



**Edgar, Dunn  
& Company**  
*Management Consultants*

# Realizing the Full Potential of Mobile Commerce

Orchestrating Mobile Payments and Money Transfers

Prepared in Cooperation with:

**SYBASE | 365™**  
**MOBILE SERVICES**

Edgar, Dunn & Company  
Confidential

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## 1 Background and Purpose

Payments have been evolving for hundreds of years. From the age-old bartering system, to cash, to check to electronic forms of payments, people have found innovative and more efficient ways to make a payment. This evolution has resulted in a significant shift in the current mix of consumer payments: from primarily paper-based (cash or check) to increasingly electronic (e.g. credit, debit and pre-paid) payment methods.

The rate of change and the movement to electronic payments has been accelerated by the explosive growth of payments being made in non face-to-face transactions. A key development in the industry was the emergence of the Internet as a channel for commerce. Consumers who previously used the Internet as a novelty and a means for information gathering have gradually adopted this channel for their purchase decisions and transactions. United States online retail reached \$175 billion in 2007 and will grow to \$335 billion by 2012.<sup>1</sup> Growth in this channel has been facilitated by advances in technology, trusted infrastructure and applications, and improved customer experience and payment choice (e.g., traditional payment brands as well as new alternatives such as PayPal).

We view the use of the mobile phone as the next significant step in the evolution in the payments industry – representing another growth opportunity for existing players and new entrants. As we have seen with e-commerce payments, technology innovation and the emergence of non-traditional market participants have added to the complexity in the industry.

The purpose of this whitepaper is to outline our view of the mobile commerce landscape while outlining the factors that will be necessary to enable such an environment and create an opportunity for players to seize its full potential.

The use of the mobile phone is the next significant step in the evolution of the payments industry

<sup>1</sup> "US eCommerce Forecast: 2008 to 2012", Forrester, 1/18/08

## 2 The Mobile Commerce Opportunity

Any discussion of the potential opportunity must first start with a basic understanding of what we mean by “Mobile Commerce.” Mobile commerce is comprised of two categories, *mobile banking* and *mobile payments and money transfers*. *Mobile banking* refers to situations where the mobile phone is used as an access channel to financial services. *Mobile payments and money transfers* refers to situations where the mobile phone is used as a payment device to affect the transfer of value from one party to another.



### 2.1 MOBILE BANKING

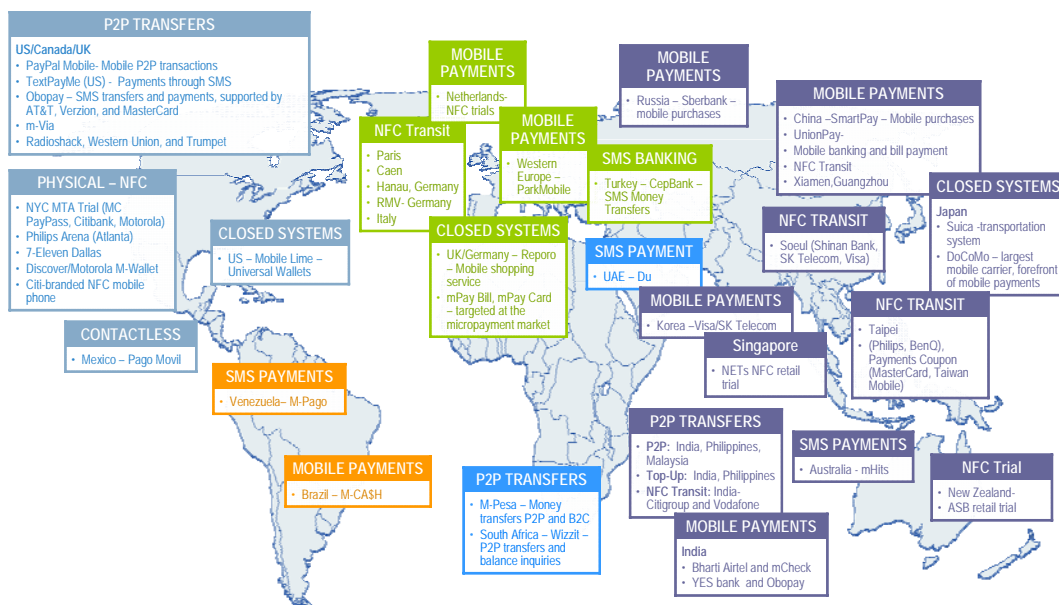
Mobile banking has already gained traction and there has been rapid expansion in deployment of applications as well as an increase in the number of mobile banking users – particularly in developed countries. It essentially allows banking customers to check balances, transfer funds, and receive alerts. Alerts help to notify the customer if certain conditions occur – for example, if the balance on a checking account goes below a certain threshold (indicating that a transfer of funds may be needed for future transactions). Mobile banking provides great value to consumers – previously, banking customers had to use a landline phone to obtain account balances or make transfers, or worse yet, had to physically go to a branch or an ATM. Mobile banking provides ease, accessibility and convenience for customers, in addition to portability, security, and enhanced functionality such as alerts to enable more proactive banking services. The technology for corporate applications is still largely in development and represents an opportunity for future growth.

## 2.2 MOBILE PAYMENTS AND MONEY TRANSFERS

More interesting is how the mobile phone is being used beyond mobile banking to affect the transfer of value from one party to another. There is potential for enormous transaction volume that could be initiated via the mobile phone<sup>2</sup>, and this transaction volume could translate into significant revenue opportunities for stakeholders. We believe that growth in this market will be driven by several key factors, including: growth in the number of mobile subscribers, the increasing versatility of the mobile device, continued rollout of contactless acceptance terminals, and breadth of income segments and geographic locations gaining access to mobile technology.

Our estimate of potential mobile payments transaction volume is also based on what we are seeing today in the marketplace. There have been various initiatives and/or developments throughout the globe that begin to set the foundation for larger-scale use and increased adoption:

Mobile payments are currently happening across the globe



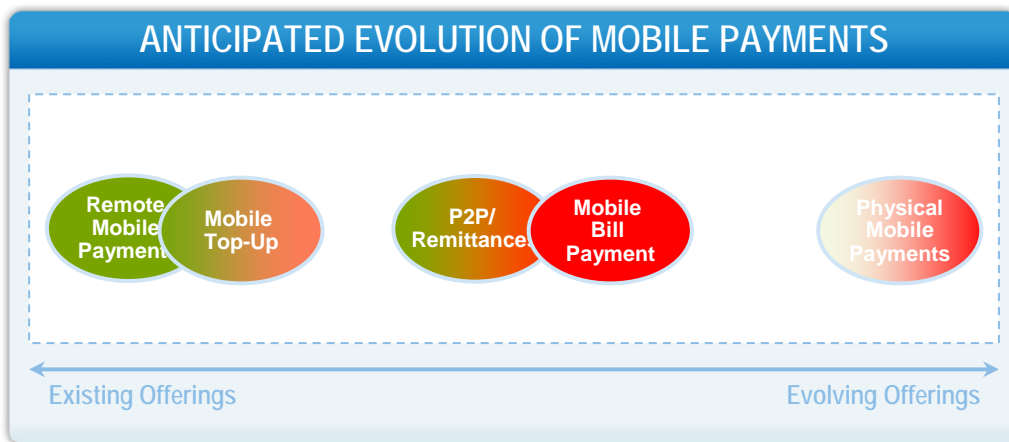
Completely new payment models have emerged in developing markets. Mobile phones are delivering safe and stable payments and money transfer systems in countries that have highly developed mobile networks but lack a widespread banking infrastructure (e.g., Globe Telecom in the Philippines with its G-Cash offering).

<sup>2</sup> Juniper Research estimates that mobile payments transactions could grow to \$600 billion by 2013 ("Mobile Payments Markets: Strategies and Forecasts 2008 - 2013", September 2008).

Remote Mobile Payments and Mobile Top Up are established today

P2P Remittances and Mobile Bill Payment are expected to grow in the near term

There are different types of mobile payments based upon the reason why a payment is made. Each of these exist in some shape or form today, however some offerings have had more traction (e.g., mobile top up) compared to others (e.g., physical mobile payments) that will take longer to evolve. The types include:



- **Remote Mobile Payments** refers to the purchase of services or physical / digital goods remotely using SMS text, browser based WAP, or proprietary application capabilities of a mobile device. Remote mobile payments of digital content through mobile operators (for example, purchase of ring tones or digital content) are well established. Remote mobile payments are also now being used to initiate purchases of physical goods for delivery (for example, ordering a book for delivery to your home).
- **Mobile Top Up** refers to adding minutes to a mobile prepaid account using a credit/debit card or cash at a store location via scratch card, Point of Sale, or kiosk. The mobile top up opportunity is significant in markets where the majority of mobile accounts are prepaid.
- **Person-to-Person (P2P) Remittances** refers to the transfer of funds between subscribers via a mobile device and are commonly referred to as Mobile Money Transfers. In the past, individuals could only pay each other via cash or check. Remittance providers, such as Western Union, enabled remote consumer to consumer payments by accepting cash at a physical location and electronically transferring funds to a recipient location (typically an affiliated agent) for a fee. The ability to initiate money transfers using messages sent with a mobile phone provides significant convenience as well as safety for individuals. Products have been launched in several markets.
- **Mobile Bill Payment** refers to the use of a mobile device to initiate the transfer of funds from a person to a business for purposes of paying a bill obligation. In developed markets, mobile bill payment offers added convenience over existing forms of internet bill payment. In developing countries, mobile bill payment

Physical mobile  
payments will  
require the longest  
timeframe to reach  
maturity

represents a significant change. In these markets a person has to physically travel to make certain types of payments – for example, get on a bus with cash to pay their utility bill. In these markets, the mobile channel is forming the banking infrastructure.

- **Physical Mobile Payments** refers to the purchase of goods or services using a mobile device at the point of sale through contactless technology – also known as “proximity payments.” Consensus is being created around standards for Near Field Communications (NFC), the technology most likely to drive the growth of physical mobile payments. Although there are significant trials in many markets, mass adoption across markets is not expected in the near term due to the time and investment required to deploy contactless acceptance terminals at the point of sale, commercial availability of handsets, and for the industry participants to reach agreement on the business models for both banks and operators.

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In all of the above types of mobile payments, the use of the mobile phone will provide tremendous value to consumers. The ability to provide access to the payment vehicle through the mobile device will minimize the need for cash and create increased ease and convenience for subscribers.

The remainder of this paper will focus on the requirements for growing mobile payments and money transfers.

The mobile payments landscape is fragmented with players from two separate and distinct industries

### 3 A Fragmented Landscape

In general, mobile payments offerings are provided by organizations within two separate and distinct industries: Payments, and Telecommunications. The market consists of payments players (traditional banks, payment brands and processors, and established non-banks) and mobile telecommunications players (mobile operators and start up technology providers). As of now, there is uncertainty over how the game will eventually be played. Players have a number of concerns relating to customer ownership, the underlying transaction economics, and the share of the revenues generated from mobile payments.



Note: paybox was acquired by Sybase Inc., and will be integrated into Sybase 365, a wholly-owned subsidiary of the company

#### Payments Players

- **Traditional banks** typically provide a wide variety of electronic money movement services (but often with no specific segment-focus). These banks are interested in mobile banking, but are concerned that there is little opportunity to generate new revenue. They are interested in mobile payments, but are concerned about committing to any one method/technology too soon. A major concern of these traditional banks is that mobile payments will only serve to cannibalize existing electronic payments, and thus will not yield any incremental benefits despite substantial investment. In fact, they argue, mobile transactions may even increase



the risk of fraud and financial loss to the bank, thereby increasing the cost of the migration.

- **Established payment brands** have strong relationships with financial institutions and merchants. Most are actively pursuing mobile financial services offerings. These brands however, have historically had few dealings with mobile network operators. The networks are relatively neutral to a transaction coming through WAP or SMS and have little interest in very small dollar remote mobile payments – however, they are concerned about the potential of mobile networks dis-intermediating their traditional fixed-line networks. Their key objective is to ensure that, in the mobile world, financial institutions' value propositions are maintained and that the security requirements relating to payment cards are fully complied with. Additionally, they recognize the need for a viable business model so that all stakeholders – including the brands as public companies – are adequately compensated for their efforts.
- **Established non-banks** have the lion's share of the market in their niches (especially P2P remittances). They demonstrate good product innovation, pricing ability for services, and have a strong first-to-market mover advantage. They normally partner with banks (or enter into banking themselves) to have access to the payments system. Moving from online payments to real world payments has proven challenging for these providers without an existing presence at the merchant point of sale. Obopay and PayPal have both launched their own remote mobile payment offerings in the recent past with limited success.

### **Mobile Telecommunications Players**

- **Mobile operators** have dominated the remote payments market with SMS based micropayments that are billed to the operator bill. As the owner of both the device and the channel through which the consumer accesses data, some mobile operators have enjoyed margins upwards of 50% for digital goods such as ringtones and games. With such a high return, operators will aggressively protect this franchise. They do recognize that new revenue sharing models with new partners will be required to expand beyond small ticket digital purchases and intend to play a key role in the payments value chain. To date, mobile operators have successfully employed a walled garden approach that controlled both the access to merchants and the payment; however, the success of the iPhone which enables open access (and the introduction of the Google phone) is an early sign that this approach may be threatened.
- **Relatively young start up/technology providers** are very nimble, willing to take risks, and entrepreneurial. They are often not bound by banking rules and regulations or oversight. They are typically backed by investment money which enables them to buy market share. They have limited brand recognition and do not have the ability to offer all functions along the payment value chain, and often must partner with others for end-to-end execution.
- **Hardware providers** have technological expertise, strong brands, and capital – they provide the physical product (handsets and related technology) to mobile

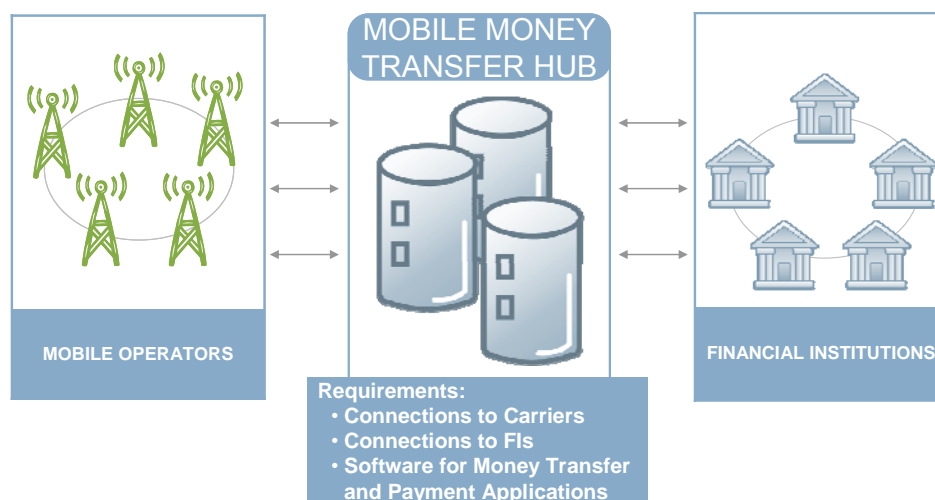
subscribers. They do not have the ability to offer all functions along the payment value chain.

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The mobile payments market and landscape will continue to evolve as the different stakeholders struggle for position. Answers surrounding the ownership of the customer as well as appropriate business models will become known as the market progresses. The economics will follow the development of the market – with industry participants receiving revenues based upon the overall value they provide to (and risk they assume within) the system.

## 4 Orchestrating Mobile Money Transfers

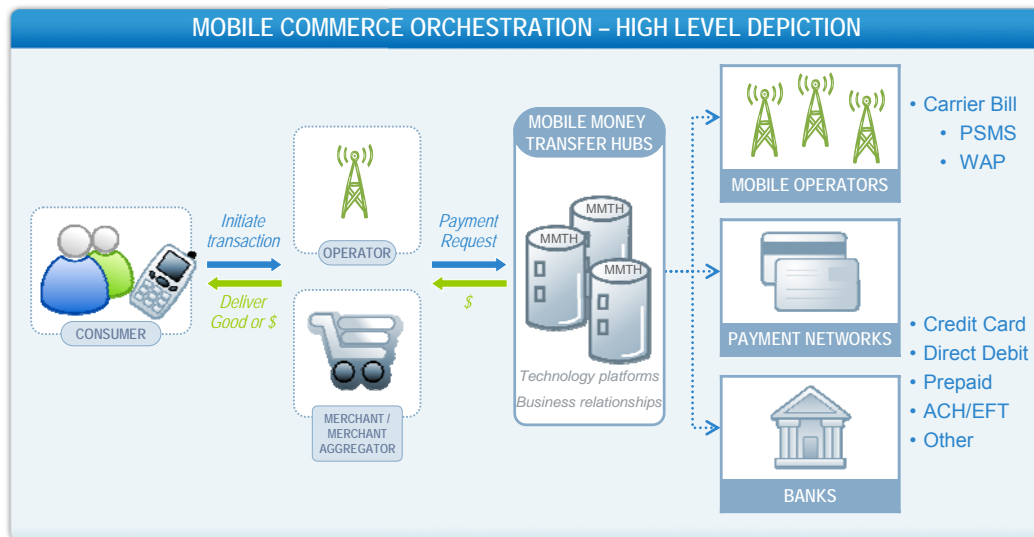
Enabling mobile payments will require an environment that encompasses both mobile and payments landscapes. Mobile players own the access channel used by the consumer, whereas payments players own the financial relationship with the consumer. The full potential of mobile payments can only be fully realized if the players in these two distinct landscapes work together. This will require a “Mobile Money Transfer Hub (MMTH)” to orchestrate and coordinate the flow of transactions among a complex set of stakeholders.



A MMTH is the central switching point for not-on-us transactions, connecting mobile networks together for the purpose of wallet-wallet transactions: transferring value from one wallet to another – network to network, cross-border and domestic – and managing the underlying connections between the banks handling the clearing and settlement of funds. It participates in the transaction flow and is central to orchestrating the flow of messages between both financial institutions and carriers, associating mobile numbers with information required to execute the payment instruction.

To “orchestrate” mobile commerce, the MMTH leverages the technology platforms and business relationships that exist between the players within the two separate environments. Existing infrastructure is leveraged in both industries – mobile telephony as well as for traditional payments – to provide the consumer with the payment choices available today, including SMS, credit, debit and pre-paid options.

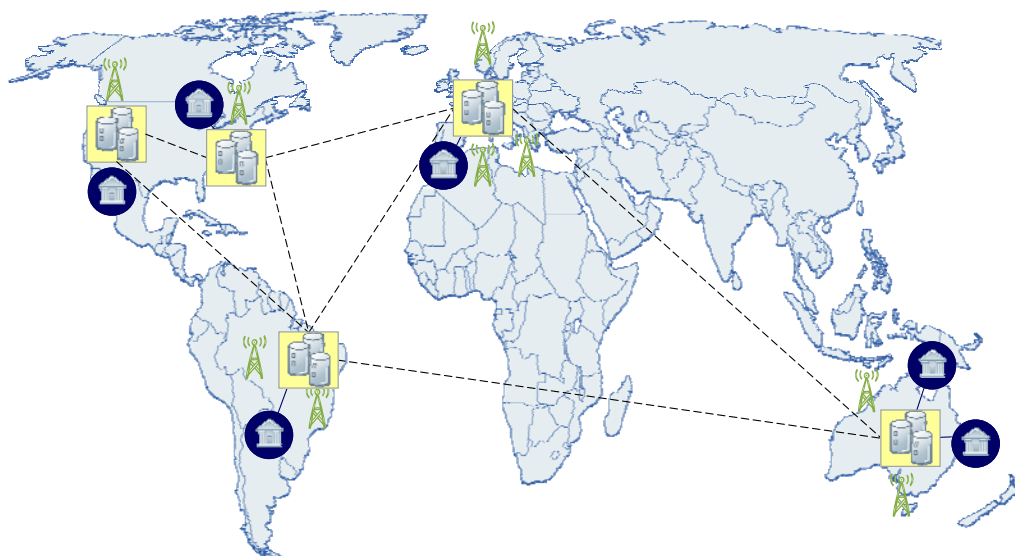
As depicted below, the MMTH would orchestrate a payment transaction initiated by a consumer through a mobile phone either at a physical POS or online via the mobile device. The MMTH would recognize the payment request and create a properly formatted payment instruction to initiate the payment request based on the consumer's selected payment choice.



The mobile commerce environment leverages the existing payment infrastructure including the interconnected networks, fraud and risk detection and mitigation capabilities, and dispute resolution and chargeback rules. Each of the mobile and payments stakeholders would continue to perform the functions within their own core competencies. The environment also provides the consumer and the merchant with the range of payment choices most familiar to the consumer today. Interfaces and connections will be required to operationalize mobile payments, namely, connections between merchants, operators, and financial institutions, and the need/ability to be able to route such transactions in the manner requested by the consumer.

At first, various mobile money transfer hubs may serve regions within single countries, but will likely later expand to cover entire countries and even multiple geographies. As the market continues to evolve, the hubs may consolidate across geographic markets – a similar evolution to that of the various payments networks of today.

The ability to provide consumers choice across access channels and payment instrument, account, or operator bill is a key requirement



The ability to serve as a mobile money transfer hub and orchestrate mobile payments requires the following:

- **Flexibility of payment choice to the consumer:** This requirement is the lynchpin for consumer adoption and therefore for the success of mobile payments in general. This will include not only the ability to take payment instructions from any channel (e.g. web, IVR, mobile, etc.) but also the ability to route to any payment network (e.g., Visa, MasterCard, STAR, ACH/EFT, etc.). These capabilities would allow consumers to initiate transactions in a manner that they prefer (mobile or other), as well as bill to any payment instrument (credit card, debit card, prepaid account), bank account, mobile account or operator bill).
- **Integration with existing payment infrastructure:** The ability to leverage existing payment systems is a key benefit of the collaboration model and will therefore require integration with existing payment infrastructure, including interfaces with financial institutions and the ability to provide traditional payment functions. These payment functions include transaction capture, authentication, authorization, funds transfer/settlement, reconciliation, etc. The ability to integrate with well established networks/schemes such as Visa, MasterCard, STAR, ACH/EFT, etc. would address a significant number of transactions and help to quickly achieve scale.
- **Relationships with the mobile operators:** There will be a need to have extensive and deep relationships with the mobile operators and the associated technical interfaces with these operators. These interfaces include messaging interfaces to route payment requests as well as billing platform interfaces for use of operator bills as currency and/or to validate a mobile subscriber's credentials (identity, validity of the mobile account, etc.). Transfers between individuals and payments to merchants must be enabled across any network, therefore

interoperability is a key requirement. Without participation from all operators, the utility of the mobile payments solution will be severely limited.

- **Reliability:** The payments system has been built upon the premise of reliability – in the “physical world” when a consumer initiates a payment with a credit card, that consumer has an expectation that the payment will be made “almost” real-time and that the transfer of value will actually occur. Orchestration within this new paradigm will include confirmations with the end users, ensuring them that their payments were successfully executed.
- **Security:** The payments industry also has at its foundation the expectation of security. Individuals expect that payments are processed within a secure environment that protects confidential information from unauthorized and fraudulent access. Based on the theory that fraudsters attack the weakest link in the electronic payment security value chain, any new entrant must ensure that robust safeguards are put in place to maintain the overall integrity of the solution.

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Organizations that have already developed trusted relationships with multiple players in their existing industry may be well suited to play a role in orchestrating the players within the mobile commerce ecosystem. In many cases these organizations are actively evaluating mobile opportunities. For example:

- **Mobile money infrastructure providers**, such as paybox, Utiba, and Fandamo facilitate payments from one mobile wallet to another. The acquisition of paybox by Sybase Inc. (paybox will be integrated into Sybase 365, a wholly-owned subsidiary of the company) couples money transfer applications with operator relationships worldwide.
- **Payment brands**, such as MasterCard and Visa, can leverage their relationships and role as a central switch to provide similar services connecting both industries
- **Merchant processors**, such as First Data, would be able to leverage their merchant relationships and connections into the existing bankcard payment systems; many are currently investing in mobile
- **ATM networks and processors**, such as Monitise/Metavante and NYCE, have already created innovative mobile banking products leveraging ATM networks and banking/payment technologies. The networks and processors are in the process of developing P2P products
- **Third party technology vendors**, such as Firethorn (purchased by Qualcomm) and mFoundry, have strong ties to mobile operators and handset manufacturers, as they work with these stakeholders to preload (or download over the air) applications

on consumer handsets. Vendors such as Bango have systems that allow them to bill purchases to the customer's mobile phone statement (usually for digital goods such as ringtones and games)

- **Industry clearing houses**, such as The Clearing House or NACHA in the US, maintain networks for payments from bank accounts that could be leveraged

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The opportunity to orchestrate parties and become a Mobile Money Transfer Hub to enable mobile commerce is largely up for grabs. However, it is clear that various types of players are well positioned to enable this role, given the right relationships, extensible assets, technology applications, and boldness to pursue this emerging opportunity.

Mobile payments will require orchestration to bring the stakeholders together and provide the most promise to the marketplace

## 5 In Conclusion

Similar to the rise of the Internet, the emergence and adoption of the mobile phone as a payment instrument will be the next big transformation in the payments industry provided that a working business model, healthy collaboration between industry participants, and convincing value proposition can be established. There is a potential that the ability to use the mobile phone to initiate payments will forever change the way consumers approach commerce, particularly in underdeveloped countries where the application of the mobile phone provides significant ease, convenience, and safety compared to existing payment alternatives.

Given this imminent shift in payment behavior and the potential opportunity, the investments in mobile payments initiatives are not surprising. Despite this early activity, the mobile payments ecosystem has not yet evolved to an environment that will provide the most promise to the marketplace. Business relationships, connectivity, and technology applications are needed between the stakeholders in order to bring flexibility to the consumer – the cornerstone needed for the success of mobile commerce. This will ultimately require orchestration to bring the stakeholders together and also manage the complexity of the mobile commerce ecosystem. Orchestration could be achieved with the development of multiple mobile money transfer hubs. The true potential of mobile commerce will emerge once this orchestration is conducted across geographic markets, similar to today's telecommunications and payment systems. The opportunity remains for well-positioned players to create viable technical and business architecture that enables orchestration within the mobile payments ecosystem, and rise up to claim their stake in this growing market.

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## 6 About Edgar, Dunn & Company

Edgar, Dunn & Company (EDC) is a global strategy consulting firm specializing in payments and financial services. Founded in 1978, the firm is widely regarded as trusted advisors in the payments industry providing a full range of strategy consulting services, expertise and market insight through in-depth industry and consumer benchmarking. Global capabilities include strategy, risk management, marketing, profitability improvement, operations, and new products and technologies.

EDC's offices are located in Atlanta, Frankfurt, London, San Francisco, Singapore, and Sydney and serve clients in more than 30 countries on six continents. More information can be found at [www.edgardunn.com](http://www.edgardunn.com).

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