The new business models for operators

Carriers embrace new business opportunities in mobile commerce

September 2011

kpmg.com
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Executive summary

Mobile operators’ business continues to be roiled by radical shifts in consumer behavior, an ongoing expansion in the range of devices connected to their network, and aggressive efforts by new entrants to shift value from core network connections and capabilities to applications and network-agnostic services. It’s no epiphany to say that in order to reinvigorate growth in their business, operators should embrace new business models, move beyond the network, and extract value from their rich trove of customer data. However, the pace of change evinced by smartphones moving into the mainstream, data revenue surging, and a wave of mobile payments initiatives demands that service providers move aggressively from planning to action. Mobile commerce and mobile payments represent a potentially rich opportunity for carriers to expand their business, although doing so requires a focus on customer value while balancing consumer concerns regarding privacy and security.

Key findings
KPMG’s investigation into the state of mobile operators’ business yielded the following four key findings:

- **Operators’ traditional business models are under expanding revenue pressure.** Despite the new revenue coming from mobile broadband, smartphones, and myriad connected devices, these gains have been offset by rapid declines in voice revenue. Carriers’ future revenue growth will likely have to come from alternate sources and business models other than simply providing connections.

- **New opportunities emerge from operators’ wealth of customer data.** Carriers are sitting on a treasure trove of valuable information derived from their customers’ behavior—not just communications behavior but, potentially, their Internet meanderings. App developers and Internet businesses extract meaningful value from a narrow subset of these data today while operators fail to capitalize.

- **Mobile commerce and payments present attractive growth prospects for carriers.** Mobile phones and connected devices such as tablets are already driving significant commerce traffic, and these activities will likely increase as these devices are enabled by technologies like Near Field Communications (NFC) to support in-person transactions. But payments are only one portion of the commerce experience—from awareness and purchase consideration to customer support, all of which present opportunities for carriers to add value and drive new revenue.

- **Capitalizing on these prospects requires respect for customers’ privacy and security expectations.** New payment alternatives always raise security concerns for consumers, and with the marriage of virtual and physical information afforded by mobile commerce, privacy considerations will also likely be significant for consumers. Operators have built trusted brands and a track record of consumer protection that positions them well for commerce opportunities provided that they are transparent in their communication.
Market maturation brings challenges to carriers’ business

The cellular market has been an unmitigated success story. In the past 25 years, the number of U.S. subscriptions has expanded nearly three orders of magnitude and is about to exceed a penetration level of 100 percent. U.S. operators have invested more than $310 billion in capital expenditures to date; the revenue for the U.S. cellular industry in 2010 was nearly $160 billion. Wireless has been the growth engine for the telecom industry in the past decade. Yet with the maturation of this market, carriers now face significant challenges to growth, including:

- **Limited participation in the app economy.** While carriers have offered applications for sale to their customers for nearly a decade, uptake was very limited as was the resultant revenue. The iPhone® ushered in a new era for consumers, who now understand that the software delivered with their new smartphone is a tiny sampling of the range of experiences that are possible. Welcome to the app economy. Unfortunately for operators, it’s the developers and platform owners like Apple and Google that are reaping the substantial benefits of this new economy. At Apple’s 2010 Worldwide Developers Conference, Steve Jobs stated that the company had paid developers more than $2.5 billion as the result of sales of applications from its Apple App Store—implying more than $1 billion in new revenue for Apple. Operators like AT&T and Verizon Wireless, which subsidize the iPhone to attract and retain customers, are on the outside of that revenue flow.

- **Limited long-term growth prospects for data access.** Operators’ data revenue began with SMS, and the service has gone mainstream—Forrester reports that a majority of U.S. adult subscribers regularly use text messaging today. The advent of third-generation wireless networks and the growth in smartphones—in Q2 2011, smartphones represented 36 percent of Verizon Wireless’ postpaid subscriber base and nearly 60 percent of the phones sold to postpaid customers—has brought a new contributor to carriers’ bottom line: data access charges. Less than one-fourth of mobile phone owners subscribe to these plans today, so the outlook for growth is positive, although the adoption to date is in large part attributable to the plans’ positioning as “unlimited” (see Figure 1). In the long term, these unlimited data plans will likely saturate the market, and data access growth may stagnate. Carriers are therefore moving to replace these plans with usage-based alternatives; however, consumers are reluctant to switch for fear of unpredictability in cost as their usage increases and potentially leads to overage charges.

- **A proliferating ecosystem of connected devices—with lower average revenue per user (ARPU).** The new devices that consumers purchase are increasingly shipped with built-in connectivity, whether those devices are stationary, such as a TV or a Blu-ray player, or mobile, such as eReaders and portable game players. The majority of U.S. online adults now own multiple types of devices that connect regularly to the Net (see Figure 2). As these devices mature from just Wi-Fi and incorporate wide-area network connections, operators are able to add revenue by providing the underlying connectivity. The burgeoning number of additional connections brings both good and bad news to operators. The good news: the associated subscriptions are less costly to acquire, activate, and serve. The bad news: the ARPU attached to these devices is typically much lower than today’s ARPU figures and is less predictable, as the connections are often prepaid with no contract lock-in.

- **A saturated voice market.** Carriers are simply running out of consumers to whom they can sell mobile voice service. According to Forrester research, in the second quarter of 2010, 82 percent of all U.S. adults—and 88 percent of those between the ages of 18 and 44—had a mobile phone of their own. The CTIA – The Wireless Association estimated that, at the end of 2010, there were nearly 303 million mobile subscriptions in the United States, yielding a penetration level approaching 100 percent.©
Data access plans have yet to reach a majority of subscribers

“Do you have unlimited mobile data/Internet access on your primary cell phone?”

- 24% Yes
- 65% No
- 11% No answer

“Which of the following best describes the data service plan for your primary cell phone?”

- Pay a monthly fee for Internet access
- Pay separately each time use Internet access
- Have Internet access but don’t know how pay for it
- Do not have Internet access on cell phone

Source: Forrester Research, Inc.
**Declining voice revenue.** For the majority of mobile operators’ existence, voice service has been the cash cow that drove their business and still accounts for the lion’s share of operator revenues. Back in 2001, voice still accounted for 99 percent of the carrier’s service revenue, and in the third quarter of 2003, carriers like Verizon Wireless did not even mention the revenue contribution of data services such as SMS. In the intervening years, voice revenues have continued to decline while data revenues have accelerated—in its most recent quarter, Verizon reported that data accounted for more than 38 percent of its service revenue. Yet data’s contribution to ARPU has struggled to offset the decline experienced in voice (see Figure 3).

**Figure 2**
Most U.S. online adults have multiple types of devices connected

![Diagram showing the number of U.S. adults with multiple types of connected devices, ranging from 2+ to 9+ devices.]  
Base: 3,990 U.S. online adults

Source: Forrester Research, Inc.
Figure 3
Voice’s contribution to revenue is declining

Mean total ARPU
Mean data ARPU
Mean voice ARPU

Source: Quarterly earnings from AT&T, Sprint, T-Mobile, and Verizon 2005-11
Operators need new business models

The challenges that confront operators argue strongly that the traditional carrier business model is reaching its limit. Carriers fear being relegated to nothing more than a conduit—“a dumb pipe”—whose only path to monetization is a function of the volume of bits flowing through it. New offerings such as mobile broadband, tablets and other connected devices, and mobile hotspot service are extending the current model but, as noted above, are facing looming limitations. To reinvigorate growth in their business, operators need to expand their business and go beyond the subscription model that has sustained them for decades. Carriers’ most powerful asset in powering this expansion—a treasure trove of customer data—rests in their systems today, although leveraging this asset requires assuaging their customers’ concerns regarding the security and privacy of these data. This expansion may include:

- **Tapping revenue from sources other than subscribers.** The business models to date have almost exclusively relied on a single source: end users. Operators need to tap into other sources to supplement their income—the most prevalent example being the brands and marketers that seek to reach carriers’ customers. The broadcast and media industries have built robust businesses based on aggregating audiences attractive to advertisers based on their demographics and interests and then extracting fees for providing access to these audiences.

- **Facilitating more than just access, connections, and communications.** Notwithstanding complaints about network coverage, dropped calls, and other occasional annoyances, consumers and enterprises rely on carrier networks for ubiquitous, reliable service that connects them to what they need—communications, content, commerce, and the comfort of their social network. Yet it is others that customers turn to for these needs—consider that for most young adults, Facebook now performs the function that 411 services once did but with an added layer of control for those being searched. The network of worldwide carriers has a much larger data set of connections than does Facebook and for many consumers, a level of trust that exceeds that of new Internet entrants—operators have ceded these opportunities to others.

Operators’ opportunity to reinvent and diversify their business model rests primarily on their ability to extract value from their most underutilized and valuable assets: customer data. Carriers know a tremendous amount about their customers, both in the form of rich demographic data obtained during the service enrollment process and the robust behavioral data that carriers amass every moment of the day, acting as their customers’ ISP, the switch that connects their calls and messages. Doing so without incurring backlash will likely require sensitivity to customers’ data security and privacy concerns, but operators have brand identities and proven records as consumer advocates that enable them to address those concerns, provided that they are transparent in their communication. Additionally, recent developments such as Facebook’s brokering of its users’ social graph data via MicroStrategy’s Gateway product (via explicit opt-in, of course) may provide carriers an example to follow in terms of how to more easily monetize customer data.
A robust opportunity: Mobile commerce

These considerations, combined with the robust assets available to carriers today, surface a particular opportunity that operators should pursue: mobile commerce. Carriers have begun to place investments, establish joint ventures, and build partnerships with other players in the commerce environment to establish a foothold in this rapidly expanding market. The primary focus of these efforts today is in payments, but payments represent only one piece of the complete experience that commerce represents. Operators should consider opportunities throughout the chain of commerce from generating awareness to post-sales service and support. Because of mobile phones’ unique ability to bridge the physical and digital worlds, mobile commerce presents unique opportunities.

Carrier opportunities vary in the multiple faces of mobile commerce

Just as “commerce” has myriad aspects and components, there are a number of activities and applications that fall under the broad heading of mobile commerce, each at a different stage of development. Broadly, we see the following three primary divisions of mobile commerce:

- **Mobile banking.** This is essentially the translation of online financial services from the fixed Internet and the PC to mobile networks and devices. Already today, most financial institutions have created a mobile-optimized version of their online banking product, covering the basics such as checking the status of accounts and transactions, bill payments, and funds transfers. More forward-thinking institutions enable consumers with smartphone applications that provide more advanced functionality such as depositing a check by taking a picture using the camera built into their phone and sending the image to the bank. Carriers have little to add to this environment as consumers are generally extending their existing online behavior to a mobile device.

- **Mobile eCommerce.** As with mobile banking, mobile eCommerce is primarily an adaptation of an existing online behavior: shopping with online merchants. However, mobile eCommerce is tinged with consumers’ uncertainty because subscribers may encounter a plethora of merchants from which to buy, many of which are unknown or of dubious reputation. Just as with the early days of eCommerce—only 4 percent of U.S. online mobile phone owners visit retail mobile sites today—when consumers were unwilling to transmit their credit card information over the Internet, this uncertainty impedes transactions (see Figure 4). In contrast, PayPal is forecasting mobile revenue of $3 billion in 2011, which clearly indicates significant consumer opportunity is at hand. Because of carriers’ trusted function, they could play a role in authenticating merchants and consumers, ensure that consumers’ personal information is encrypted in transit, and mediate the terms under which consumers allow personally identifiable information to be shared with merchants. Carriers could also facilitate commerce for merchants by enabling access to consumers who are interested in the merchants’ products based on observed online behavior—as Google does today based on search. Finally, operators can continue to expand their online storefront, and expand beyond the limited digital goods they offer today.
Few U.S. mobile phone owners partake in mobile eCommerce today

“How interested are you in being able to use the mobile Internet to visit a retailer’s mobile website?”

<table>
<thead>
<tr>
<th>Interest Level</th>
<th>All Mobile Phone Owners</th>
<th>Smartphone Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% Not interested at all</td>
<td>55%</td>
<td>24%</td>
</tr>
<tr>
<td>20% Very interested</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>40%</td>
<td>17%</td>
<td>26%</td>
</tr>
<tr>
<td>60%</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>80%</td>
<td>7%</td>
<td>15%</td>
</tr>
<tr>
<td>100%</td>
<td>4%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Base: 4,186 U.S. online adults with a mobile phone

Source: Forrester Research, Inc.

- **Physical retailing and transactions.** This represents the most robust opportunity for operators as enablers of transactions and participants in the overall commerce value chain. Operators today primarily focus on the payment component, in particular by using NFC technology and “e-wallet” software in handsets to transform their subscribers’ phones into a virtual wallet. While these physical payments are just preparing to enter the market, consumers find appeal in the added convenience—more than one in four smartphone owners say that they are interested in using the phone in place of credit and debit cards (see Figure 5). But payments represent only one aspect of the entire commerce experience. The mobile commerce behaviors that are most widely adopted today are those that precede the purchase—like finding a store, checking product availability, comparing prices, and seeking promotions or discounts (see Figure 6). Indeed, technologies like NFC can facilitate prepurchase behavior just as well as they can facilitate actual payment behavior. As such, operators may be able to facilitate many of these other components of transactions.
**Figure 5**
One in four smartphone owners like the idea of their phone displacing plastic cards

“How interested are you in being able to use your cell phone to make payments instead of using cash or a debit/credit card?”

<table>
<thead>
<tr>
<th>Interest Level</th>
<th>All mobile phone owners</th>
<th>Smartphone owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not interested at all</td>
<td>64%</td>
<td>40%</td>
</tr>
<tr>
<td>Very interested</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>I already use this</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

**Figure 6**
Today’s most adopted mobile commerce behaviors are purchase precursors

“Which of the following have you ever used your cell phone for?”

- To check store hours: 44% (Mobile phone owners), 40% (Smartphone owners)
- To locate a nearby store to purchase a specific product: 18% (Mobile phone owners), 16% (Smartphone owners)
- To check on the status of an order: 40% (Mobile phone owners), 25% (Smartphone owners)
- To read customer reviews of a product: 24% (Mobile phone owners), 26% (Smartphone owners)
- To look up online product information while shopping a store: 27% (Mobile phone owners), 25% (Smartphone owners)
- To compare physical store prices with online prices, when shopping in a store: 18% (Mobile phone owners), 24% (Smartphone owners)
- To check in-store availability of a product: 19% (Mobile phone owners), 16% (Smartphone owners)
- To find or redeem a coupon/coupon code: 12% (Mobile phone owners), 16% (Smartphone owners)
- To learn about an in-store promotion or event: 11% (Mobile phone owners), 10% (Smartphone owners)
- To purchase an item that was not available/in-stock in the store: 7% (Mobile phone owners), 8% (Smartphone owners)
- To add a product to a wish list: 4% (Mobile phone owners), 3% (Smartphone owners)
- To use a special mobile shopping application: 3% (Mobile phone owners), 2% (Smartphone owners)
- None of these: 71% (Mobile phone owners), 71% (Smartphone owners)

Source: Forrester Research, Inc.
Market participants recognize the importance of mobile payments...

Mobile commerce brings together a rich mixture of market participants. Carriers play a key role as both network providers and hardware and software enablers for end users. Financial institutions, payment processors, retailers, payment system providers, and technology vendors all have a stake in the game and see significant opportunity in realizing this new market and ecosystem. To assess the attitude among these varied participants, KPMG surveyed 970 companies across the globe to assess their outlook on mobile payments; participants included companies primarily focused on telecom, financial services, technology, and retail. Across all these market segments, we observed the following:

- **A majority have a mobile payments strategy.** In all, 58 percent of respondents said that their company had a mobile payments strategy in place. This rose to 71 percent for financial services firms and 74 percent for those in telecom, and in both these industries, the majority of those with a strategy said that they also had a mobile payments service in place.

- **Few have a sense of urgency.** While 72 percent of respondents say that mobile payments are either "very important" or "reasonably important" to their company, the lion's share agree that the market is in its infancy. Only 9 percent of companies believe mobile payments will fail to have an impact on their business in the foreseeable future.

- **Respondents are divided on timing.** Only 9 percent of respondents—and just 5 percent in the United States—say that mobile payments are mainstream in their country today, and another 17 percent estimate it will take at least five years before this occurs. The remainder is divided, with half predicting a mainstream market within one to two years and the other half expecting to wait three to four years.

...And see convenience and security as the key ingredients

Across all regions and industries covered in our survey, respondents express uncertainty about which form of mobile payments—carrier billing, specialty online systems such as PayPal, contactless cards, m-banking, m-wallet—will have the greatest traction with consumers. However, irrespective of which form of payment establishes market leadership, the companies we surveyed were unanimous about what has the potential to act as an impediment to adoption and what will motivate consumer uptake. Namely:

- **Security is the greatest barrier.** For every form of mobile payment, respondents say that consumer security concerns are the most significant impediment to adoption (see Figure 7). Companies recognize that any new form of payment faces this hurdle with consumers, and these concerns are heightened today, as the news is filled with stories of attacks on well-known and respected brands, such as Sony and Citi. However, industries reflect their own biases in gauging the extent to which security concerns will influence the adoption of a particular solution. For example, those in financial services are least likely to say that security will impede adoption of contactless cards but the most likely to identify security as a concern for online payment systems. It’s no surprise then that telecom providers are least likely to say that carrier billing will get tripped up by security fears.

- **Convenience is the most significant benefit.** Across the board, respondents believe that convenience and accessibility are the advantages that consumers are most likely to value in new mobile payment solutions, far outstripping simplicity and ease of use as benefits.
“What are the advantages and inhibitors/disadvantages of each service?”

**Advantages**

- Convenience/Accessibility
- Simplicity/Ease of use
- Speed
- Confidence/Comfort
- Control
- Scalability
- Other
- Security

**Disadvantages**

- Security
- Other
- Lack of awareness/Knowledge
- Technology/Adoption
- Complexity/Not convenient
- Privacy
- Reliability
- Problems with lost phone

Source: Forrester Research, Inc.
Carriers should deliver on security but go beyond convenience

While many have attempted to provide consumers with new payment systems, few have succeeded. The past 50 years in the United States has seen three meaningful shifts in consumer payments: credit cards, debit cards, and PayPal. While our survey participants are undoubtedly correct that potential adopters of mobile payment solutions will demand that their information be held securely before, during, and after transactions, addressing these requirements is a necessary but far from sufficient criterion. U.S. consumers today have little problem figuring out a way to exchange funds for goods, so motivating a change in their behavior will be difficult.

Then where must carriers focus if they are to drive adoption and usage of mobile payments? On delivering additional value to the customer. That means focusing on all the other elements of commerce that precede, coincide with, and follow the payment itself. Prior to the purchase, consumers seek to understand the brand options available to them. They want to know where their desired product is available, which merchant has the best offer, and how that offer compares with what’s available from both online and offline competitors. In conjunction with the payment, they want to be identified as a loyal customer; redeem applicable coupons; receive updated coupons, offers, and loyalty rewards; and seamlessly capture and store a record of the transaction in all its details. Subsequently, they want to know that someone will stand behind them in any payment dispute and that they can easily receive product support.

Can operators deliver on all this? Alone, no. However, carriers have many assets that in conjunction with the right partners can realize this vision. Doing so can establish their role in the payments ecosystem, expand the scope and scale of their business, and help revitalize their growth.
Key recommendations

To stimulate growth and diversify their revenue, KPMG recommends that operators move aggressively to capitalize on the burgeoning mobile commerce opportunity. Specifically:

- **Build partnerships with established commerce ecosystem players.** The payments market has seen very little change over the past half century, with few new payment alternatives gaining traction. Consumers, especially those in developed economies such as the United States, face few challenges in effecting transactions with merchants. To reduce the barrier to adoption, carriers should enable consumers to easily adopt mobile commerce using the payment alternatives already present in their wallet, and doing so requires cooperation with the existing ecosystem of banks, credit card issuers, credit and debit card networks, payment processors, terminal vendors, and retailers.

- **Focus on the commerce—not just the payments—opportunity.** Existing commerce players have much to lose and will likely compete aggressively to retain their share of the market in the face of new competition. Following a fee-based differentiation strategy is unlikely to win operators new payments business due to their lack of leverage with existing players; instead, operators should focus on the complete commerce experience and add value to existing players’ business by crafting new and/or more streamlined experiences. Opportunities are rich in promotion, advertising, couponing, receipting, and loyalty.

- **Pursue an identity management consortium.** Because of the detailed information required to qualify for a postpaid account, operators have the means to validate their customers while the software stack in mobile devices enable two-factor authentication that provides a security level superior to that of credit and debit cards—and could be strengthened further via biometric and location sensors and out-of-band signaling. In addition, operators have the infrastructure and communications to facilitate authentication across disparate networks. Operators should offer this authentication layer as a service in order to prevent an upstart such as Facebook from establishing a de facto identity verification role and then consider partnering with other carriers in order to cover the entire market.

- **Target the emerging mainstream smartphone owner.** The makeup of the smartphone user base is changing from an early adopter to a mainstream consumer—in 2010, nearly half of all smartphone owners had owned a feature phone or no phone a year earlier. These latecomers differ not only in demographics but also in behavior—they are less likely to seek out and add applications than are experienced smartphone owners. They are thus more inclined to accept bundled phone applications, making them better targets for operators’ branded wallet offerings, promotions, and commerce extensions. Winning these customers’ loyalty at the outset will likely both grow operators’ share of their commerce activity and reduce their likelihood of churning, increasing overall lifetime customer value.
Appendix: Endnotes


2. See the September 21, 2010 “The State Of Consumers And Technology: Benchmark 2010, US” report. [57526]


4. In the company’s Q4 2003 quarterly bulletin, Verizon reported that “Demand for the company’s growing family of data services continued to build during the fourth quarter, with data services accounting for more than 3% of the fourth quarter’s total service revenue. Data services delivered more than 2% of total service revenue in 2003, up from 1% in 2002.” Source: Verizon (http://www22.verizon.com/investor/investor-consump/groups/financial/documents/investorrelation/2003_q4_qb.pdf).

5. Mean ARPU is calculated by averaging the ARPU reported by each of AT&T, Sprint, T-Mobile, and Verizon Wireless; these means are not weighted to reflect each carrier’s market share by quarter. In some cases, carriers report data ARPU in their quarterly statements; in other cases, carriers report data revenue as a percentage of service revenue—in these latter cases we calculate ARPU based on the reported number of subscribers in the quarter. Sprint’s ARPU numbers from 2005 to 2009 reflect only its postpaid customers; beginning in 2010, the mean voice and data ARPU numbers do not reflect Sprint, as the company stopped reporting contribution from data beginning in the first quarter of the year.

6. See the March 9, 2011 “Crafting Products For The Next Smartphone Owners” report. [58806]