Executive Summary

Mobile phones and disruption seem to go hand-in-hand. These devices have radically altered the business landscape across industries over the past decade, driving significant operating model change. Companies that have failed to overcome the challenges presented by mobile technology have learned the hard way how costly this can be.

Now it's the financial services industry's turn. Coupled with the rise of smartphones and the mobile Internet, mobility has changed the way people bank, shop and network. Furthermore, the use of mobile devices as a means of payment is perhaps the biggest disruption the banking industry has ever seen.

As mobile devices morph into wallets, they provide a new avenue of growth for banks in a slowly recovering global economy. However, technological advancements have opened up the mobile payments’ field to accommodate non-banking players that could cut into one of the traditional strongholds of banks. Several factors are driving this change, including:

- Consumer willingness to adopt new payment systems.
- Technological advancements in mobile devices, such as mobile Internet, mobile wallet and near-field communications (NFC).
- Retailers looking to enhance the point of sale (POS) experience.

Non-traditional players are shaking up the payments arena, threatening to marginalize banks’ role. These include mobile carriers, device manufacturers, e-commerce players, alternative payment networks and software developers. Globally, mobile payment adoption among consumers is growing. As mobile devices become ubiquitous in consumers’ daily lives, they are reshaping the payment landscape, making it imperative for banks to create services that will keep them ahead of the competition.

Much can be said about the potential mobile payments trend, but in the U.S., it is still a revolution in the making. A cohesive mobile payment ecosystem will require adoption of a common technological platform for payments, interoperability and cooperation from key stakeholders in different industries. Greater cooperation is also required to tackle another problem: a classic chicken-and-egg situation wherein merchants/retailers are reluctant to embrace mobile payments unless consumer adoption increases, and vice-versa. Creating awareness about the benefits of mobile payments is critical to its long-term success. That apart, data security has emerged as the primary barrier to
greater adoption of mobile payments at the consumer end.

For banks, however, the writing is on the wall: These institutions are best positioned to benefit from mobile payments, provided they act quickly and make the right moves. Even while studies show decreased consumer confidence in the banking industry as a whole, customers still trust banks to secure their money and their personal data. How banks leverage this trust will determine their success in the long run. Going forward, banks will need to invest in building capabilities to support a strong mobile strategy. The decisions they make regarding partnerships could determine whether they survive the onslaught from emerging non-traditional players.

On the technology front, banks need to invest in creating an interface between their legacy banking systems and their mobile operations. This calls for investment in a new set of capabilities, including data management, security, technology deployment, application development and management, etc.

We believe the following are key imperatives for banks:
• A clear strategy for partnering/competing with the different parties involved in the payment lifecycle.
• A long-term view regarding investment in technology.
• Prioritization of customer privacy and data security.
• Focus on customer education to generate greater buy-in.
• A strong value proposition to gain and retain customers.

Mobile-Enabled Disruption
Using mobile devices as a medium for payments is by no means a new idea. In Japan, DoCoMo introduced a mobile wallet service back in 2004. However, in the U.S. and Europe, several factors have had to fall into place for this idea to become more feasible. These include important developments on the infrastructure and technology front, including availability of faster wireless Internet access for mobile devices and the proliferation of smartphones and applications.

Over the past few years, consumer behavior has changed dramatically regarding Internet access, with mobile devices becoming a key means of doing so. In fact, the number of mobile Internet users will surpass desktop users by 2015. Thanks to their “anytime, anywhere” utility, smartphone usage has surged in the U.S. over the past few years, overtaking feature phones in terms of ownership among adult consumers. Growth in smartphone ownership has meant consumers are increasingly comfortable using these devices for a greater range of previously unheard of tasks, including product comparison, shopping, etc.

Mobile Payments Expected to Grow Worldwide
Gross Value of Mobile Payments Transactions, 2009 - 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. $m</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$100,000</td>
</tr>
<tr>
<td>2010</td>
<td>$200,000</td>
</tr>
<tr>
<td>2011</td>
<td>$300,000</td>
</tr>
<tr>
<td>2012</td>
<td>$400,000</td>
</tr>
<tr>
<td>2013</td>
<td>$500,000</td>
</tr>
<tr>
<td>2014</td>
<td>$600,000</td>
</tr>
<tr>
<td>2015</td>
<td>$700,000</td>
</tr>
</tbody>
</table>


Figure 1
Moreover, smartphones have transformed the behavior of consumers in their personal and professional lives. A Google and IPSOS OTX MediaCT survey of smartphone users found that 79% of respondents used a smartphone to help with shopping, while 74% made a purchase after conducting research using their device. Meanwhile, individuals are growing more inclined to carry their smart devices to work and use them for business-related purposes when away from the workplace.

The millennial generation is at the forefront of smartphone adoption. This generation is known for its savvy purchasing behavior, using these devices to seek advice, research products and services and find the best possible deals. They are active on social networks and prefer to transact with their banks online. When it comes to purchasing, they move across channels with ease and are increasingly comfortable using mobile phones as a means of purchase. Mobile device manufacturers, meanwhile, have upped the ante by developing highly intuitive devices capable of handling more complicated tasks than their predecessors.

These developments have been complemented by key trends in the payments ecosystem. Mobile payment volumes are expected to grow exponentially over the next few years (see Figure 1, previous page), representing 15% of all card transactions by 2013 and 100% of all card transactions in 10 years. Driving this trend is a proliferation of devices that are capable of mobile payments and are supported by payment infrastructure providers and mobile network operators. For industries such as retail and banks, this channel provides an important medium for staying close to customers because it ties together multiple touchpoints such as stores and Web sites. For example, retailers have been quick to implement mobile payment initiatives to create an enhanced POS experience in which customers check out using their mobile devices through applications downloaded to the smartphone.

For banks, this is an opportunity to break traditional payment boundaries and expand into in-store and non-proximity payments. To accomplish this, it is imperative for banks to work closely with players outside their domain, such as mobile network operators (MNOs). With mobile payments, this relationship will evolve, and banks will have to open up to additional players in the payment ecosystem, such as mobile device manufacturers and application developers.

State of Transformation

The ongoing transformation in the payment landscape has huge implications for all consumer-facing industries. Some companies in these industries have taken the first steps toward a mobile payment-driven future. A survey by

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**Consumer Convenience is Top Driver for Mobile Payment Initiatives**

Q: What are the top two pressures driving your company to focus resources on mobile payments?

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for greater consumer convenience</td>
<td>61%</td>
</tr>
<tr>
<td>Desire to take advantage of customer’s mobile phone or digital affinity</td>
<td>33%</td>
</tr>
<tr>
<td>Need to improve customer retention and loyalty</td>
<td>28%</td>
</tr>
<tr>
<td>Desire to be a market leader</td>
<td>24%</td>
</tr>
</tbody>
</table>

Response base: 75
Figure 2
Aberdeen Group found that 24% of respondents across sectors such as retail, banking and finance and hospitality have deployed mobile payment-related technologies.® Awareness is growing about payment options such as mobile wallets and NFC-enabled transactions, and several factors are pushing companies to adopt these initiatives. Top among these, not surprisingly, is the need to enhance the customer experience (see Figure 2, previous page).

In some cases, consortiums are forming to roll out mobile payments, such as Isis’s mobile wallet application, which is provided through a partnership of U.S. credit card companies, mobile carriers and banks. In other cases, individual companies are launching their own versions of the mobile wallet, including Google and Starbucks, the latter of which is seeing one in four card transactions now conducted via mobile device.® Elsewhere, the POS terminal is being transformed into a wireless and paperless digital entity. These terminals can e-mail receipts, read signatures and, with further advancements in technology, support mobile payments. POS terminal manufacturers are offering their own wireless payment solutions to merchants. Collaborations like these imply that the traditional payment landscape is primed for a complete transformation (see Figure 3).

Several technological innovations are at play in the mobile payments arena. These include NFC-enabled devices, mobile wallets, mobile Web payments and payment stickers. Still unknown is which of these will emerge as the dominant technology driving mobile payments. Initial trends point to NFC, which enables devices to read tags and conduct transactions.® Handset manufacturers have already begun shipping NFC-enabled devices in greater numbers; about 100 million devices are expected to be shipped in 2012, and the number is expected to hit 700 million by 2016.® Developments in technologies supporting NFC have the potential to support POS systems and mobile applications. NFC’s success will have much to do with how retailers, MNOs and banks collaborate.

**Hurdles in the Way**
The road ahead is not without stumbling blocks. Fast-paced innovation by industry players has remained disconnected from the common goal of creating a standardized mobile payment ecosystem. This has much to do with the highly competitive nature of the market. In countries where mobile payments have taken off, such as Japan and Singapore, a standardized payment infrastructure was implemented, led by the dominant market player or regulatory body. This infrastructure serves as the backbone for

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### Traditional Ecosystem Meets Non-Traditional Players

<table>
<thead>
<tr>
<th>Description</th>
<th>Traditional Payments Ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device manufacturer</td>
<td>Companies that research, develop and manufacture mobile phones based on consumer demand and technical innovation.</td>
</tr>
<tr>
<td>Mobile network operators (MNOs)</td>
<td>Mobile phone companies that sell NFC- and other payment-enabled phones.</td>
</tr>
<tr>
<td>Value-added service providers</td>
<td>Companies that provide additional mobile services such as couponing, loyalty, advertising, etc.</td>
</tr>
<tr>
<td>Software/application developers</td>
<td>Companies that create mobile payment applications that come pre-loaded or downloaded to the consumer’s mobile device.</td>
</tr>
<tr>
<td>Alternative solutions providers</td>
<td>Companies with strong brand presence and known for developing consumer-friendly mobile applications.</td>
</tr>
<tr>
<td>Trusted service managers</td>
<td>Independent third parties responsible for provisioning the consumer’s financial information (credit, debit, etc.) to the mobile device.</td>
</tr>
</tbody>
</table>

interoperability of various mobile payment offerings in these countries.

Comparatively, the U.S. mobile payment scene is at a nascent stage, with different proprietary mobile payment solutions available. Regulatory intervention to create a standardized payment infrastructure is highly unlikely. This means that market players will have to voluntarily collaborate on creating standards that will help to reduce redundancy and costs in the long run.

Revenue sharing between players is another important area that calls for cooperation between companies across industries. Making payments at a POS terminal through a virtual debit card embedded in a mobile phone means that different parties need to agree on sharing the revenue from these transactions. As of now, there is little clarity on a revenue-sharing model, but surveys indicate that partnerships between financial institutions and mobile operators are the most viable option (see Figure 4). Going forward, revenue sharing will act as the key incentive for market participants to create awareness and demand among consumers - critical to overcoming the initial reluctance of consumers and merchants.

For consumers, apart from the adoption of payment technologies by merchants, security has emerged as the top barrier to adopting mobile payments (see Figure 5, next page). Creating greater buy-in for mobile payments will require banks, which are viewed as custodians of consumer trust, to address these concerns beforehand.

Perhaps as important as sharing revenue is sharing customer data. At a time when a huge amount of customer data is being generated at various stages of the buying cycle, companies in the mobile payment value chain will want access to customer data to enhance insights into patterns of customer buying behavior. This data can be used by banks, retailers and mobile networks for different purposes. It is critical, therefore, that this issue is handled carefully by all parties involved.

Business Model Transformation

No other entity in the mobile payment value chain stands to be impacted more by these ongoing events as banks. The mobile payments market is already highly competitive, and in addition to emerging non-traditional competitors, players across the value chain are upping the ante to garner early market share. So while banks can play a crucial part in the mobile payments value chain, they will need to significantly change their business and organizational models to remain competitive.

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### Revenue-Sharing Models: Banks Play Critical Role

**Q: What is the most feasible mobile payments business model?**

<table>
<thead>
<tr>
<th>Business Model</th>
<th>Percent of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile-financial institution partnership</td>
<td>43</td>
</tr>
<tr>
<td>Open federation model (common platform shared by alliance of carriers and financial institutions)</td>
<td>26</td>
</tr>
<tr>
<td>Third-party intermediation model (PayPal mobile, MobileLime, etc.)</td>
<td>20</td>
</tr>
<tr>
<td>Mobile carrier going solo</td>
<td>7</td>
</tr>
<tr>
<td>Financial institution going solo</td>
<td>4</td>
</tr>
</tbody>
</table>


*Figure 4*
New-age competitors such as Google pose a clear threat to banks’ hegemony in payments. The mobile wallet service offered by Google allows the company to position itself uniquely at the POS terminal and provide value-added services such as financial planning. Mobile transfer facilities provided by MNOs is another threat for banks, as they allow customers to bypass the mobile/online banking services that banks offer. In this model, banks are pushed to the back-end, virtually out of the consumer’s sight.

Then there are the innovations at the POS terminal. Retailers, many of which are well-positioned to understand their customers, are known to be working on their own mobile payment solutions. Other start-ups, such as Boku, are introducing innovative platforms that mobile carriers could provide to their subscribers, allowing them to use a prepaid debit card to make online, mobile and in-store payments.

Online payment company PayPal, in the meantime, has already created a strong presence in mobile payments. Its mobile payment volumes jumped five times, reaching $4 billion in 2011, and it has launched a new device for scanning cards at the POS terminal, similar to the one offered by Square, a mobile payment startup that doubled its payments processing from $2 billion per year to $4 billion per year between October 2011 and March 2012.

The threat for banks is clear: They could be pushed to the sidelines as easy-to-use third-party mobile applications take center-stage on consumer smart devices. Countering this threat will require banks to overhaul their mobile offerings to make them attractive to end users.

**Imperatives for Banks**

As mobile payments evolve, banks find themselves in unfamiliar territory, dealing with competition from players that have developed niche capabilities to target customers precisely where they spend their time shopping, such as retail stores and mobile Web sites. As banks move into a highly regulated future that could add to their compliance costs, mobile payments have emerged as a welcome source of revenue. Banks that have invested in building mobile infrastructure now stand to benefit by extending these capabilities to the payment arena. Mobility is an effective distribution channel that has the potential to cost-effectively help banks reach new customer categories, such as the unbanked, emerging affluent and new-to-credit customers.

Historically, banks have lagged behind in adopting new customer-facing technologies, such as mobile banking. In May 2011, research firm Forrester found that 94% of banks surveyed had a mobile banking strategy in place, of which 38% were put in place less than a year before.

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**Data Security: Key Concern for Customers**

*Reasons for similar or decreased usage of smartphone for payments*

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm concerned about security/fraud</td>
<td>39%</td>
</tr>
<tr>
<td>I prefer to pay with debit cards</td>
<td>36%</td>
</tr>
<tr>
<td>I prefer to pay with cash</td>
<td>33%</td>
</tr>
<tr>
<td>I prefer to physically go to stores to see what I am buying</td>
<td>29%</td>
</tr>
<tr>
<td>I prefer to pay with credit cards</td>
<td>25%</td>
</tr>
<tr>
<td>I don't know how paying for things with a smartphone works</td>
<td>14%</td>
</tr>
<tr>
<td>It's harder to manage finances/account balances</td>
<td>9%</td>
</tr>
</tbody>
</table>

*Response base:* 1,005
*Figure 5*
With mobile payments, too, there has been a tendency to adopt a wait-and-watch approach toward emerging and dynamically changing technologies that are likely to dominate mobile payments, such as payment through WAP, SMS, mobile application, m-wallet and NFC. Nevertheless, it is clear that banks need to act quickly and intelligently to remain competitive.

Here are some key points that banks must consider in order to play an important role in the future of mobile payments:

- **Create an enhanced mobile presence:** Mobile has proved to be an essential channel for reaching consumers, as well as a lower cost one. To protect their share of the mobile payment market, banks need to apply more fire power to this channel. This calls for a comprehensive mobile strategy to be put in place, backed by in-house capabilities for creating a seamless and convenient customer experience through mobile. Banks that have invested in building a mobile banking infrastructure and creating a presence across the buying lifecycle through mobile applications, Web sites and applications will have a head start.

- **Build partnerships:** With the threat of marginalization and disintermediation, partnerships will play a key part in banks’ go-forward mobile payments strategy. Such a strategy will need to be based on banks’ vision of where they fit in the mobile payment arena. Based on this, they must identify and prioritize partnerships and revenue-sharing agreements with MNOs, mobile phone manufacturers and technology vendors. Google Wallet and Isis are prominent examples of what banks can expect, and as the market matures, partnerships like these are the best way for banks to maintain their prominence in payments.

- **Improve the customer value proposition:** At a broader strategic level, banks need to revisit their customer value proposition on mobile devices. As mobile payment services increase, banks have an opportunity to improve their customer retention rates. This needs to be accompanied by efforts to promote the mobile channel for banking, which would involve educating customers about the benefits of using mobile devices for payment and offering promotions to generate buy-in.

- **Protect customer data privacy:** As illustrated earlier, data privacy and security have emerged as critical issues over the past few years. Banks hold important personal information about customers, and the introduction of mobile devices introduces new threats of data hacking and fraud. Adverse incidents could harm customer trust and, hence, retention. This becomes even more critical in a scenario where players across industries want access to customer data. Industry players should employ trusted platforms and authentication protocols at different stages of the transaction to maintain the highest level of data security. Trusted service managers could emerge as key intermediaries to handle customer data as it passes through the mobile payment value chain. Here again, banks – historically seen as trusted guardians of personal data – need to educate customers about the technology they have put in place to secure data. This becomes more critical at a time when customer trust in alternate payment channels is on the rise.

- **Invest in technology:** In the race for mobile payments dominance, banks will have to work with a technology backbone that allows for standardized processing of mobile payments and interoperability of different payment platforms. An open platform along the lines of Isis or Google Wallet is the most likely model that will emerge as players realize the value it offers in terms of reduced costs and better user experience. This means banks will have to invest in creating technological layers that allow their legacy systems to work with such a platform.
Footnotes

1 The Aberdeen Group defines mobile payments as the ability for a consumer to fulfill payment transactions using a consumer-owned mobile or tablet device at a merchant or retail POS/check-out location or elsewhere. Mobile payments technology includes but is not limited to the use of mobile contactless or near-field communications (NFC), short message service (SMS), payment sticker, mobile wallet, wireless application protocol (WAP), direct mobile billing, pre-paid, smart poster and loyalty.


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