, for their part, many of the traditional participants in the payments value chain are also increasingly wondering what role they will play in a future mobile payments chain.

Across the value chain, our study found that players are quickly moving to consolidate their position and capture larger parts of the revenue stream. Payment processors, for example, anticipate a more significant role in the mobile banking and payments system in the future, and many are already working closely with alternative payment providers like PayPal to extend their reach into the online and mobile markets.

Mobile banking has forced banks to work with new partners. In particular, Mobile Network Operators (MNOs) have become increasingly important as banks work to deploy their applications and test their functionality across multiple devices and networks. And as we will see in the following chapters, the relationship between MNOs and banks will continue to evolve as mobile payment solutions begin to enter the market in earnest.

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The future state: Mobile payments

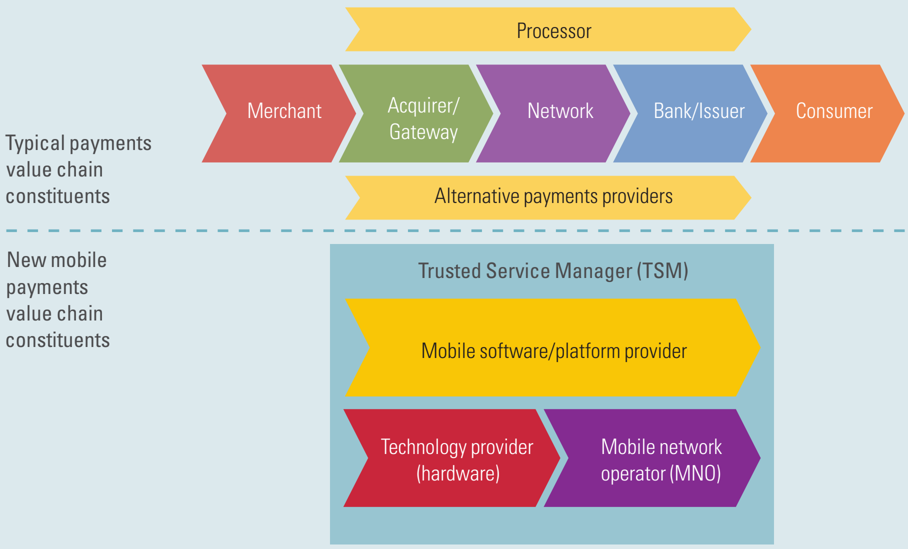
Despite all of the current activity in mobile banking, it is becoming increasingly clear that mobile banking is not an end-state in and of itself. Rather, it is a stepping stone to the emerging world of mobile payments. Indeed, respondents to our poll overwhelmingly agreed that mobile payments would be important to their business in the future. One in five indicated that mobile payments were already a key enabler of their strategy.

Setting the right conditions for widespread adoption of mobile payments, however, will be a much larger feat and will require a number of critical components to come together to create a supportive environment within which a new payment model can thrive.

"Everyone on the chain is trying to grab as much of the process as possible."

Australian banking executive

Mobile payments in value chain



Source: KPMG International

The technology maze

Perplexingly, technology is both an enabler and barrier to the widespread adoption of mobile payments.

On the one hand, it has been the incessant pace of technological innovation that has rapidly delivered all of the tools necessary to develop a mobile payment solution. But on the other, competing technologies and localized standards demonstrate the difficulties that lie ahead in bringing a truly global network to market.

Of course, the rapid proliferation of the mobile devices themselves are cause for sober contemplation. There are a number of key device-related issues here. Many respondents to our survey suggested that mobile payment systems must be accessible and functional across a wide range of consumer devices, meaning that banks will need to develop and deploy 'device-agnostic' platforms if they expect to maximize their reach and capability.

One of the central debates for mobile payment participants revolves around the method by which devices will enable mobile payments. As you will see from our technology table on page 12, each of the emergent mobile technologies requires some form of 'enabler' to transform the device into a secure payment method; each has its own benefits, risks and customer appeal.

And while mobile devices will be the catalyst, everyone – from banks to Mobile Network Operators and handset manufactures – is focused on defining, developing and dominating the underlying technology behind mobile payments. Indeed, much like the battle between Beta and VHS in the 1980s or Blu-ray and HD DVD in the last decade, many players are quickly lining up behind a specific technology and preparing to promote and defend their investments.

The race for supremacy

However, it is clear from both our research and extensive market experience that the race to crown a dominant technology is narrowing. For example, SMS Text, which boomed out of the gate over a decade ago as a convenient and easy way to conduct remote payments, is rapidly losing ground to newer technologies. In part, this is because of the complexity of 'text codes' that act as the doorway to SMS Text payments, but SMS Text also carries a high cost for both merchants and consumers, limiting its use as a payment method to areas where margins are high (such as digital downloads).

From the customer perspective, SMS Text is also relatively limited in its ability to provide dynamic banking and payments solutions on a mobile device. However, in parts of the developing world and in unique situations (such as downloading ringtones) SMS Text will continue to provide a basic but secure channel for mobile payments.

"The technology question will need to be solved within the next 12 to 18 months."

Andrew Dickinson, KPMG in Australia

"We're not considering SMS because of what it is used for."

European payments processor

Mobile Banking Technologies			
Technology	**Use**	**Pros**	**Cons**
SMS text	Widespread in developing world, many alert applications and some payment options in developed world.	Can be used across platforms and carriers, smart and dumb phones, easy to use and fairly safe.	Not permitted in some regions, some security concerns, reduced functionality.
Mobile browser	Widespread in developed world, particularly within regional and second tier banks, mobile browsers connect mobile users to an augmented internet banking site.	Familiar to internet banking customers, simple integration with existing internet platforms, works across devices and MNOs.	Fairly common practice (no competitive advantage), takes a number of steps to log in, adaption to small screen not always done well.
Custom application	Gaining significant traction in the developed world, used for mobile banking, coupons, location based services.	Provides a rich user experience on a custom application, tends to be more secure and stable, retains loyalty and offers cross-selling opportunities.	Integration issues as customization required for each device, must be installed by customer, can be more expensive to deploy.
Mobile payment technologies			
NFC companion devices	Enables contactless proximity payments at merchant POS terminals using a range of technologies such as stickers, fobs and microSD cards.	Leverages existing contactless card standards, enables payments without MNO cooperation.	Devices often limited to a single payment account, potentially high initiation complexity for user, requires distribution and device costs to be absorbed.
Embedded NFC	Uses a mobile wallet technology on an embedded NFC chip to broaden payment options within a proximity setting.	Uses existing contactless card standards, enables access to multiple accounts via mobile wallet interfaces, provides some additional security with PIN on the handset.	Limited availability of enabled handsets in the market, MNOs control handset inventory and distribution.
SMS text	Remote payments, primarily for digital content.	Ubiquitous capability available on the vast majority of handsets.	Message length limited, high cost to both merchant and consumer, many jurisdictions do not allow SMS for mobile payments.
Voice	A niche technology that provides mostly account servicing and bill payments, some mobile payment authorisation conducted via voice.	Person to person interaction, opportunities for dynamic cross-selling.	High cost in 'live agent' situations, inefficient data communications.

> **"The introduction of NFC will change the traditional value chain for banks for low-value payments, bringing in new partners to manage devices and drive merchant adoption."**
>
> ***Fred Schneidereit, KPMG in Germany***

All eyes on NFC

From our discussions with banking executives, it seems clear that most participants are anticipating some form of Near Field Communication (NFC) technology to emerge as the winning technology. Many are looking to NFC to provide a very simple and convenient method of payment for bank customers.

However, NFC is also hampered from wide-spread adoption by a number of critical – and massive – challenges. For one, NFC payments will require that merchant POS networks be updated to effectively interoperate across multiple banks, card types and devices. In itself, this will create a host of new considerations and challenges for banks as they build their retail mobile payments strategy (see page 19 for more on this).

Complicating matters is that there are a number of emerging methods for enabling NFC payments. Here, too, the industry is experiencing much debate. As you will see from the chart on page 12, each method carries its own unique challenges and considerations for banks. SIM cards, for example, allow for mobile wallets to be quickly deployed on phones and provide a high level of security, but this method also makes the MNOs responsible for managing the technology and thus may require revenues to be split with new MNO partners. In the same way, embedded NFC chips rely on device manufacturers to deploy, again creating a situation where revenues may be reduced.

However, the ultimate choice of technologies may be out of the bank's hands. Indeed, it will largely be consumers that will ultimately decide which solution will be widely adopted. Dongle solutions for example, where an external 'attachment' is added to the phone to enable NFC, will likely not see widespread uptake with the mass of consumers, but may be a smart initial transition step for banks wanting to control their own NFC deployment.

SIM Cards and MicroSD cards, on the other hand, would require consumers to install a chip into their devices which may deter those who are less 'tech-savvy', and those that already use their SIM or MicroSD card slots on their devices for other applications.

Innovators (once again) take the lead

In mobile payments, much like with mobile banking, a small number of banks are driving ahead with developing mobile payments to brandish their credentials as innovators and gain competitive advantage. Some, for example, are already running small pilot programs in local communities and within their own company facilities. For the innovators, these pilots are a critical step towards gaining a better understanding of customer preferences, trends and challenges. They also build awareness of the emerging service within the bank's employee base.

But, according to our research, some banks are still not convinced about the benefits of NFC. At the root of the debate is whether customers will see enough value in mobile payments that they push adoption rates to a level that offsets the investment costs. As one respondent insightfully pointed out, "Consumers don't always act as logically as you think they will in the marketplace."

"In our opinion, if banks can roll out a safe, easy to use and ubiquitously accepted system, consumers will very quickly adopt mobile payment solutions in much the same way as they have adopted other mobile services." said Mitch Siegel, a Partner in the financial services practice at KPMG in the US. "Now is the time for banks to be working towards cooperative standard setting and the need for healthy 'co-opetition' to help drive the global mobile payments market forward."

Case study:
Deploying mobile in the developing world

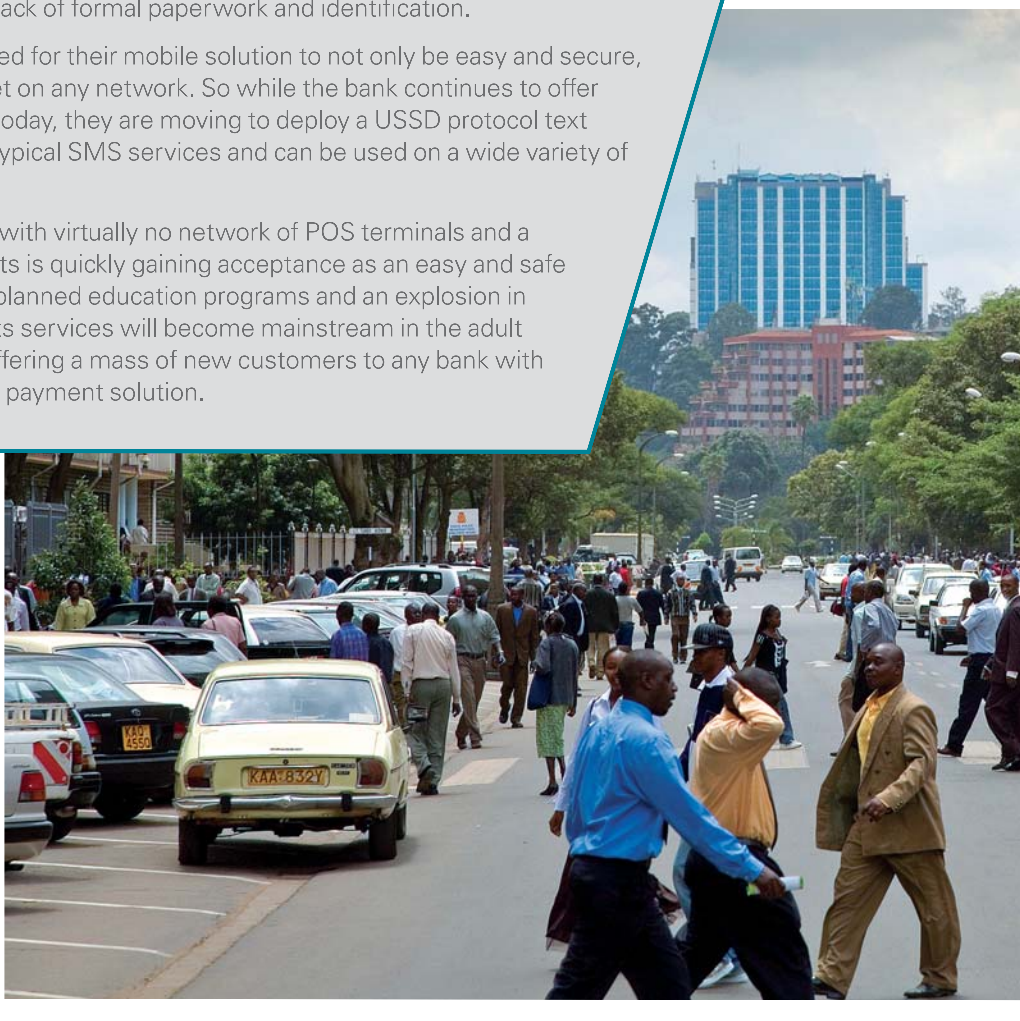
For a large African bank with regional operations in more than 15 countries, the imperative of mobile payments was obvious. In some operating countries, almost two thirds of all adults had a mobile phone, but less than ten percent had a bank account. But for the bank, mobile payments was about more than banking the 'unbanked'. It also provided an opportunity for the bank to reduce the cost to serve its existing customers and retain them in a highly competitive market.

To achieve this, the bank focused its mobile solutions on their existing customer base. Having already deployed a mobile banking application, the bank was now focusing on providing a payment service that could be used for both remittances and merchant payments.

The bank currently offers an application-based payment service, but admits that uptake has been slower than expected. In part, this is due to the limited capabilities of many mobile phones in the region, but it is also impacted by their target market's lack of formal paperwork and identification.

Bank executives clearly recognize the need for their mobile solution to not only be easy and secure, but also to operate on almost any handset on any network. So while the bank continues to offer a JAVA-based downloadable application today, they are moving to deploy a USSD protocol text option that provides more security than typical SMS services and can be used on a wide variety of handsets.

Already, the bank has quickly found that, with virtually no network of POS terminals and a burgeoning informal sector, P2P payments is quickly gaining acceptance as an easy and safe method for making payments. And with planned education programs and an explosion in mobile usage, the bank anticipates that its services will become mainstream in the adult population within the next three years, offering a mass of new customers to any bank with a compelling, safe and accessible mobile payment solution.



"It is still not clear how payment functions will work on mobile phones."

European payments processor

Waiting for standards

As noted previously, the ongoing lack of consistent global technology standards for mobile payments represents another critical barrier to the evolution of mobile payments. Indeed, participants in our study unanimously identified the need for standards as a key requirement for the commercialization of mobile payments.

Standards are critical for a number of reasons. For one, mobile payment technology standards will enable banks and their technology providers to provide a globally accepted payment method that provides their customers with greater flexibility and mobility. Standards will also be required to effectively facilitate the payment process across the value chain, from customer to payment processor to banks.

As a result, many banks are taking a 'wait-and-see' approach to technology. Again, there may be some merit to this position, particularly for smaller banks. As we discuss on page 24, the development and deployment of a mobile payment solution can be capital-intensive, and for some banks the risk of losing certain customer segments may pose less of a risk than the up-front cost of investing in a solution based on an unproven technology standard.

And while some continue to stand on the sidelines waiting for standards to be set, the innovators are taking a more proactive approach by working collaboratively with others in the value chain to influence and catalyze the standards-setting process and test solutions in collaborative pilot programs. In the Netherlands, for example, the three largest banks and the three largest telcos have formed a collaborative forum (commonly referred to as the Six Pack) to create a common national approach to standard setting. The US has also seen similar initiatives, particularly the ISIS group which – while originally dominated by the MNOs – has recently invited banks to participate in collaborative discussions. Other innovative banks are focusing on participating in multiple forums and levels of dialogue to create a single global perspective on standards setting.

But banks are not the only ones vying for the driver's seat in the creation of standards. Indeed, it will require all parties in the payment value chain to work together to deliver a common standard that can operate across banks and geographies to provide customers with a convenient and effective service.

> **"You don`t want to create something that can`t be used outside of your region."**
>
> ***European bank executive***

Case study:
Setting standards and building capacity

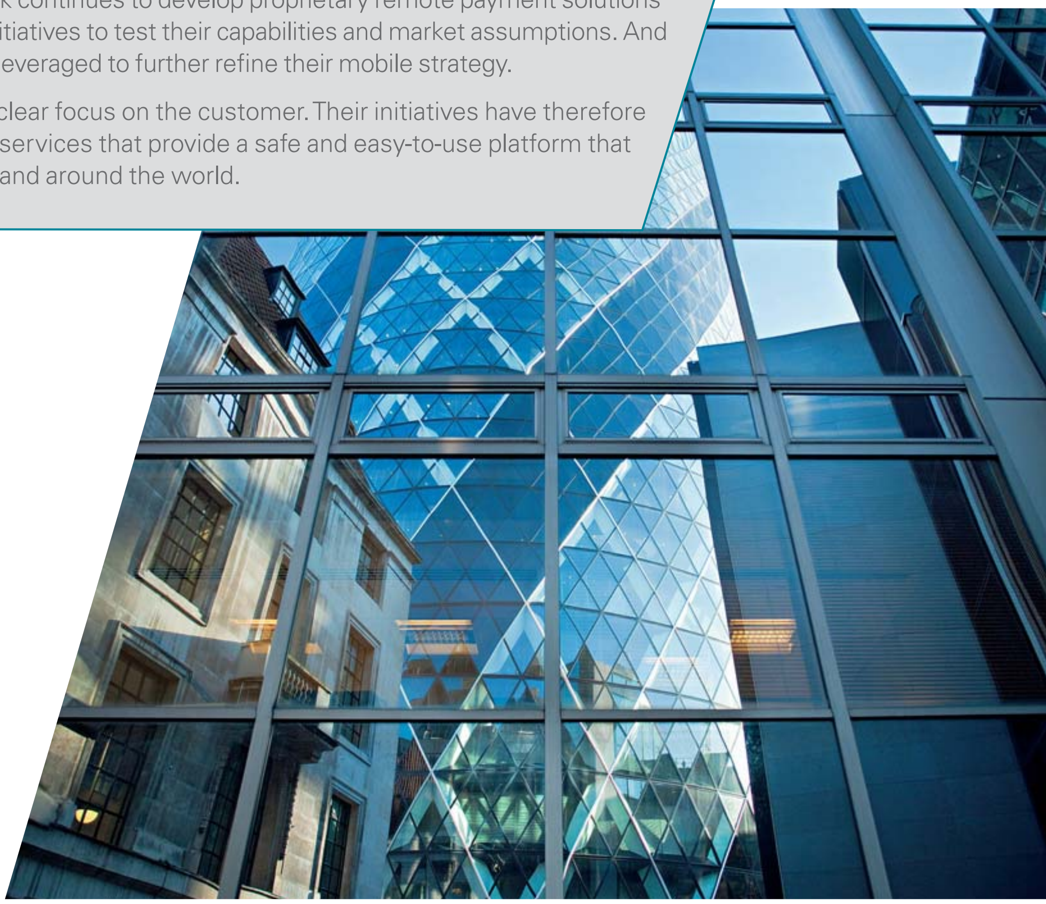
The drive for industry-wide mobile payment standards has brought many banks to see active participation in standards forums as a key component of their mobile channel strategy. For a European regional bank, this meant working on both an independent and a collaborative level to achieve their objectives.

For example, members of the bank's mobile strategy team participate in functional working groups on national, regional and international levels. Their involvement has enabled them to achieve greater insight into the direction that mobile payment standards will take, and thereby adjust their mobile strategy to take advantage of new and emerging opportunities. At the same time, they have also been able to take an active role in shaping the development of those standards to ensure that they evolve into a system that provides maximum benefit to banks.

And by cooperating with a wide range of partners such as MNOs, merchants and regulators, the bank also believes that it will achieve much faster uptake with customers, and wider acceptance by merchants as a result of their collaborative approach.

On an individual level, however, the bank continues to develop proprietary remote payment solutions and pilot localized proximity payment initiatives to test their capabilities and market assumptions. And the lessons they are learning are being leveraged to further refine their mobile strategy.

At the foundation of their strategy is a clear focus on the customer. Their initiatives have therefore focused on creating customer-friendly services that provide a safe and easy-to-use platform that is widely accepted both in their region and around the world.



"Something has to bring players to agree to common criteria."

UK bank executive

"We are locked in a constant battle against those that try to breach our system."

European bank executive

Security concerns

Another key technology challenge relates to security. Recent large-scale security breaches in other industries have heightened public concern and scrutiny on company security policies. And while banks and financial institutions are no strangers to security and privacy issues, almost three quarters of respondents to our online poll suggested that security was their leading concern as they develop their mobile payment strategies.

Indeed, smart phones are increasingly coming under scrutiny for offering comparatively lax security controls when compared to PCs. And as consumers start to use their phones for highly-secure financial transactions, many pundits believe that the devices will come under more frequent and aggressive attacks by criminal hackers.

A number of bank executives however, appear less concerned about security than their peers. And while most admit that authentication procedures may pose a big challenge, they are also more inclined to view mobile security as just another component of their rigorous corporate approach to security.

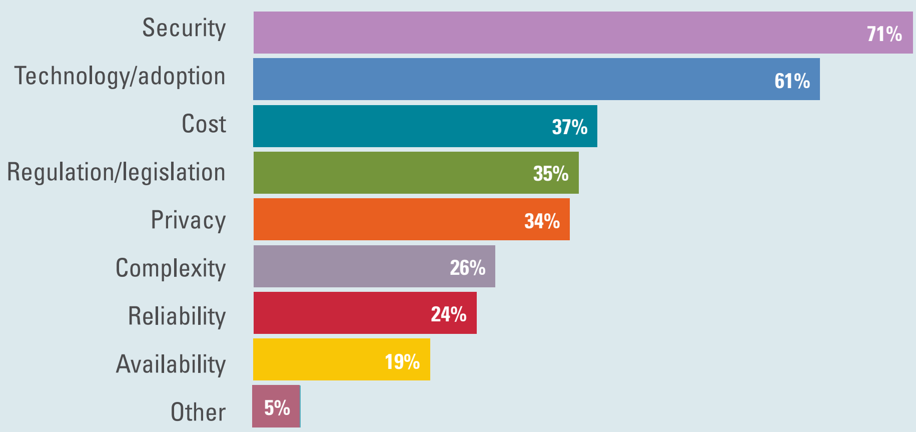
Customers may think differently. Those banks that have already conducted pilot programs report that most customers take a conservative approach to mobile payments until they become more comfortable with the security protocols of the process.

To overcome potential customer concerns, most banks are relying on their existing reputations for security to provide a 'halo effect' to their mobile services. In most cases, this is justified. But banks that follow this path will want to warrant the security and safeguards of their value chain partners to ensure that customers receive the high level of security they expect from their financial institutions. Needless to say, a breach in security on the mobile channel can easily impact the customer perception of other channels as well, so banks will want to make sure that they (and their partners) get this right.

And as we discuss on page 23, there are a number of newer competitors now entering the market that may be able to brandish a stronger reputation for security than the banks and could easily challenge the hegemony of banks in the payment industry; Apple, Google and PayPal are the most obvious, but others are emerging every day.

"Our survey finds that the level of concern regarding security seems to vary from region to region and country to country." noted Andrew Dickinson, Head of Banking, Asia Pacific with KPMG in Australia. "In Asia, for example, the Singapore regulator is very focused on ensuring security and privacy, and, as a result, Singapore consumers tend to mirror a similar level of concern; but in Indonesia, the population seems quite comfortable with SMS text and do not seem overly concerned with security."

What in your opinion are the main challenges companies face as they develop mobile payment strategies?



Source: KPMG International 2011

The cost of investment

Across the payment value chain, all participants voiced concern about the cost of the investment that would be required to build out a new payment method. Notwithstanding the expense of developing a merchant acceptance network, the roll-out of mobile payment solutions will likely require not just a financial investment, but may also necessitate a business model transformation with implications across the front and back end of the bank.

The cost pressures are felt by banks of all sizes. On the one hand, many smaller and regional banks may have trouble accessing the levels of capital required to participate in the mobile payment ecosystem. But even larger global banks report difficulty in building a strong business case for mobile payments.

A number of banks, however, are taking a different approach to justifying the costs of building a mobile payment solution by looking at both the quantitative and the qualitative benefits for the bank and its customers. Indeed, a handful of respondents to our survey indicated that they were moving ahead without a strong business case, focused instead on building early market dominance and appealing to the growing mobile customer segment.

The way forward

Clearly, there are a number of critical challenges that the industry as a whole will need to surmount before mobile payment solutions can gain significant traction with customers. And – given the fluid nature of technology today – bank executives would be wise to carefully consider the implications that each of these challenges has on their business as they work to design and improve their mobile payments strategy.

"It's a challenge to put together a firm business case that doesn't show revenues until later down the road."

European bank executive

The business strategy for retail

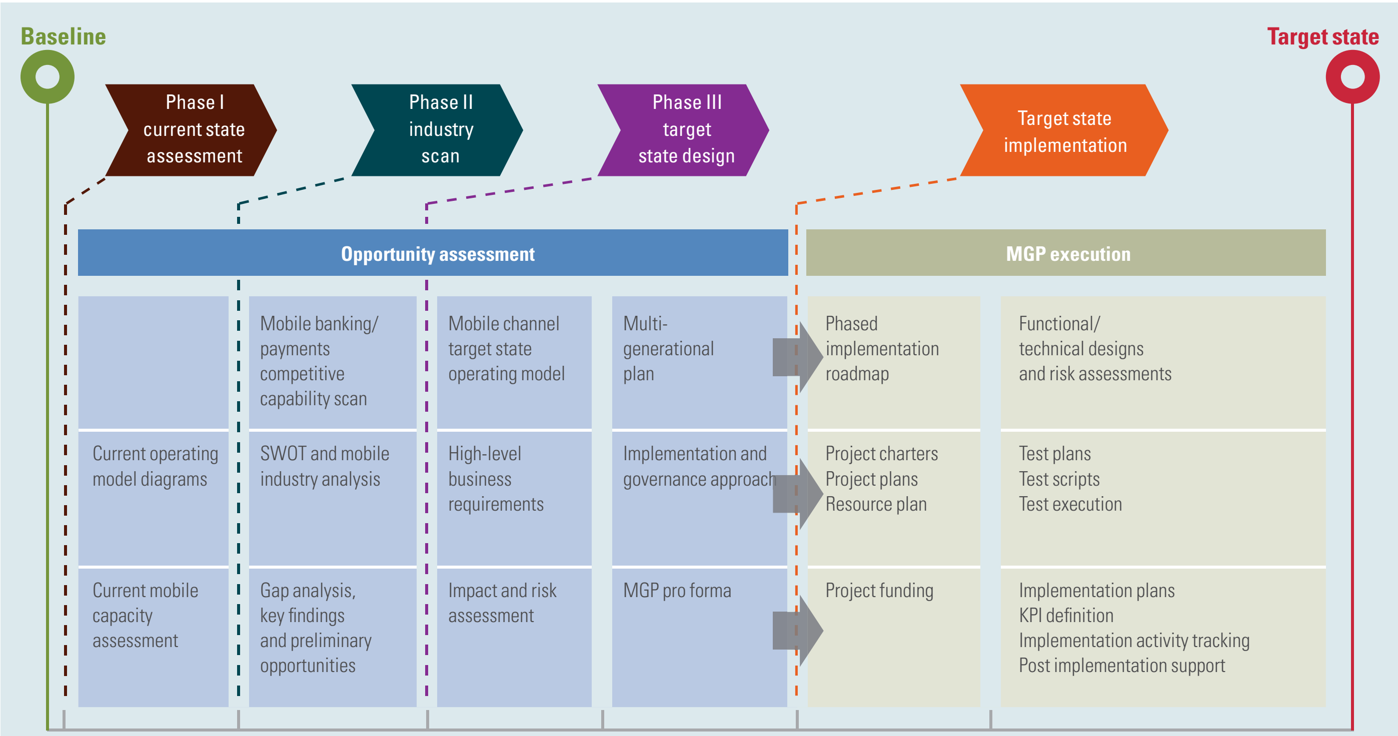
Without a strong and flexible strategy, retail banks may miss out on many of the rapidly emerging opportunities presented by mobile payments.

Building a sustainable and achievable strategy in the face of a complex and uncertain technology environment isn't easy. It requires banking executives to be decisive about the objectives they hope to achieve and the route by which they might travel to get there.

For example, organizations pursuing reputational benefits may want to focus on being first-to-market with mobile solutions in order to demonstrate their innovative nature and customer focus. Others may prefer to set more quantitative objectives around revenue generation and may therefore focus on developing high-value services that merit a premium fee. And those pursuing customer loyalty benefits will want to ensure they are focused on meeting and exceeding their customer expectations.

Central to any strategy for retail banks must – of course – be the customer. Indeed, the ability to accurately assess customer segments, trends, demands and concerns will be critical to creating a strong and valuable mobile payment strategy.

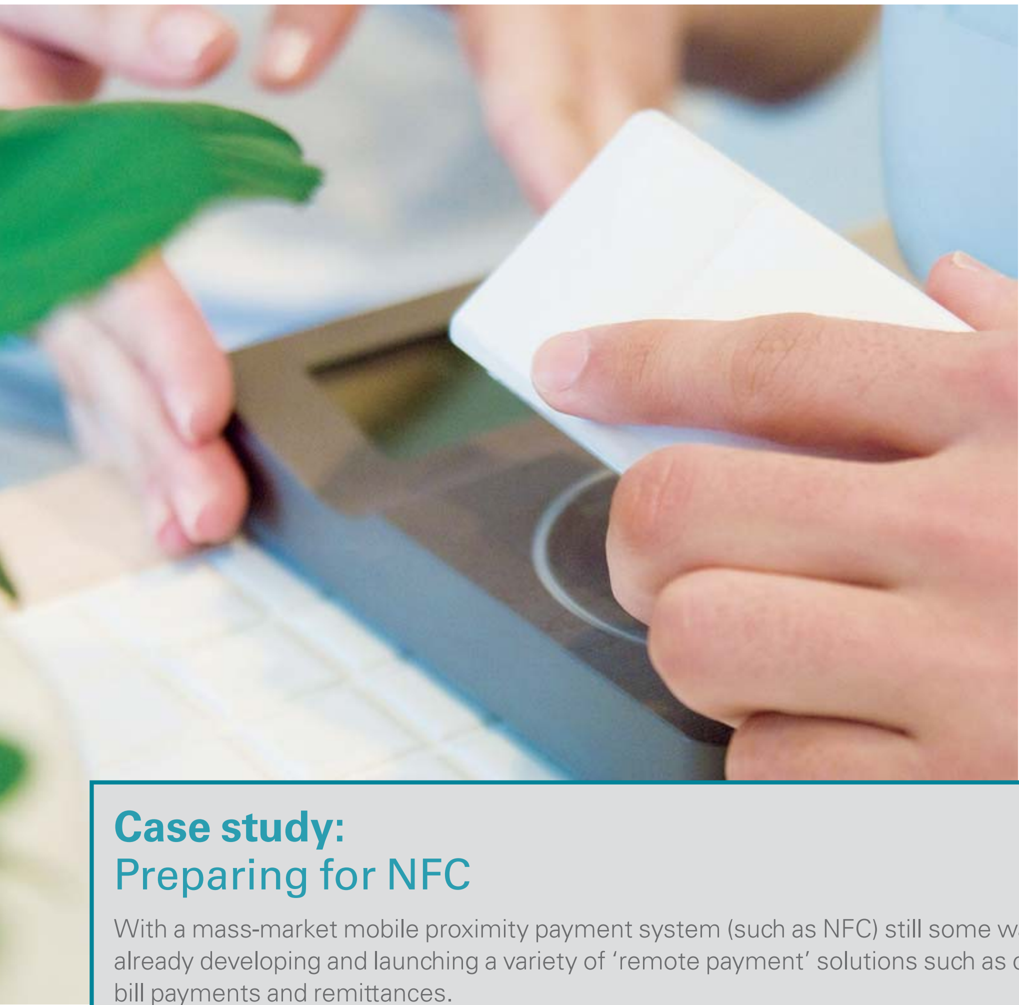
This will involve banks focusing on key strategic elements such as target customer segmentation and product development and management. Equally important will be the ability to translate evolving customer needs into sustainable business models. In KPMG firms experience, this will require retail banks to move through a number of distinct phases that incrementally build toward a desired 'target state'.



Source: KPMG International

"All mobile banking solutions must be created with the customer in mind. Banks cannot lose sight of their targeted end user segments as they develop their strategy."

Fred Schneidereit, KPMG in Germany



"Our service meets our customers' needs by managing the payment requirements via mobile, and also brings in a revenue angle as well."

Asia Pacific bank executive

Case study: Preparing for NFC

With a mass-market mobile proximity payment system (such as NFC) still some ways off, many banks are already developing and launching a variety of 'remote payment' solutions such as cell-phone 'top-ups', remote bill payments and remittances.

In the case of one regional Asian bank, remote payment solutions offered a number of compelling benefits. For one, the initiative reinforced its reputation as an innovative retail bank that delivered customer-focused services. It also built awareness within their 'early adopter' customer base and helped them become accustomed to using their mobile devices for financial transactions.

But more importantly, the bank also tapped into new sources of revenue and built a strong market presence as the first to market with many mobile payment services. For example, the bank's 'top-up' service delivers not just payment revenues, but also a percentage of the total sale. The bank has also enabled the purchase of consumer items through their web portal, which has driven adoption and increased their payment revenues.

Of course, the bank expects some form of proximity payment system to formalize soon, and so is working with merchants to conduct pilot programs with contactless cards and NFC companion devices. Again, this has provided some valuable lessons to the bank in terms of customer and merchant adoption.

Executives at the bank are confident that they are gaining competitive advantage through their mobile payments solutions. And while they admit that quantifiable metrics and clear revenue streams are not always available, they seem certain that the qualitative benefits and positive response they are receiving from their customers is already paying dividends on their investment.

Reducing costs and capturing new revenue streams

While most revenue generating opportunities for banks are currently undefined or unproven, one does not need a lot of imagination to see the potential that mobile payments offer banks and their customers.

In much the same way that the internet rapidly evolved from an information-sharing platform to a commercial enabler, so too will mobile payments revolutionize many commercial segments both inside and outside of the traditional payments value chain.

Indeed, retail banks would be well served to stop considering mobile payments as simply an extension of their existing channels and start thinking about 'blue-sky' revenue generation opportunities. Once again, our survey illustrated that innovator banks are pressing ahead.

Those that have already evolved their mobile banking platform to facilitate remote payments are starting to secure new revenue streams from services such as cellular 'top-up' accounts and mobile securities trading. Others are developing their mobile solutions into a 'premium channel' where service fees are applied to offset the cost of the network and raise revenues.

Of course, broad uptake of mobile payments should also lead to stronger revenues by increasing the number of non-cash transactions that are processed by the bank. And even though few are overtly talking about the opportunity, banks that are able to tie their mobile banking service into couponing and loyalty programs may stand to gain incremental revenues from these new sources.

Networks are critical

As retail bankers define their mobile payments strategy and future operating model, they will also need to closely monitor the progress of merchant acquirers as they work to quickly build critical mass and develop a robust infrastructure and POS terminal networks to properly facilitate NFC technologies.

This is a complex issue. On the one hand, many merchants will not accept new terminals without strong consumer demand. But on the other hand, consumer demand will be driven by the availability of terminals at a mass of merchants.

As a result, many banks are now looking to their traditional merchant acquirer to create compelling mobile payment solutions aimed at educating and enrolling merchants. Some acquirers are already making headway on swapping out older model POS terminals and replacing them with NFC enabled versions, but this process will likely take a number of years rather than months.

"Since some POS terminal systems are funded by the merchants themselves," noted Mitchell Siegel, a Partner in the financial services practice at KPMG in the US. "Banks and their acquirer partners will need to place heavy emphasis on educating and informing merchants about the potential benefits of mobile payments to drive acceptance and terminal adoption."

However, in many parts of the world, particularly in Europe, many acquirers are already in the midst of a large-scale terminal swap-out to reflect the new 'chip and pin' standards, and this may create 'upgrade fatigue' within the merchant community that will need to be overcome.

In response, some merchant acquirers are developing new pricing models. In the US, for example, acquirers are starting to explore 'free-to-implement' solutions that eliminate the up-front costs in return for higher usage fees. Others are offering mobile debit and card clearing applications for mobile devices that allow small businesses and tradesmen to enjoy the benefits of a mobile POS terminal without purchasing any of the required hardware.

But, according to a large European retailer, banks will have trouble rolling out any system without ensuring it is both effective and cost efficient for the merchants and the consumer. Indeed, it seems safe to say that most consumers prioritize cost over efficiency, and therefore any 'premium' costs for mobile payment services may only go towards depressing adoption and merchant acceptance.

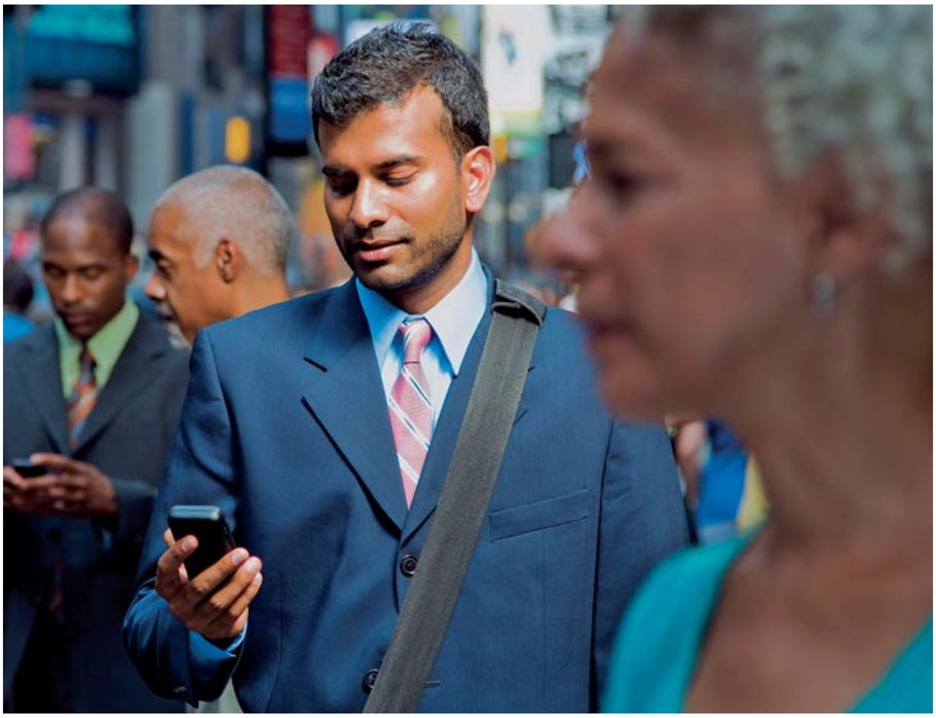
> "Banks and MNOs can either go in hand in hand and grow the market, or fight separately and share the market."

Asian retail bank executive

Spectrum of emerging mobile payments

Mobile bill capture and pay	P2P/International remittance	Mobile shopping	POS/Proximity payments
• Overview: Consumers download a mobile payments application that enables users to pay bills simply by snapping a photo of a paper bill or invoice with their smart phone camera without writing a check or setting up a template. • FI Offerings: Most major banks offer a mobile version of their basic online bill pay. Chase has recently partnered with Mitek to offer mobile bill capture & pay functionality.	• Overview: P2P fund transfers allow consumers to transfer funds to each other using an email address or phone number (no account details required). In order to claim funds, users must register and verify their identify with the service provider. • FI Offerings: Many of the jumbo banks have already entered the P2P market with solutions tied to their mobile banking platform.	• Overview: Consumer uses mobile web or application to search for and purchase goods online; similar experience to online shopping • FI Offerings: Many major e-retailers offer mobile versions of their online sites. While no such solution is has been launched to date, FIs may be able to leverage this channel to enable credit card rewards redemption via mobile.	• Overview: "Wave and Pay" or "Tap and Go" technology, where phones are embedded with NFC technology or enabled with NFC capabilities via a companion device and waved in front of an NFC-compatible terminal for payment. • FI Offerings: Visa has partnered with DeviceFidelity to offer microSD payment technology to its issuing bank partners. The microSD cards can be inserted into the phone's memory slot to enable the device for payment. Contactless stickers and NFC-enabled phone covers are also widely available and being tested by Fis.

Source: KPMG International



> "The acquiring side crucial to success, but – right now – it's a chicken and egg situation."

Asia Pacific bank executive

Partnering with MNOs?

For their part, many retail banks are forming partnerships with new members of the mobile value chain to build capacity, agree on standards and design and deliver solutions.

The 'Six Pack' group in the Netherlands, for example, is a combination of banks and MNOs who – amongst other goals – are working together to create a Trusted Service Manager (TSM) that could work between the MNOs and banks to deliver the mobile payment infrastructure.

Already, there are a number of working models – particularly in the developing world – where MNOs take a lead role in deploying and maintaining mobile payment networks. However, most banks remain sceptical about the potential of working directly with MNOs, citing a number of significant challenges.

For one, adding MNOs into the payment value chain will have a direct bottom line impact due to the need to share revenues across a wider group of participants. Partnering directly with MNOs also requires the bank to maintain multiple partnership agreements to ensure that services are broadly available to their customers, regardless of their carrier.

However, the key stumbling block on the path to greater cooperation between MNOs and banks relates to the ownership of customer data and relationships. For banks, mobile payments offer a rich source of data on customer purchasing patterns and payment preferences that provide great insight into customer behaviour. The MNOs, on the other hand, see the potential for a new revenue channel as purchasing decisions are translated into targeted ads that provide advertising revenue opportunities for the MNOs.

But in reality, banks may find that they have little choice but to partner with MNOs. Should a SIM card technology emerge as the eventual winner of the NFC technology wars, banks will need to quickly reassess their relationship with MNOs. And, according to those respondents to our survey who had already deployed a form of mobile payments into the market, partnering with local MNOs to test and integrate their platform was a critical component to ensuring customer adoption.

"Bank executives would be wise to keep lines of dialogue and cooperation open with their MNOs and to continue to explore collaborative operating models," commented Andrew Dickinson, Head of Banking, Asia Pacific with KPMG in Australia. "At least until the technology questions are resolved and the new payment value chain formalized."

"There is good reason for banks to be concerned about the impact of the alternative payment providers."

Fred Schneidereit, KPMG in Germany

New competitors threaten revenue

MNOs also pose a significant threat to the hegemony of banks over the payment system. As we have seen in Africa and parts of Asia, there is already an established model for an MNO-led mobile payment solution. However, many respondents suggested that – on the whole – telcos are not positioned to manage the complexities of banking (particularly the regulatory requirements) to pose a significant threat. Telco market observers will also note that most MNOs are likely already too engrossed in upgrading their networks to expend additional capital or resources on developing new and largely untested revenue streams.

But one thing is certain: banks are not the only ones aggressively pursuing revenues from mobile payments. Indeed, there are a burgeoning group of alternative payment providers that could easily upturn the dominance of banks in the payment industry.

Recent announcements by consumer power-houses Apple and Google, for example, clearly signal the emergence of a new breed of competitor. These organizations enjoy a number of significant advantages over banks including control over device manufacturers, proprietary and robust networks, world-wide reach and sky-high consumer reputations. It is no surprise, therefore, that a number of respondents to our survey voiced concerns about the ability of these organizations to establish (or purchase) a bank to deliver experienced back-end support and thereby steal a significant part of the global payments market.

In a similar fashion, internet payments giant PayPal is also positioned to be either a potential threat or a valuable partner. With payment volume in excess of US$90 billion in 2010, PayPal[5] currently leverages the online environment to facilitate payments using the established banking infrastructure, but all that could change if the highly-regarded and popular payment provider sees an opportunity to grow their revenues by 'going it alone'.

There is good reason for banks to be concerned. Alternative payment providers are usually not regulated in the same way as banks, allowing them to move faster and with less risk. They also tend to be more entrepreneurial and dynamic in nature, allowing them to take advantage of new opportunities as they arise. But the biggest driver for these organizations is the potential to link internet searches to payments and thereby monetise their advertising potential much more effectively. And with a clear path to revenue generation, the alternative payment providers will be much more motivated to capture the market and extend their dominance before others.

Building consumer adoption

Of course, it will all be for naught if consumers do not adopt mobile payments en masse. In part, consumer adoption of mobile payments will rely on the continued ascendency of smart phones and other mobile devices. As these devices become more sophisticated, and as consumers increasingly conduct more of their day-to-day tasks using wireless 'apps', acceptance and comfort with mobile payments will certainly accelerate.

But banks and other participants in the payment value chain will also need to proactively drive customer adoption if they want to build the critical mass required to operate a mobile payments solution.

For those with existing mobile payment solutions in the market, the greatest uptake has come from the

[5] PayPal Corporate 2010 Full-Year Financials results

> **"PayPal especially has built an amazing network and merchant program so they'll either be a real threat or a great partner."**
>
> ***Asian retail bank executive***

early-adopter segment and young families. Early indications also show that early adopters tend to exponentially increase the size and frequency of their mobile payments in line with increased use and familiarity.

Some are taking a more analytical approach to targeting. In one example, a bank segregated all call-centre calls that originated from mobile phones to allow customer service to introduce their mobile banking and payment solutions. This enabled the bank to target existing customers who had already demonstrated a high propensity to use their mobile phone for day-to-day tasks.

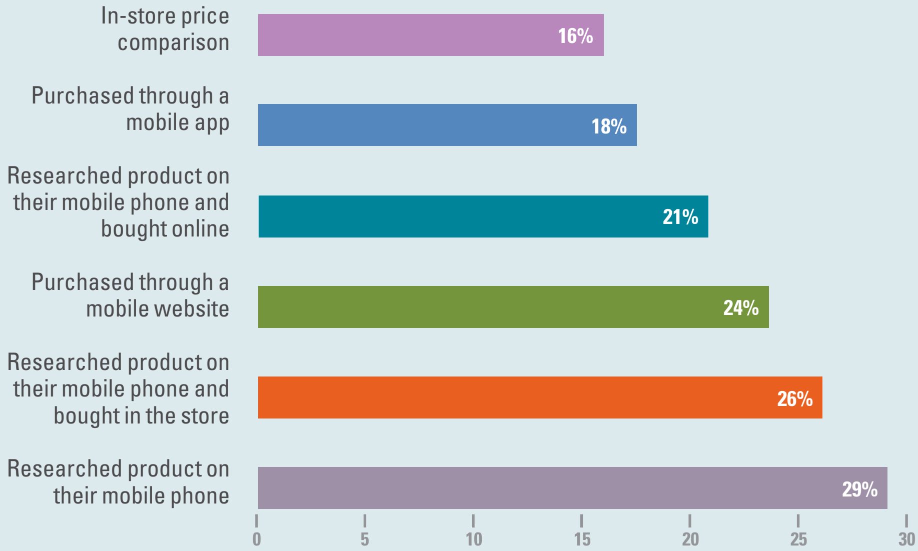
Others believe that – under the right circumstances – mobile payments could easily become a 'killer app', particularly if it can be combined with value-added services such as location-based advertising, loyalty cards and couponing.

As for mass marketing, respondents to our survey generally indicated that their mass advertising campaigns failed to return the desired response. However, targeted marketing campaigns tended to fair somewhat better (especially those targeted to students or Apple aficionados).

"Once a large number of retailers start to take on mobile payments for retail shopping you'll see a mass move to mobile payments."

European retail banker

Mobile shopping behavior- how consumers are using their phones



Source: Javelin Strategy, 2009

Mobile payment users by region (in thousands)

Region	2009	2010
Western Europe	4,519	7,127
North America	1,905	3,502
Asia Pacific	41,865	62,828
EMEA	16,823	27,091
Latin America	5,131	8,010
Total	**70,243**	**108,558**

Source: Gartner, June 2010

"In the next 24 months, the chips will be played and the different players will have taken their position. It will be hard to dislodge anyone once the stakes are distributed."

Global card payment executive

The emergence of corporate mobile services

Contrary to popular belief, mobile payments are not restricted to retail banks. Indeed, commercial banks are showing a growing interest in leveraging mobile as a key differentiator and potential revenue generator.

There are a number of key areas where mobile solutions may offer a convenient and valuable service to corporate banking clients. For small-to-medium enterprises, mobile authorization and account inquiries enable owners and finance leaders to review and approve charges in real-time and provide the necessary approvals to process payments.

Hierarchal authorization processes, common in most medium and large organizations, can also be facilitated by mobile payment solutions, particularly in organizations where key authorization personnel are frequently on the road or traveling between disparate locations.

And while corporate banks will need to deal with many of the same challenges facing their retail peers, their path to mobile payments may be much less cumbersome.

In large part, this is because there are limited corporate services that can be moved to the mobile platform (so, for example, corporate banks need not be overly fussed about the uncertainty surrounding NFC and proximity payments). Unlike retail consumers, corporate clients also tend to be more uniform in their selection of mobile devices and platforms, meaning that corporate banks can focus on developing tailored solutions that meet their clients' needs rather than prioritizing mass-market appeal.

Again, our survey reveals a trend of innovators and followers in the corporate banking arena. Some have powered ahead and – having already deployed mobile authorization and balance check services – are exploring opportunities to drive new revenues by launching increasingly sophisticated value-added services into the market.

And while some corporate banks suggest that revenue generating opportunities are not their prime objective in developing mobile payment solutions, the challenge is often based in how corporate banks view the added value of mobile features in the corporate world.

"Those banks that approach mobile solutions as a simple extension of their existing ecommerce capabilities likely won't see it as a potential revenue driver," said Mitch Siegel, a Partner in the financial services practice at KPMG in the US. "But many innovative banks are finding that they can actually drive revenues from mobile by bundling enhanced corporate services such as cash management tools and key back office functionality."

But even amongst the innovator corporate banks, there is a recognition that adoption will be slow to come, particularly for clients that operate within highly regulated environments and who may be less inclined to adopt new technologies that are perceived to be higher risk.

These barriers may fall relatively quickly. As one respondent pointed out, all corporate clients are also retail clients in their personal life, and the more confident they become with retail mobile payments, the more they are likely to demand the same functionality at the office.

"Mobile services are a great way for banks to grow their middle market and corporate customer offerings while also expanding their global footprint."

Mitch Siegel, KPMG in the US

> **"Mobile will be an added value for any corporate where authorization managers spend a lot of time on the road."**

European corporate banker

Case study:
Driving revenues from corporate mobile banking

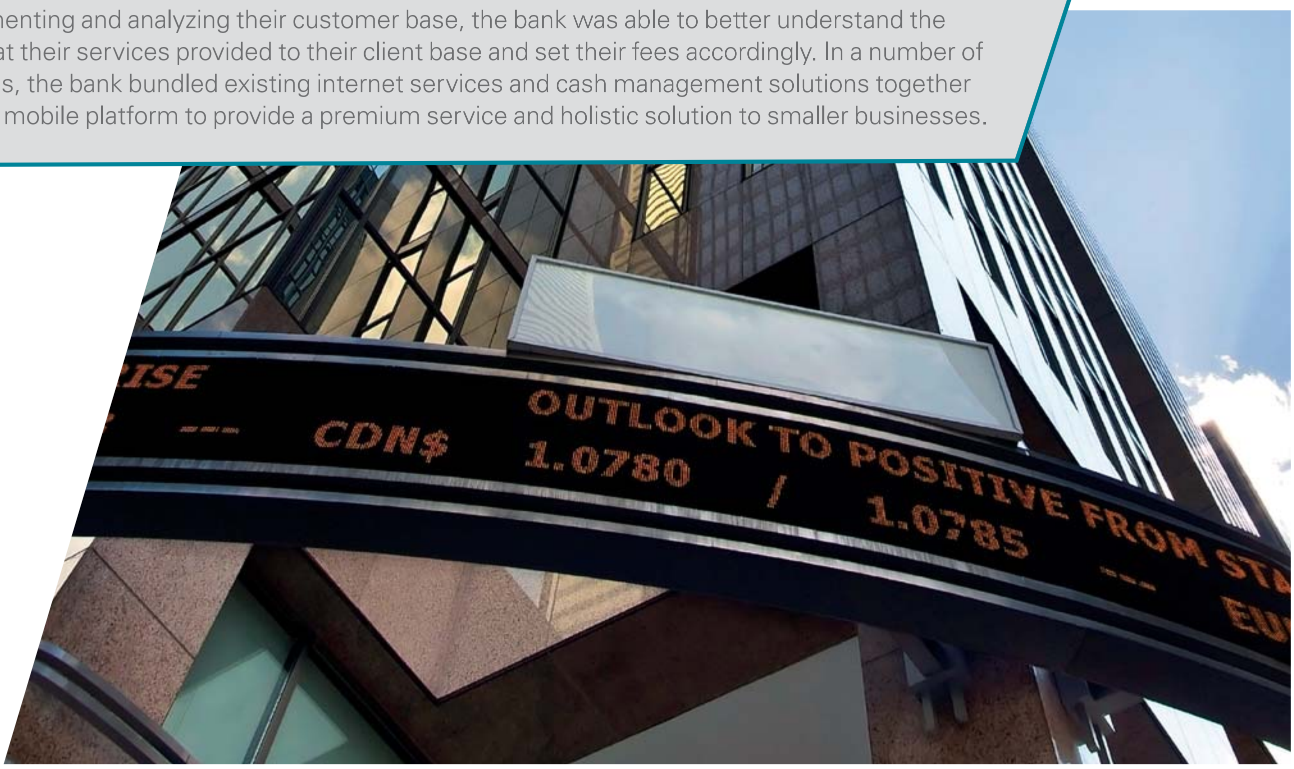
Will corporate clients adopt mobile payment solutions?

For a US-based global bank, the answer is a resounding 'Yes'.

With increasing pressure on its retail banking side, the bank has put an increased focus on growing their middle market and corporate customer offerings to gain new market share and drive new sources of revenue.

The bank developed a long-term plan that prioritized cash management solutions that would develop their global and local footprint to serve a wider customer base. As a result, the bank has focused on creating new services such as freedom alerts, remote authorization and mobile treasury services that targets the middle market specifically.

By segmenting and analyzing their customer base, the bank was able to better understand the value that their services provided to their client base and set their fees accordingly. In a number of situations, the bank bundled existing internet services and cash management solutions together with the mobile platform to provide a premium service and holistic solution to smaller businesses.



Scenario spectrum

The drive towards mobile banking and payments can take many forms and no two banks will approach the field in the same way. But, as we have noted throughout this survey, the development of mobile solutions tends to follow an evolutionary pattern that starts with basic mobile banking and progresses towards mobile payments at the physical POS. The following scenarios examine some of the impacts, benefits, challenges and customer considerations facing banks at three distinct points in this evolution.

	Basic mobile banking	**Enhanced mobile banking and remote mobile payments**	**Mobile payments at the physical POS**
Overview	The basic mobile banking market consists of financial institutions that are focused on developing and refining their mobile banking platform	The enhanced mobile banking and remote payments market consists of players with mature mobile offerings, healthy adoption rates, and basic remote payment services	The physical POS mobile payments marketplace is composed of traditional and non-traditional players vying for early market share of mobile payment revenues
Key features	Typically includes core service offerings such as account access, balance information and internal transfers and are usually on 1-2 technology platforms serviced by a vendor	Typically consists of market leading mobile banking features such as mobile deposit capture, mobile capture and bill pay, enhanced enrollment features, and some remote payment offerings such as person to person (P2P) payments	Features and functionality widely vary depending on the players involved and geography where the solution is being launched
Benefits	• Enhanced reputation and customer service • Reduced cost to serve (and therefore more flexible capital) • Can be straightforward to deploy • Easily integrated into existing internet banking services • Demonstrates innovation • Creates a base comfort level for consumers using mobile devices • Builds in-house experience and skills	• Reduces cost to serve and increases available capital • Streamlines processes and reduces manual intervention • Builds in-house experience and skills • Capitalizes on 'first-to-market' opportunities • Provides new revenue streams	• Protects existing payments revenues • Creates new revenue opportunities • Responds to customer demands
Customer impact	• Unfettered access to banking information and basic transactions • Convenience and ease of use • Integrated view of banking information and accounts • Higher customer loyalty and 'stickiness'	• Reduces branch and ATM visits • Delivers increased flexibility to customers • Builds comfort and acceptance of mobile payment solutions • Acts as a stepping stone to contactless and proximity payments	• Convenience and ease of use, particularly for low-value payments • Tighter security and privacy • Replaces traditional wallet or existing stored value accounts and electronic purse cards
Key considerations	• What is our mobile channel strategy? • What is our mobile commerce strategy? • What is our position on mobile payments? • What are our current mobile banking capabilities?	• Who is our mobile service vendor and are their capabilities sufficient? • What are leading practices in mobile commerce? • What should our mobile payments product look like? • What should our revenue sharing model look like?	• How should we plan for enhancements to our mobile platform? • How should we rollout our mobile payments pilot? • What are the estimated costs of the mobile payments initiative?

Conclusion

It seems clear from our research and our firms' extensive experience that mobile payments are set to transform the banking industry. On offer are a host of potential benefits and opportunities that have the power to not just protect bank's existing revenue streams, but potentially drive new revenues and capture market share ahead of competitors. For banks that are still standing on the sidelines of the race for mobile payment solutions, this is a critical juncture: continued delay may risk the loss of market share and revenues to competitors, but moving too hastily (or without a defined strategy) runs the risk of investing in a short-lived technology or solution. Even without a short-term launch strategy, these banks will need to keep a keen eye on mobile payment developments and – at the very least – conduct ongoing assessments of their situation and market environment.

Those banks that we have termed as mobile payment innovators also have cause for sober contemplation. What is the target operating model that they are trying to achieve? What is the ultimate value for the customer? What partners will they need to achieve that vision?

Indeed, across the payments value chain, the emergence of mobile payments should be hardening minds towards the imperative of strong strategic planning and creating a clear path to revenue generation and customer satisfaction.

For banks, the spectre of new, nimble and highly effective competitors taking control of the mobile payments market should be a clear and present danger. In fact, the traditional hegemony of banks over the payment process is certainly not guaranteed and is more at risk today than ever before.

But as banks struggle to move ahead in this constantly changing technology and competitive environment, it will be critical for them to understand not only their own objectives, but also those of their partners, competitors and – most importantly – their customers.

"KPMG member firms can help cut through the complexity of mobile payments offering clients strategies that deliver value not just to banks, but also to their customers."

Glossary of terms

App: Short and common name for mobile applications, apps provide proprietary services through a secure and easy to use program.

Embedded NFC: By including a microchip in mobile device hardware, manufacturers are able to add NFC capabilities to handsets, effectively turning mobile devices into contactless payment solutions.

EMV/Chip and Pin: EMV is a global standard that uses integrated circuit cards to enable the authentication of credit and debit card transactions (also known as Chip and Pin cards in Europe).

iOS/Android: Most mobile devices are powered by one of a handful of mobile operating systems such as iOS (developed by Apple) or Android (developed by Google).

Low-value Payments: While there is no formally set definition of what constitutes a low-value payment, the level tends to represent a nominal amount according to the spending trends within each jurisdiction.

MicroSD Card: Secure Digital cards, and their MicroSD counterparts act in a similar fashion to SIM Cards by storing a mobile users data and information in a secure format.

MNO: Mobile network operators are telecom companies with the proper radio spectrum licences and infrastructure to deliver robust services to mobile phone subscribers.

Mobile Banking: Platforms that enable customers to access financial services (such as transfers, bill payments, balance information and investment options).

Mobile Payments: The process of using a hand-held device to pay for a product or service at a point-of-sale.

NFC: Near Field Communications is a set of short-range wireless technologies that supports two-way communication of data such as banking information across short proximities.

NFC companion device: Companion devices enable users to add NFC capabilities onto mobile devices that do not contain embedded NFC. These usually take the form of stickers, dongles or fobs.

Proximity Payments: Using a device or card with an integrated circuit chip, payment is made by bringing the device within 3 inches of an enabled POS terminal.

SIM Card: A subscriber identity module (SIM) is an integrated circuit which stores subscriber information and mobile device identities in a secure and removable format.

Smart phone/device: The integration of mobile phones with sophisticated computing abilities to emulate the computing power and functionality of handheld computers.

SMS Text/Text Codes: Standing for Short Message Service, SMS has been used by merchants and banks since the 1980s to exchange information and make purchases using text codes (a 160 character or less code that generates an automated response from the recipient).

TSM: Specific to mobile payments, Trusted Service Managers work with banks and MNOs to bridge multiple banks and operators to ensure a interoperable and secure system.

USSD: Unstructured Supplementary Service Data (USSD) is a protocol used by GSM cellular telephones to provide services such as WAP browsing and mobile-money services.

WAP/Mobile Browser: Wireless Applications Protocol (or WAP) is a technology standard that enables mobile devices to view and interact with web-based programs and services.

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