



McKinsey on Payments

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McKinsey on Payments is written by experts and practitioners in the McKinsey & Company Payments Practice.

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Foreword

Kausik Rajgopal

Welcome to issue number 21 of *McKinsey on Payments*. In this issue, we look beyond the headlines on several exciting trends to uncover the deeper implications and opportunities for industry players.

Digital wallets are certainly of the moment, with the recent high-profile launch of Apple Pay and other new ventures. Despite the excitement and the real benefits of digital wallets, however, the question of how they become successful at scale is still open. A knowledge of what drove the success—or failure—of previous payments innovations can help plot a path forward. Our lead article, “Gauging the disruptive potential of digital wallets,” provides such a view, examining six specific markers of success we have noted previously in *McKinsey on Payments* that digital wallet providers should keep in their sights.

As we know, change is constant, whether convenient or not. In transaction banking, which accounts for 40 percent of total corporate banking revenues, a number of trends are shaking up the traditional model. For instance, continued globalization of the banking client base translates into more demand for cross-border services. This not only requires more in the way of services from banks; it also heightens regulatory complexity. For many banks, the best way forward will be to develop partnerships that give them access to new markets but help keep risks to an acceptable level. Our second article, “New partnership models in transaction banking,” describes four examples of how banks can cooperate in a changing and challenging environment.

Next, we continue our interviews with market innovators in payments. In this issue, we sit down with the CEO of Ripple Labs, Chris Larsen, for a discussion of how the Ripple protocol could help evolve traditional models of correspondent banking. In the interview, we discuss the origins and the mechanics of the protocol, the benefits and costs of “friction” in moving money between banks

and across borders, the approach to risk management, and Ripple's role in the potential emergence of an "Internet of Value."

Our final article continues to build McKinsey's perspective on the development of "faster payments" systems in a number of markets around the world, kicked off in our previous issue ("Transforming national payments systems," September 2014). In that article, the authors argued that the design of faster payments systems needed to focus not just on speed but on specific use cases; speed is a means to an end, not an end in itself in payments. In "Faster payments: Building a business, not just an infrastructure," we look beyond the infrastructure issues to discuss how financial institutions can create new revenue streams that justify the significant investments in the faster systems.

We hope you find the articles in the issue informative and thought-provoking, and we look forward to your comments and feedback.

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Gauging the disruptive potential of digital wallets

Digital wallets are having a moment. The recent launch of Apple Pay and the accompanying media attention are bringing them into the mainstream. Technological and market developments have expanded their potential. Payments networks have shown a willingness to unbundle their offerings and permit non-bank players to use their tokenization protocols. EMV technology adoption in the U.S. has accelerated. And consumers are more open to adopting digital-wallet-like offerings like mobile boarding passes and Starbucks' loyalty app.

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 Kausik Rajgopal

Yet for many in the payments industry the question of whether digital wallets (see “Defining the digital wallet,” page 4) will ultimately succeed is still an open one. In the U.S., PayPal and other early digital wallets attained scale through online commerce, but attempts to bring mobile payments into the physical world have had limited success.

To provide a structured perspective on how digital wallets will evolve, this article examines the market through the lens of McKinsey's six markers of payments disruption success (first described in “The future of payments: Markers for success,” *McKinsey on Payments*, June 2011). The six markers are grouped in three critical areas: designing a compelling value proposition; executing a measured go-to-market strategy; and planning thoughtfully for expansion.

Design a compelling value proposition

1. *Deliver significantly more customer value than rivals.* Entering payment credentials when shopping online is often considered cumbersome, making convenience a long-standing consumer payments priority. In the U.S., McKinsey's annual Mobile Consumer Panel consistently identifies convenience as the leading factor in consumer adoption of mobile payments. Most digital wallets, including Apple Pay, Visa Checkout and Google Wallet, accordingly emphasize convenience in their value proposition. Until now, however, paying with smartphones offline in markets where card penetration is strong has been only slightly more convenient than existing methods.

While most payments industry advances must overcome inertia and network effects,

Defining the digital wallet

The term *digital wallet* has been applied to diverse forms of electronic payments, even some as simple as prepaid cards. In addition to money, however, traditional wallets also typically hold various forms of payment and identification that might be stored and accessed digitally. This article therefore defines the digital wallet as a software application that enables users to digitally store money, payments credentials and more, and to use these to implement various types of cashless transactions.

motivating consumers to alter their fundamental payments behavior is particularly challenging. In online commerce, PayPal initially added convenience by introducing emails and passwords. Today, Apple Pay uses its fingerprint recognition feature, Touch ID, for online shopping, which replaces passwords with biometric security. However, because consumers still perceive credit and debit cards as a major convenience for on-site transactions, digital wallets will need even stronger value propositions to displace entrenched card-based payments.

While most payments industry advances must overcome inertia and network effects, motivating consumers to alter their fundamental payments behavior is particularly challenging.

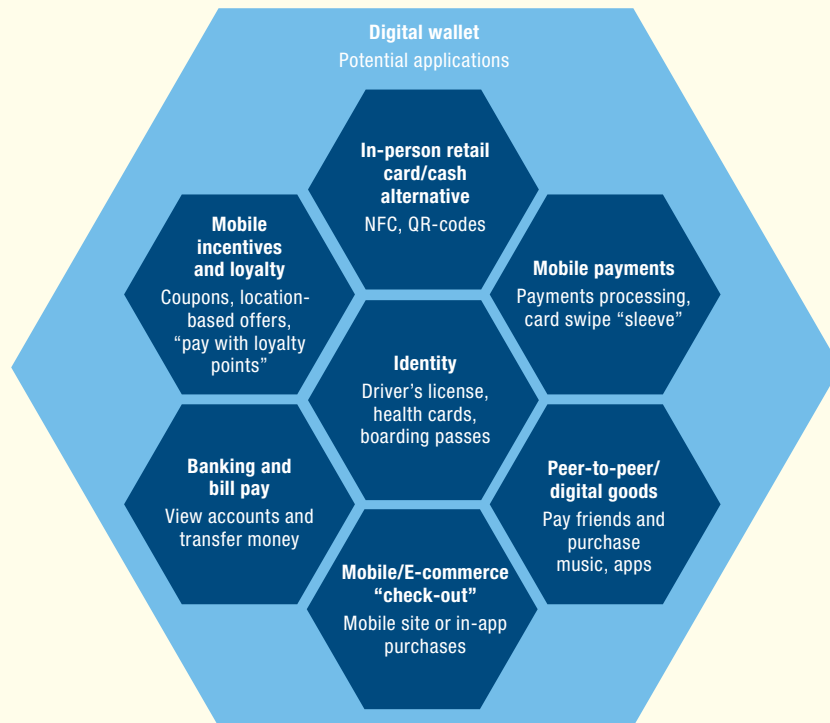
Digital wallets that demand more effort and time than currently favored payments methods are also unlikely to gain widespread adoption. For instance, requiring buyers to add devices to their phones, narrowly limiting the forms of accepted tender, or requiring manual entry of bank information could all hinder acceptance.

To significantly increase customer convenience, providers should expand wallet functionality beyond basic payments capabilities. Options include digital storage of ID cards, driver licenses and other items carried in traditional wallets (Exhibit 1). The *OsaiFu-Keitai* wallet developed by NTT DOCOMO in Japan, for example, includes electronic money, credit cards, ID cards, loyalty cards and electronic fare collection on public transit. Digital wallets could include applications that deliver targeted offers, which could be designed to redeem automatically at the point of sale—a major convenience for value-oriented consumers. India and several other nations are even considering the issuance of personal IDs that could be stored in digital wallets.

In addition to convenience, Apple is emphasizing security and privacy in Apple Pay marketing. Other wallets, including PayPal's and Turkey's BKM Express, address these concerns by withholding payments details from merchants. Historically, consumers have considered security and privacy to be important primarily for online and mobile transactions, but recent breaches of card data at retailers suggest that value propositions containing strong security and privacy components could be effective in driving wallet adoption.

Exhibit 1

The digital wallet presents diverse commerce-related applications extending well beyond payments



Source: McKinsey Payments Practice

2. Create broader merchant value propositions. Minimizing cost is a top merchant priority in payments. The Merchant Consumer Exchange (MCX), for example, which comprises more than 60 U.S. member retailers, is establishing a digital-wallet platform designed to reduce members' costs. The platform addresses member concerns about rival digital wallets, like Apple Pay, that index heavily on credit cards and can therefore skew a merchant's payments mix toward higher-cost methods. But excessive focus on costs might also reduce consumer appeal—for example, by requiring shoppers to disclose information they are unaccustomed to providing for retail payments, such as bank account numbers in the U.S. Historically, payments disruptors that focused on cost at the expense of customer experience have

failed to attain scale. So to succeed, digital wallets like MCX will need to find other ways to drive revenue growth. Possibilities include improving the customer experience, more effectively delivering offers and loyalty propositions, and collecting and sharing more consumer data with merchants.

For online and mobile commerce, payments and digital wallet innovators like PayPal's Braintree have recently gained a foothold by delivering seamless customer experiences that dramatically increase purchase conversions. Conversion is valued highly by smaller online and mobile merchants intent on winning new customers and gaining repeat business. Some digital wallets build on the shopping experience developed by retail giants like Amazon and Walmart, who ex-

pedite the checkout process by storing and auto-populating previously used payments credentials. These innovators offer this capability and conversion performance to smaller merchants who cannot develop the tools themselves. The payments processor Stripe, for example, minimizes cost while providing easy merchant integration and an uncomplicated customer experience. Extending such merchant propositions to the physical world is another way for digital wallets to offer merchants more than just cost savings.

When expanding into new markets digital-wallet providers should proceed cautiously. Markets often differ significantly in such critical aspects as card interchange economics, regulatory environment, technology penetration and consumer behavior.

Execute a measured go-to-market strategy

3. Penetrate niche market segments first.

Consumers' expectations for digital wallets vary widely, so it is difficult to address them all at the outset. One approach is to initially target smaller market segments. This enables narrow tailoring of product design, partnerships and marketing, which not only improves the odds of early success and keeps customer acquisition costs manageable, but also lets the wallet provider offer merchants quick access to customer segments, which can be an important incentive.

In the early niche-market stage, issuers can also pursue smartphone users (Android users in the case of Google Wallet; iOS in the case of Apple Pay). For merchants, these might be frequent users of their proprietary mobile apps. The issuer might, for instance, create a simple link with existing-app functionality to avoid confusion between the wallet and other apps. Defining and delivering a value proposition for these customers will be critical to gaining early adoption.

4. Leverage existing ecosystem and infrastructure. The tokenization protocol developed by EMVCo (used for the first time by Apple Pay and likely to be adopted by others) illustrates this important success marker well. By using 16-digit tokens—the same format as existing credit and debit card numbers—along with other existing data fields, the protocol enables more secure routing of payments via established networks and POS infrastructure while minimizing requirements and network integration costs.

Wallet-like merchant apps, including those of Starbucks, Otto's Yapital in Germany and Target's Cartwheel in the U.S., also use existing POS infrastructure to drive consumer adoption. Because these products use QR codes, however, related apps do not require near-field-communication (NFC) terminals. By contrast, Apple Pay, Google Wallet and others use NFC to deliver a seamless customer experience that, in the U.S., has thus far come at the expense of broad merchant acceptance. But, as merchants replace older payments terminals with NFC- and EMV-enabled models, this obstacle should diminish in importance.

Plan thoughtfully for expansion

5. Adapt offerings to other markets. When expanding into new markets, digital-wallet providers should proceed cautiously. Markets often differ significantly in such critical aspects as card interchange economics, regulatory environment, technology penetration and consumer behavior. Markets with substantial economic differences, for instance, can present considerable challenges, such as lower levels of interchange. This can make charging incremental fees to issuers (such as Apple Pay’s 15 bps fee) more difficult, and can also negatively affect network tokenization economics. In markets with low interchange fees, such as the EU, where credit card interchange will fall below 0.3 percent, wallet providers might need to find monetization alternatives (Exhibit 2).

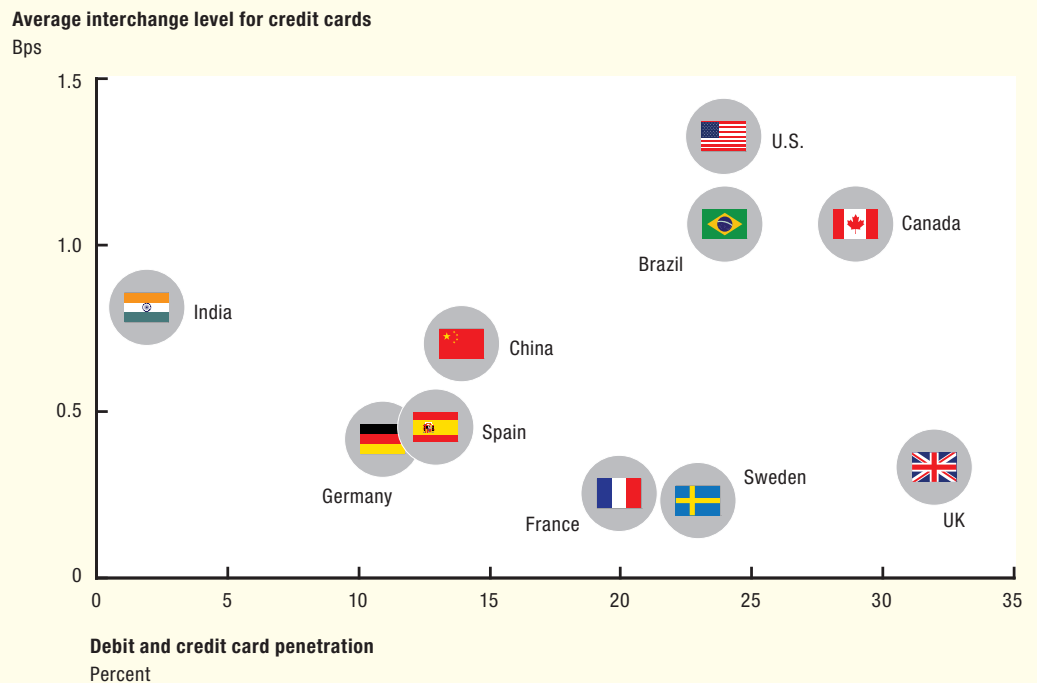
In addition to putting pressure on interchange economics, regulations can also present challenges to data-gathering efforts and analytics-based value propositions related to wallets. Apple Pay has said it will not collect payments information, but Google Wallet and others might decide to gather and use payments data, in which case they will face different security and privacy constraints in the markets they enter.

Established consumer payments preferences can also have an impact on digital-wallet success. For example, bank account-funded wallets might gain ground faster in markets like Germany and India, where non-card payments methods (including direct bank account access) are more common. Introduced in the Netherlands in 2005, the

Exhibit 2

Digital wallet business models must adapt to diverse market conditions, such as varying interchange levels

Card penetration and interchange levels by country, 2013



Source: Strategy Analytics; IDC

iDEAL wallet platform, which does not use debit or credit cards, gained acceptance at 100,000 online stores. Conversely, in European markets where rewards play a smaller role, pay-with-points wallet features would likely have less appeal.

In some countries, new entrant wallet products, even those with advanced features, will have to compete with incumbent offerings already embedded in the infrastructure. In Japan, a market that is highly conducive to launching new technologies, the Osaifu-Keitai wallet has 10 years of history and is now used even for government-issued IDs. In South Korea, Bank Wallet Kakao was recently launched in partnership with 16 Korean banks, as well as the Korea Financial

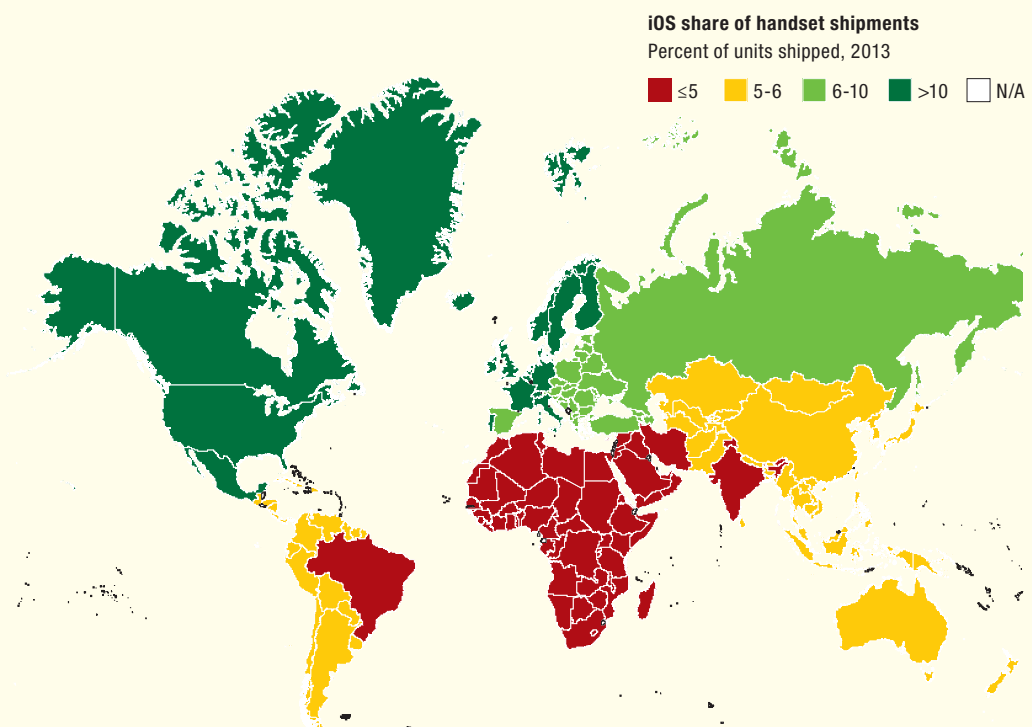
Telecommunications and Clearing Institute, making displacement a tall challenge.

From the technology standpoint, mobile wallet providers will also need to adapt to differences in smartphone penetration levels and merchant-acceptance technologies in different markets. Apple Pay, for instance, is likely to have a smaller presence in markets such as China, India and Korea where iOS penetration is low (Exhibit 3). Similarly, NFC wallets should gain quicker acceptance in places where that technology already has a strong presence, such as Australia and the UK.

6. Tap adjacent profit pools to differentiate offerings and add value. Convincing prospective partners to pay for wallet services solely

Exhibit 3

Apple Pay adoption could be slower in countries with lower iOS market share



Source: Strategy Analytics; IDC

on the basis of transaction volume may generate only modest revenues because it taps a profit pool that, in many markets, is already under margin pressure. In the payments value chain, the war over endpoints (such as the consumer and merchant interfaces in the case of wallets) is already compressing margins in mature markets as providers continually offer more compelling rewards and discounts.

In mature market pockets where interchange revenues are under pressure, such as PIN and debit cards in the U.S., tokenization fees may provide a viable alternative. While these fees tap the same revenue stream, they also promise to reduce risk costs throughout the payments value chain.

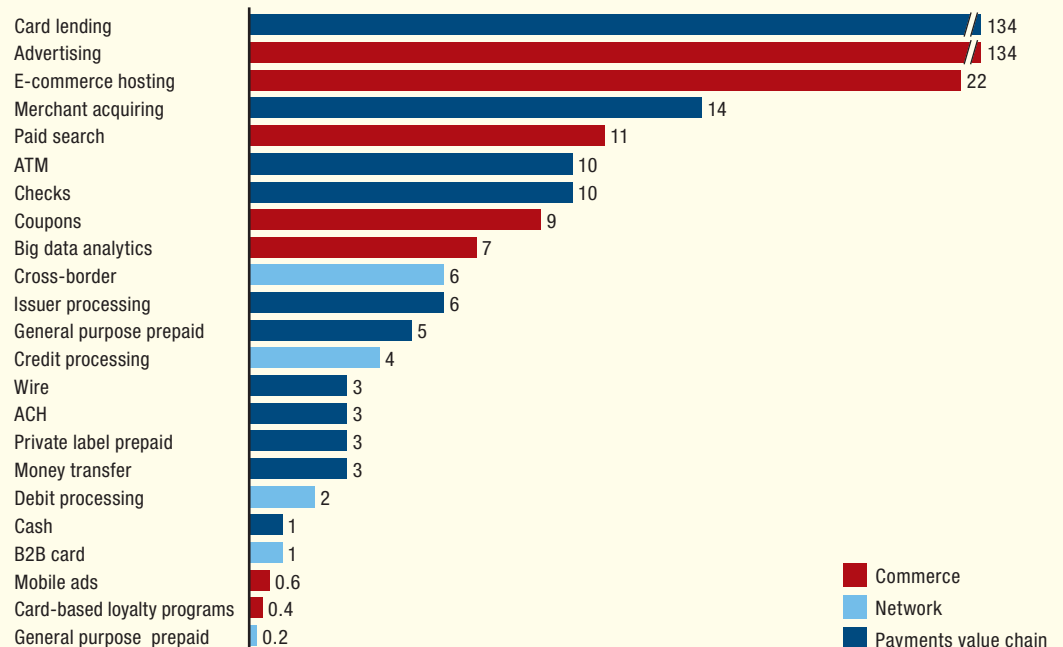
Wallet providers therefore might need to seek alternative revenue streams that offer more meaningful growth potential—possibly commerce-related revenue streams (Exhibit 4). Coupons and data analytics, for instance, have strong links to payments and transaction data. In fact, the line between the value chains of payments and commerce is already blurring as payments processes blend into the purchase experience—a change exemplified by Braintree and rideshare provider Uber. This could open adjacent commerce revenue streams to payments incumbents.

Given mapping capabilities at the device and customer levels, tracking the performance of digital-wallet marketing campaigns is also

Exhibit 4

Large revenue streams adjacent to payments blur the lines with commerce

2012 revenue streams, global
\$ billion



Source: McKinsey Global Payments Map; McKinsey Payments Practice

easier in the offline world, facilitating the adoption of pay-for-performance models. This can become a winning situation for both merchants and wallet providers, wherein merchants pay providers based on incremental rather than absolute sales, a model which more closely aligns the incentives for both.

* * *

The recent convergence of payments and commerce means digital wallets are here to stay. Yet, while they have established a solid foundation for growth, to truly become a payments disruption they must continue to evolve. Many providers are, in fact, becoming more thoughtful about their go-to-market strategies, particularly as these relate to

initial market selection and building on existing infrastructure. However, they also need to develop more comprehensive consumer value propositions that can deliver the magnitude of user-experience improvement that widespread consumer adoption demands. Finally, players will also need to thoroughly consider what is necessary to expand successfully into other markets and revenue pools—areas that present strong promise for rapid growth, but in contexts that may be especially challenging to digital-wallet economics.

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New partnership models in transaction banking

Transaction banking—which typically includes domestic and international payments, cash management and trade finance—is vitally important for corporate banks, accounting for approximately 40 percent of total corporate banking revenues, contributing to liquidity and delivering attractive returns on risk-weighted assets, as well as enhancing client stickiness. However, a number of trends are leading to a fundamental rethinking of the traditional model by which banks offer these services to clients outside their established markets.

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Historically, banks built geographic coverage and product capabilities for transaction banking in-house. In cases where a company's needs exceeded the reach of the bank's network, banks have relied on correspondent relationships. Some have agreements with hundreds of institutions around the world, any one of which may expose the bank to significant operational risk, bring high complexity costs, and deliver low levels of service.

Compounding these risks, emerging technologies are now posing serious challenges to the correspondent banking model, including new threats of disintermediation by nimble non-bank attackers. Intense competition and low interest rates are both pressuring transaction banking margins, requiring banks to eliminate waste and manage profitability rigorously.

In this challenging environment, banks may seek to reduce the complexity of international networks by streamlining correspondent relationships and rethinking the overall strategy for partnerships. This article examines the market forces leading to the emergence of four new archetypes of bank cooperation and highlights the critical factors banks must address as they implement a global strategy for partnering.

Structural trends reshaping the market

The combination of an increasingly competitive market and reduced net interest income (NII) in a low-interest-rate environment is the most obvious factor contributing to the steady (and unsustainable) erosion of margins. At a deeper level, three interrelated

structural trends are exerting pressure on the transaction banking business and point to the urgent need to rethink the business model for cross-border trade and transaction services: globalization, multiple regulatory regimes and digitization.

- Globalization:** Cross-border trade accounts for a growing share of world GDP. One reflection of this trend is the increasing number and type of companies requiring cross-border services to reach more geographically diverse markets (also discussed in “Insights into the dynamics of new trade flows,” *McKinsey on Payments*, May 2014). The biggest new trade growth is along corridors linking established markets of “the North” (North America, Western Europe and mature economies in Asia)

with emerging economies of “the South” (Asia, Latin America, Africa and the Middle East). This trend is due in part to the expansion of the middle class in large emerging market countries, which is turning once uni-directional trade corridors into bi-directional corridors. Trade flows between mature and emerging markets are expected to grow 9 percent annually over the next few years and account for half of global trade flows by 2017 (Exhibit 1).

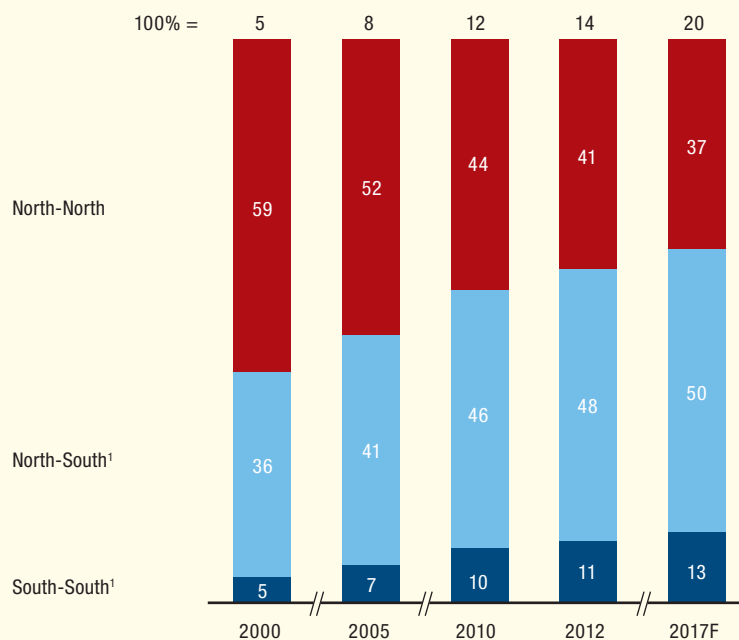
- Multiple regulatory regimes:** As they increasingly provide access to diverse markets, banks must comply with differing (and not always compatible) regulatory regimes, some national, others regional in scope. National standards may also differ for domestic and foreign institutions,

Exhibit 1

Emerging market trade corridors drive growth

Trade flow volumes by type of corridor (excluding services)
€ trillion, percent

CAGR, 2012-17
Percent



¹ Emerging markets of the “South” include Asia, Latin America and Middle East, excluding Japan, China, Hong Kong and Singapore.

Source: IMF Direction of Trade statistics; Global Insights; McKinsey Global Payments Map

while regional regimes aim to harmonize standards across multiple countries. For example, an updated version of Europe's Payments Service Directive is expected to require all parties to a transaction—even those outside Europe—to be in compliance. The global patchwork of national and regional regulatory standards poses challenges for international players, particularly as they seek to establish a footprint in new markets to meet client needs.

Gradual yet steady improvements in industry standards and platforms strengthen the impact of digitization, enabling banks to automate processes and integrate systems.

- **Digitization:** Gradual yet steady improvements in industry standards and platforms strengthen the impact of digitization, enabling banks to automate processes and integrate systems. In recent years, industry organizations have released new electronic standards to reduce paper and speed the flow of electronic data across diverse platforms (e.g., ISO 20022 for payments, released by the International Organization for Standardization; and numerous enhancements to SWIFT messaging, including EBAM for information reporting and account management, MT 798 to support trade-related messaging, 3SKey for secure authentication and authorization across multiple banks). Additionally, industry groups and third-party technology providers have introduced new platforms offering streamlined integration

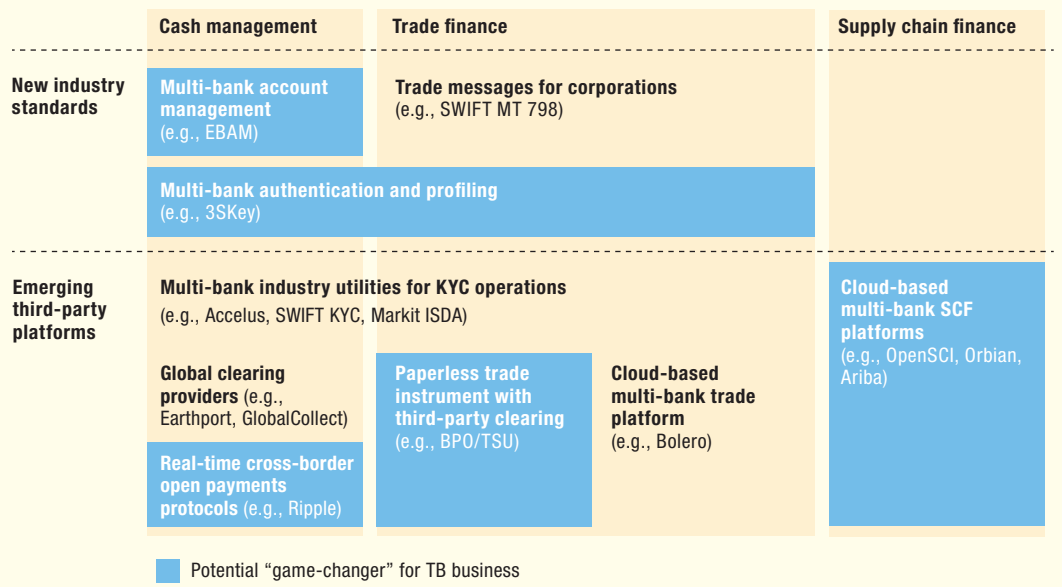
with bank and corporate systems. Initiatives such as the bank payment obligation and Bolero offer entirely electronic means for trade services, and numerous organizations support diverse supply-chain finance communities with cloud-based multi-bank platforms. It remains to be seen which, if any, of these new initiatives will gain critical mass. The potential game changers are highlighted in Exhibit 2 (page 14).

Together, these developments point toward a step change in digital channels, which promise to create opportunities on three levels of transaction banking service delivery: sales and channel access (anytime, anywhere access across integrated channels); data analytics (leveraging data from internal, public and third-party sources to gain client-specific insights into sales leads, emerging product needs and improved service levels); and processes (including the reduction or elimination of manual intervention in operations and the adoption of agile solutions development, where solutions prototypes are launched within a matter of weeks to reap the benefits of live market testing early in the development cycle).

Digitization also poses new risks of disintermediation. For instance, a cornerstone of the traditional correspondent banking model is banks' exclusive access to international networks for cross-border clearing and settling. However, third-party platforms are making it possible for banks, non-bank financial institutions, payments processors and other organizations to customize cross-border services in ways that go beyond the options offered by traditional correspondent banking arrangements. Ripple Labs, having developed a real-time, cross-border open payment protocol based on recent crypto-

Exhibit 2

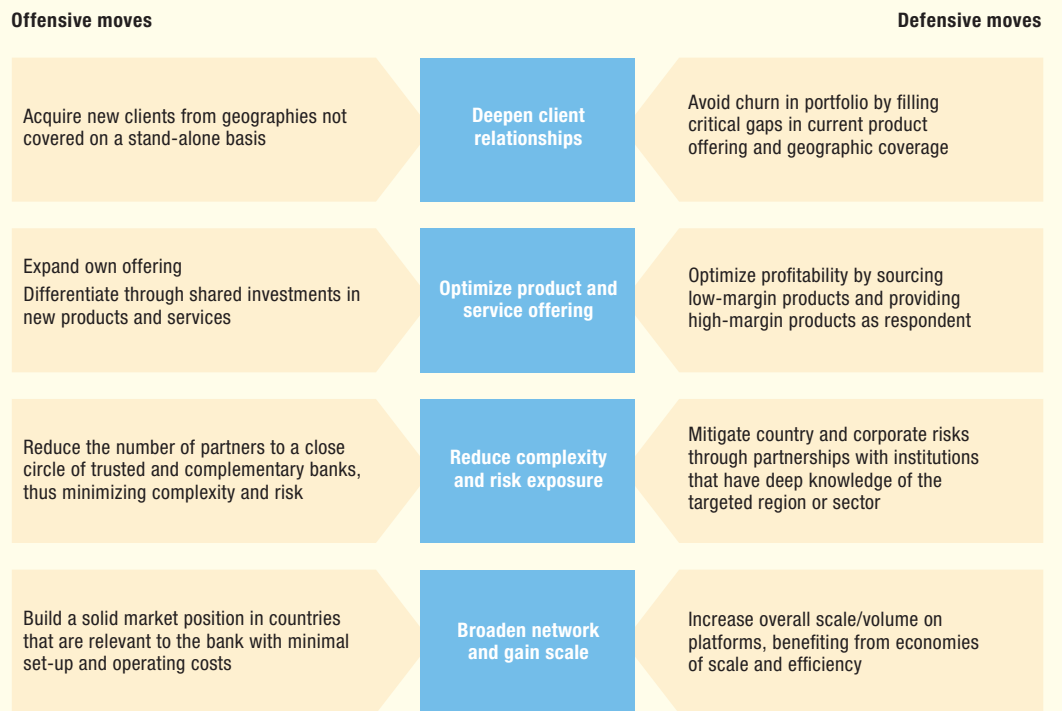
New standards and platforms improve connectivity and interoperability



Source: McKinsey Global Payments Practice

Exhibit 3

Partnership and cooperation models must serve clear strategic objectives



Source: McKinsey Global Payments Practice

currency technologies, is an example of these new types of third-party platforms. Such innovators allow financial institutions to streamline and improve the service levels and costs of critical steps in the correspondent banking infrastructure, such as message routing and settlement. The speed at which new entrants are evolving, as shown by Ripple's recent partnership announcement with Earthport, increases the potential for a significant disruption within the industry. (See page 19 for an interview with Ripple Labs CEO Chris Larsen.)

To maintain stronger control over risks and costs while also extending geographical reach, transaction banking providers are devising new approaches to cooperation.

As a consequence of these structural trends, banks are rethinking which markets they want to compete in and how to serve targeted segments and geographies with distinctive products and service levels. In crafting their strategy for market coverage, they focus on four main objectives: deepening relationships, optimizing products and services for competitive distinction, reducing complexity and risk exposure, and identifying markets that are important to their clients and where they can grow at scale (Exhibit 3).

Four models of banking partnerships

In order to maintain stronger control over risks and costs while also extending geo-

graphical reach, transaction banking providers are devising new approaches to cooperation. Whether the objective is primarily aggressive (that is, to expand market share) or defensive (to protect existing relationships), four distinct partnership models are emerging: regional-to-local agreements, inter-regional agreements, global-to-regional agreements and white-labeling (Exhibit 4, page 16).

Regional-to-local agreements

Regional institutions enjoy the broadest range of options for partnering, whether the main objective is offensive or defensive. A regional leader may partner with a local champion where the local institution has deep penetration and relevance in replacing multiple existing correspondent banking agreements.

On the local champion's side, these agreements aim to streamline the number of correspondent relationships, reducing complexity and risk exposure, mainly for the purposes of traditional trade finance rather than supporting international treasury operations. On the regional leader's side, these agreements allow access to new markets (in particular to serve SMEs) with limited upfront investments and capital allocation. It is important to note that service levels in this model typically will not exceed those offered in correspondent banking, and the primary objective of this model is to defend relationships that may be targeted by aggressive competitors. Furthermore, these relationships may become vulnerable if the regional player does not keep up with clients' evolving needs for both broader geographic scope and digital capabilities at competitive pricing.

Local players have a natural advantage in know-your-customer and access to liquidity and should exercise this advantage thoughtfully, weighing not only evolving client needs but the long-term strategic benefits of partnering with either a global champion or regional leader.

Inter-regional agreements

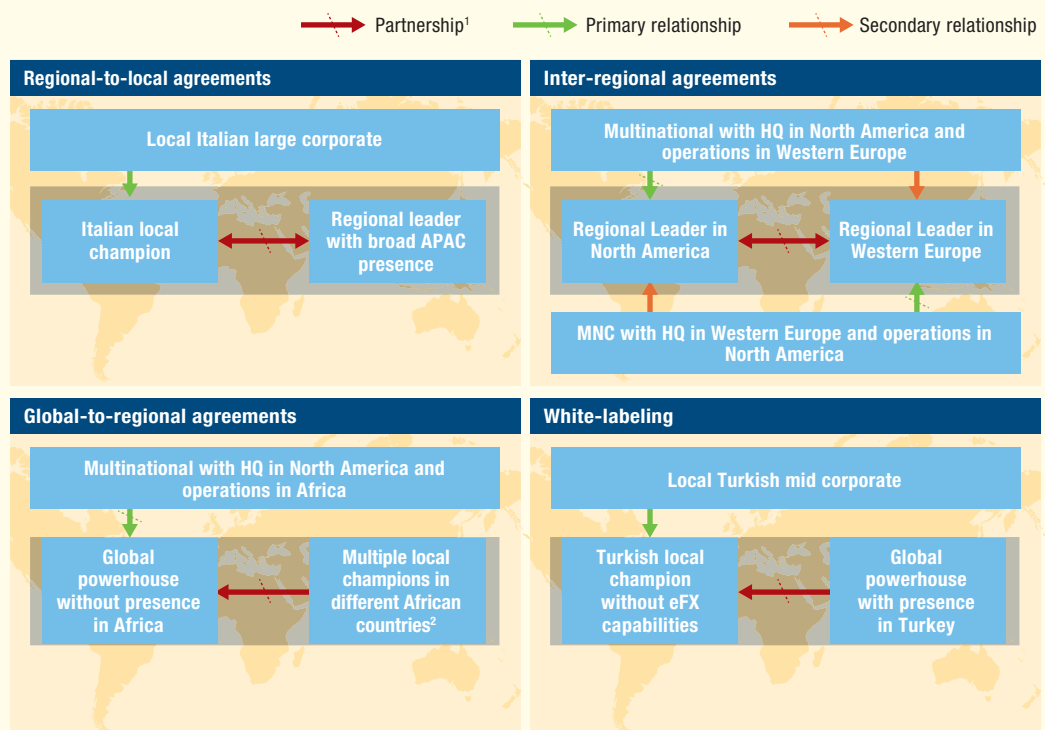
Inter-regional agreements are peer-to-peer partnerships between regional institutions that do not compete with one another, and therefore can complement one another's strengths in two separate regions (e.g., Central Europe and the Nordics or China and Africa).

Pursuing a strategy for aggressive growth, two regional institutions may reap large economies of scale by linking their networks

or building shared technology platforms. As case studies in the airline and automotive industries show, this type of deep strategic alliance can be extremely successful. If the objective is primarily defensive, inter-regional arrangements typically involve light integration of IT systems to leverage common standards and raise service levels, enabling each bank to strengthen relationships that might otherwise be lost to global players. However, these lighter, defensive partnerships usually do not bring substantial new revenue and may falter if either partner does not stay abreast of market expectations and technological advances. A more aggressive play however, including deeper integration and potentially exchange of human capital, typically allows for further cross-fertilization of each bank's customer base.

Exhibit 4

Four models of bank partnerships for global, regional and local institutions, with varying breadth and depth (illustrative)



¹ Direction of arrow indicates flow of services; each slash indicates a space where a technology partner can add value (as partner or challenger).

² Or better, the global powerhouse might partner with a single regional leader with presence in multiple African countries.

Global-to-regional agreements

Global institutions with networks spanning multiple regions have a proven value proposition for serving multinational corporations (MNCs). This is no reason for complacency, however. Indeed, a global bank's objectives in forming a partnership with a regional institution or a number of local champions may be to defend relationships from a new and far-reaching global alliance between two regional leaders. Alternatively, an aggressive partnership strategy might aim to undercut a global or regional competitor. Seamless service (based on deep systems integration) and transparency are competitive advantages.

New partnership models in transaction banking will have a deep impact on a bank's international operating model, and should thus be part of the CEO's strategic agenda.

However, these arrangements are costly, requiring ongoing investment in systems integration and platform connectivity, and the business case can be difficult to justify. Indeed, cost grows almost proportionally to the number of countries covered; *exponentially* if the bank partners with a different local player in each country rather than a single regional player.

Whether for aggressive or defensive reasons, partnerships will likely account for a growing share of business for each global powerhouse, and it is vitally important to select partners with care according to a global competitive strategy to extend reach and maintain distinctiveness.

White-labeling

Global and regional players with a technological edge continue to provide specific product capabilities to local champions, which is a way to leverage scale on their existing platforms. In practice, however, these arrangements involve a high degree of technical complexity. In addition, they will likely require significant upgrades (transparency, analytics and digital access) in order to remain attractive and competitive. The risk of cannibalization by the in-sourcing partner is relatively high.

Technology specialists have an important role to play both in building internal platforms and establishing seamless interfaces between institutions and clearing and settling networks. Technology firms such as Ripple Labs, Earthport and third-party supply-chain finance platforms may act as competitors as well as partners, particularly wherever there is an interface between correspondent banks. Furthermore, the non-bank provider of cross-border clearing services may appear to be highly attractive to the smaller partner, as there is no risk of cannibalization.

Five critical success factors

New partnership models in transaction banking will have a deep impact on a bank's international operating model, and should thus be part of the CEO's strategic agenda. Partnerships must be carefully aligned with the competitive strategy of each partner and with an overall plan for partnerships with bank and non-bank entities. Indeed, depending on the institution, technology partnerships may play a more significant role in achieving competitive distinction than correspondent banking arrangements. Five

Exhibit 5

Successful partnerships meet five criteria

| 1 Clear partnership strategy | 2 Strategic fit of partners | 3 Harmonized customer experience | 4 Integrated platforms and processes | 5 Aligned incentives |
|--|---|--|---|---|
| <p>Clear perspective on needs to be fulfilled by the partnership, in particular:</p> <ul style="list-style-type: none"> - Which customers will we serve? - What do we need to serve them? - What are the expectations of those customers? | <p>Complementary footprint and client base</p> <p>Cultural compatibility, shared legal background and trust between partners, often established through successful historic business relationship</p> | <p>Harmonized customer experience regardless of which institution is actually providing the service, typically defined through SLAs</p> <p>Right-sizing the services provided to satisfy the needs of customers within a predefined scope (geographies, products)</p> <p>Common/compatible legal jurisdictions</p> | <p>Integrated platforms and processes, enabling a harmonized customer experience</p> <p>Clear reporting and governance structure to resolve issues and track benefits</p> | <p>Financial incentives, (e.g., exchange of equity stakes, smart/transparent transfer pricing, co-investments)</p> <p>Where high level of integration is needed: operational incentives (e.g., exchange of staff), transfer pricing</p> |

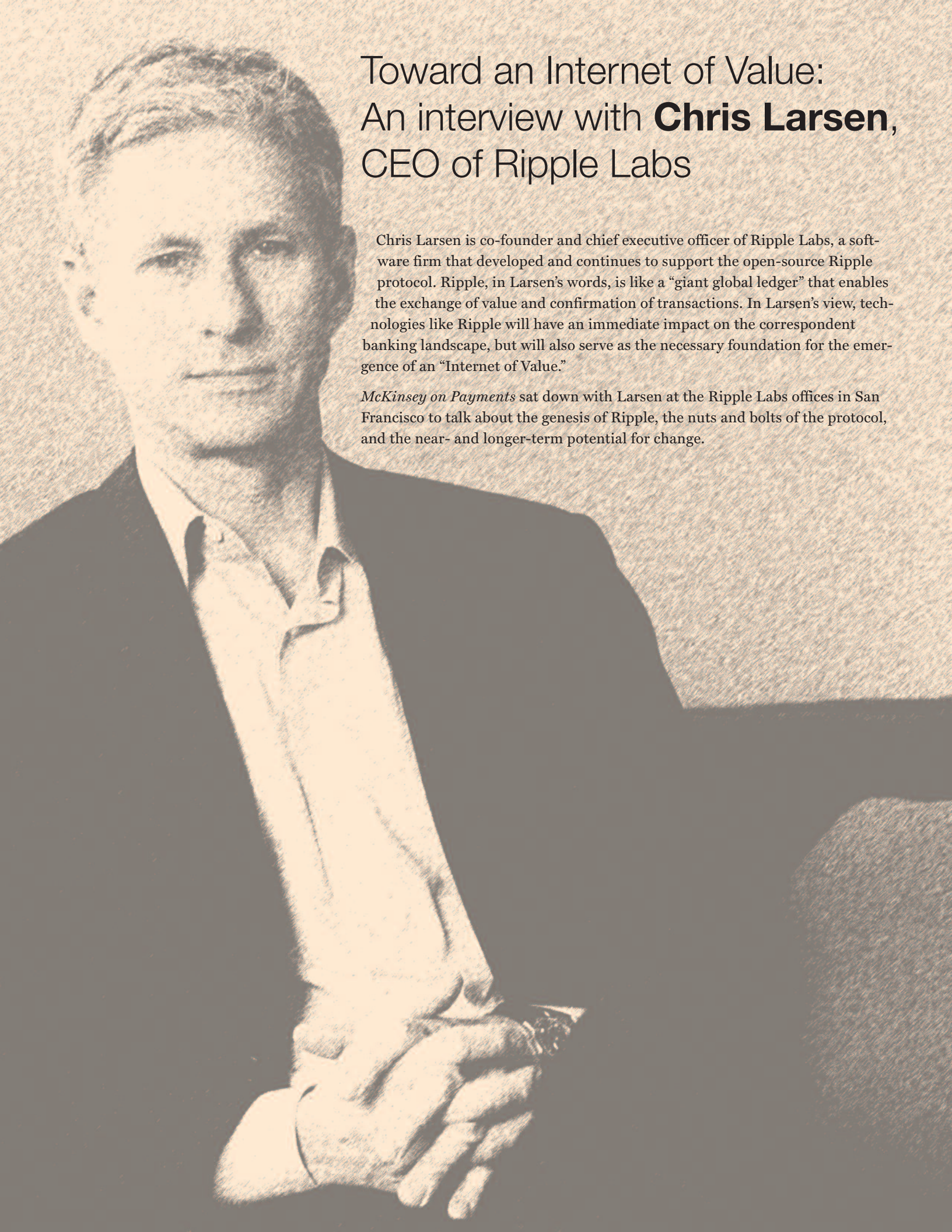
Source: McKinsey Global Payments Practice

major factors for success for evaluating potential bank and non-bank partners are a clear strategy, a strategic fit, a harmonized client experience, integrated platforms and processes, and aligned incentives (Exhibit 5).

Market and regulatory pressures dictate that banks take a new look at the role that partnerships play in overall business strategy. The traditional examples of correspondent banking have become too complex and risky, and they inhibit banks from providing the capabilities their transaction banking

clients demand. Proactive banks will take a systematic and iterative approach to restructuring their correspondent banking relationships and non-bank partnerships, starting with a review of current partnerships, the setting of strategic priorities, and a robust partnership strategy governing each party in the alliance.

Alessio Botta is a principal in the Milan office, Steve Krieger is an associate principal in the Luxembourg office, and Raffaella Ritter is a principal in the Vienna office.



Toward an Internet of Value: An interview with **Chris Larsen**, CEO of Ripple Labs

Chris Larsen is co-founder and chief executive officer of Ripple Labs, a software firm that developed and continues to support the open-source Ripple protocol. Ripple, in Larsen's words, is like a "giant global ledger" that enables the exchange of value and confirmation of transactions. In Larsen's view, technologies like Ripple will have an immediate impact on the correspondent banking landscape, but will also serve as the necessary foundation for the emergence of an "Internet of Value."

McKinsey on Payments sat down with Larsen at the Ripple Labs offices in San Francisco to talk about the genesis of Ripple, the nuts and bolts of the protocol, and the near- and longer-term potential for change.

McKinsey on Payments: Chris, can we start with a description of Ripple and the problems it's seeking to solve?

Chris Larsen: The Ripple protocol is an open-source distributed ledger. It is currency-agnostic, and can confirm transactions in about five seconds. You can think of it as a giant global ledger that holds balances of different things of value and then allows for those things of value to be exchanged using a path-finding algorithm route, similar to how you might route packets of information on the Internet. Those are the two big things that the Ripple protocol does: confirm financial transactions without a central operator and then path-find the most efficient way to exchange value, or said another way, execute a currency trade.

That's the Ripple protocol. We are a software company called Ripple Labs that contributes code to the protocol and builds tools for financial institutions to use it. I'm the CEO of Ripple Labs. Importantly, Ripple Labs does not own the Ripple protocol. The protocol is a public good, essentially, and is open-sourced and distributed, and would exist even if Ripple Labs did not.

We see both near- and long-term use cases for the technology. In the near-term, we see Ripple as a viable alternative to correspondent banking. Payments today are slow and expensive because there is no global rail for moving value. There is a series of regional, closed-loop systems, and correspondent banking links these systems together. It works, but correspondent banking comes with high costs in the form of risks, fees, liquidity and time delays. To the point of risk, because it's a chain of links, transactions fail often, and there's no end-to-end transaction visibility. Liquidity costs tie up banks' working capital because they have to

prefund accounts at the correspondent banks, and foreign exchange isn't competitive.

A distributed system like Ripple enables real-time, bank-to-bank, cross-currency payments while minimizing all these costs. On Ripple, banks can move value without putting up capital with a correspondent bank, without paying fees, with end-to-end transaction visibility, and moving value in seconds instead of days. And very

importantly they benefit from a structural change in the way FX works. Instead of relying on a small handful of global money center banks for foreign currency exchange, Ripple provides a competitive marketplace for liquidity provision. Market makers from Wall Street to London and Hong Kong compete to earn spread. It's a whole new opportunity for market making, providing liquidity for global payments.

MoP: And the longer-term use case?

CL: We believe that the Ripple protocol represents the beginning of the "Internet of Value"—the "Value Web"—in which exchanging value will be as easy as exchanging information today on the

web. We're focused on the near-term use case because we think the first users should be the custodians of value—banks, financial institutions—just as the custodians of data (academic institutions, governments) were the first users of the Internet.

We expect to see a dramatic increase in the volume of payments. By reducing the cost of payments to practically zero and increasing the speed of payments to real-time, we expect the Internet of Value to give rise to a dramatic increase in the volume of payments, and innovation in payments. The Internet drove the same outcome for information sharing – think of the volume of information we share



daily via the web, and the entire new industries and innovations made possible by the Internet.

MoP: Historically, systems that move value, particularly correspondent banking, were designed to manage risks of various kinds—counterparty risk, anti-money laundering risks, et cetera—and much of the friction, some might say, arises from the need to manage those risks. If you contemplate an Internet of Value that is nearly frictionless, how do you think about the Ripple protocol in the context of risk management?

CL: Very importantly, we see Ripple as infrastructure technology that works with existing financial institutions, networks, messaging standards, rule sets, consumer applications, et cetera. Distributed payments technologies are fundamentally changing how payments work in terms of speed, reach, security and cost-efficiency. But the technology has to pair with banks' risk management and compliance systems. For example, Earthport is integrating Ripple with its proven, robust compliance framework that banks around the world already use.

MoP: Taking a step back, can you tell me how Ripple got started?

CL: The technology was started by early Bitcoiners who felt that Bitcoin's confirmation method, *mining*, was wasteful because it requires a lot of computing power and thus burns a lot of electricity. Ripple's confirmation method, consensus, confirms transactions or the current state of a distributed ledger without requiring a lot of computing power.

The primary objective of Ripple's design was to create a viable payment system. So this new method of confirmation also yielded the important capabilities of real-time settlement and the ability to transact across currencies. In Bitcoin, you can only move around bitcoins. On Ripple, users can transact across any currencies, like dollars to euros or yen.

MoP: How do the mechanics work? Is currency converted to the Ripple protocol for transportation, and then reconverted to another currency?

CL: Yes, that's correct. A bank creates a copy of its ledger on Ripple, and continues to keep collateral on its existing ledger. They se-

lect which other banks, networks, and market makers with whom they want to have relationships. For a given trade order, Ripple's algorithm crawls all of the available offers amongst the banks' relationships to find the lowest-cost, most efficient path. Ripple consensus then settles the transaction.

Importantly, a bank doesn't have to convert from fiat money to a digital currency and then move the digital asset and then convert it into another fiat currency. Banks continue to deal in the currencies they're used to and benefit from instant FX and settlement.

MoP: What are some of the challenges you see for Ripple, and for the idea of an Internet of Value?

CL: With no central operator, the protocol has to run in a distributed fashion very efficiently and scale to support the world's payments volume. With an Internet of Value, assume these technologies will actually power potentially a billion times more transactions than there are today.

The Internet of Value also requires bringing together the banking world with distributed systems technologists. They don't speak the same language.

MoP: Different tribes with different languages.

CL: Absolutely. The timelines are different; the vocabulary is different. We're trying to marry a culture that deeply understands correspondent banking, collection management, risk mitigation, AML and KYC, with distributed systems, cryptographic keys and system scalability. That's a big challenge, but we think we've got a good team to take it on.

On the regulatory side, the challenge is to educate regulators that these protocols, far from being threats, actually provide better tools for anti-money laundering compliance. With AML, you can reduce investigations that might take six months to trace all of the intermediaries, to immediately be able to trace all the counterparties and degrees of separation.

MoP: Central banks are obviously key stakeholders here.

CL: We're actively engaging with central bankers around the world. The technology offers a very real benefit for domestic real-time

settlement. Distributed payments has come along coincidentally right at a time when central banks are calling for faster or real-time settlement solutions.

MoP: On the technical front, one challenge mentioned frequently when distributed ledgers are discussed is the question of “no recourse.” If a transaction has been settled, there’s no recourse. How would you think about that in a world where large amounts of value are being transported on these rails?

CL: It’s important. People won’t give up the ability to complain to somebody and reverse a payment. This goes back to Ripple’s position in the payments stack: it sits at the bottom, purely acting as technology infrastructure. Payment rules and networks, which are expert at providing services to enact those rules (like a Visa or American Express), are necessary parts of the payments stack that work with Ripple.

MoP: So the Ripple protocol would enable the value exchange, but the control for something like recourse would sit higher in the stack?

CL: Exactly.

MoP: Tell us about the journey of building Ripple Labs and how you grow the company, sustain a technology culture.

CL: We’re very dedicated to being a technology company first and foremost. About two-thirds of our team is engineers. While sometimes consumer companies get all the glamour, our mission—moving value

in the way that information already moves on the web—could have a huge impact. And that’s what I think great tech talent is looking for: how do I make an impact on the world?

Our core values are the foundation for our culture. They are: *open*, *constructive*, *inclusive*, and *humble*. Open, because we believe the Internet of Value will be open and we promote open standards. Constructive is about building, not disrupting. Disruption is something you do to your enemies.

We aim to be inclusive, working with regulators, banks, and market makers from China, to Europe, to the U.S. After all, the Internet of Value will touch every corner of the world when it takes hold.

Finally, we keep it in perspective. We’re just building infrastructure. The infrastructure will provide a new foundation and give way to entirely new types of innovation further up the payment stack, like with consumer applications. We’re happy for Ripple to be totally invisible to consumers.

MoP: Ten years from now, where would you like the Ripple protocol and Ripple Labs to be?

CL: We would like to be recognized as a leader in distributed payments technology, and for having helped develop standards for the Internet of Value. In ten years, I hope we can feel proud that we contributed to a major turning point in finance. We think we’ve reached a bright line. There’s no turning back or putting the genie back in the bottle. The Internet of Value is coming.





Faster payments: Building a business, not just an infrastructure

To date, most discussions about building a “faster payments” system have focused primarily on speed and “plumbing.” Even more important, however, are the innovative products and services that an enhanced infrastructure will allow financial institutions to bring to market. These new products and services—in both consumer and corporate payments—can create new revenue streams and help banks and other players realize a return on their investment in a modernized payments system.

Rob Hayden

Grace Hou

It's about more than speed

In a recent article (“Transforming national payment systems,” *McKinsey on Payments*, September 2014) we discussed the importance of upgrading payments infrastructure to make it both faster *and* more effective, safer and secure, with designs based on specific use cases. Since then, the United Kingdom and Singapore have continued to lead the way; the UK with further growth in its Faster Payments system (see sidebar, page 27), and Singapore with its G3 Immediate Payments. Denmark launched a real-time payments solution in December 2014, Australia and the United States are making steady progress toward modernizing their payments systems, and several other countries are developing strategies for improving their systems.

In most of these countries, the banking industry is expected to pay for the new real-

time clearing system. Banks must thus invest years and significant resources in upgrading their platforms and integrating with the modernized system. The UK Faster Payments, for example, cost between £150 million and £200 million to build and operate for the initial contract period of seven years (2008-2015), plus up to £50 million for banks to connect to the central infrastructure. Because of these costs, improvements to payments systems must facilitate innovation and generate revenue streams for financial institutions.

Monetizing new payments systems

Financial institutions can monetize investments in a faster-payments infrastructure in several major areas: new products and services in both consumer and corporate payments, increased loyalty and retention, and new customer acquisition. The exam-

Faster payments, defined

Faster payments may also be referred to as *immediate payments*, *instant payments* or *real-time payments*. While faster payments have been defined in various ways, in this article we refer to them broadly as the modernization of payments clearing systems to include a “faster” component. Included in our definition are “domestic, inter-bank electronic payments systems in which irrevocable

funds are transferred from one bank account to another, and where confirmation back to the originator and receiver of the payments is available in one minute or less” (Clear2Pay). The most important features of these systems are real-time (or nearly real-time) clearing and availability of funds.

ples provided in these areas are not comprehensive but are meant to demonstrate the potential for innovation—and thus new revenues—in a faster, modernized payments infrastructure.

New products and services in consumer payments

A faster, modernized payments system will accelerate the convergence of mobile commerce and consumer payments by enabling real-time funds transfers that have value for both merchants and consumers.

Person-to-microbusiness payments:

Thus far, most innovation in the person-to-microbusiness arena has been on the front end, with products that make it easier for microbusinesses and small businesses to accept payments (e.g., Square and PayPal Here card readers). A faster back-end infrastructure would further improve the convenience of these apps. For example, in a used car sale today, a buyer usually gives the seller a check, sends a costly wire transfer or carries a sizable amount of cash to pay for the car. Faster-payments infrastructure will enable car buyers to send a real-time payment to the car seller on the spot, and drive away in a new car without the risk of a bounced check or a cash theft, and

without the cost of a wire. (Taking the example even further, one could imagine a single mobile app for the entire purchase process: researching and identifying cars, finding local sellers and prices, and making test-drive appointments.)

Bill payments: A real-time infrastructure combined with a ubiquitous merchant-biller directory—which would store and manage electronic payment identities for businesses so that they could be paid electronically—and integrated into mobile banking applications could create a frictionless bill-payment experience involving push notifications, a single-button and real-time confirmation of payment receipt. Consumers would have more control over their cash flow, a less costly and more convenient way to pay bills, and more certainty when making “consequence” payments (e.g., payments to restart a suspended utility service). The revenue opportunity here is significant, as bill payment touches every household. In India, for example, 10 billion to 12 billion bills are paid each year, and in the U.S., over 20 billion bills are paid per year.

Online commerce: With retail e-commerce sales worldwide forecast to grow to \$2.5 trillion by 2018, real-time payments infra-

structure can pave the way for new products and services based on nearly immediate delivery of online purchases. Since goods are typically released when a payment is received, real-time payments can enable real-time shipment and delivery. Online technology and e-commerce players such as Amazon and eBay are already moving toward faster and faster delivery; real-time funds transfer and availability can enable more merchants to do the same—with comparable payment speed and improved risk management. A new, real-time clearing system should enable more retailers to match the standard that offerings like Amazon Prime have set, thereby increasing customers' choices and furthering

Real-time payments may create a need for corporate customers to manage their intra-day liquidity more closely. Banks could generate additional revenue by offering liquidity management services such as intra-day loans or overdraft protection.

the shift toward mobile commerce. Financial institutions thus have the opportunity to provide improved e-commerce payments services to consumers and merchants. As an example, iDEAL in the Netherlands, an e-commerce payments system based on online banking, enables consumers to make real-time, lower-cost payments by directly transferring funds from their bank account to merchants.

New products and services in corporate payments

As with consumer payments, a faster infrastructure alone is insufficient for creating value in corporate payments. However, banks can use that infrastructure to build valuable, next-generation payments tools for corporate customers that offer the same ease-of-use, simplicity and customer experience found in today's emerging mobile and digital payments technology for consumers.

Just-in-time payments: Real-time payments allow businesses to control when payments are made and to increase their certainty. Real-time payments are most salient for one-time, lower-value, business-to-business payments, which account for an estimated \$11 billion in payments volume in the U.S. alone, according to McKinsey's Global Payments Map. Particularly for small businesses that need to tightly manage cash flow, faster clearing with real-time notification of payment would offer a way to avoid late payments and adopt just-in-time business models. For example, retailers might be able to reduce their inventory levels, since immediate payment receipt would enable immediate shipment of orders. Moreover, real-time payments may create a need for corporate customers to manage their intra-day liquidity more closely. Banks could generate additional revenue by offering liquidity management services such as intra-day loans or overdraft protection.

Direct deposit for temporary and hourly workers: In the U.S., the current ACH Direct Deposit system requires a transaction to be initiated at least 24 hours in advance. Consequently, many businesses have

Poland's Express ELIXIR

The Polish national clearing house, Krajowa Izba Rozliczeniowa S.A. (KIR), introduced Express ELIXIR in June 2012 after market research revealed high demand among end-users for real-time payments. Supporting credit-push transfers with real-time clearing and settlement, Express ELIXIR transactions are processed separately from the batched ACH payments system, ELIXIR (also operated by KIR). Express ELIXIR has yet to achieve widespread adoption, however, processing fewer than 1,000 transactions per day on average. (By contrast, Singapore's FAST system processed over 33,000 transactions for over S\$64 million in its first two days of operation.)

The reasons behind the tepid rate of adoption can serve as lessons for other faster payments systems:

- Low bank participation: With only eight to ten banks out of about 50 participating, the service lacks the ubiquity necessary to scale across end-users. The UK's Faster Payments system and Singapore's FAST system, meanwhile, have the participation and investment of all major banks.
- Lack of value-added products and services: At launch, Express ELIXIR's participating banks had not developed payments solutions that leveraged its infrastructure. Without innovative products and services that create seamless customer experiences, adoption is likely to remain low.
- Weak differentiation from legacy ACH system: The legacy ELIXIR system completes transactions at a relatively high speed, with three cycles of settlement per day and funds availability within a few hours (i.e., same-day ACH). Consequently, end-users are less likely to see significant added value in the faster payments system, particularly when the Express ELIXIR is priced at a premium compared to the legacy ELIXIR.
- Alternative faster payments options: Intense competition in the Polish payments space means that end-users have access to cheaper payments options—such as Blue Cash, which began as an e-commerce solution but has since expanded into a more widely used payments system in Poland.

Despite these challenges, adoption is likely to grow in the coming years, as major Polish banks are developing mobile payments solutions that will leverage Express ELIXIR. Additional services are planned for layering on top of the payments system, including a P2P mobile service with the use of alternative identifiers. Ultimately, the experience of Express ELIXIR illustrates the importance of building a business, not just an infrastructure, around faster payments.

drifted away from direct deposit toward prepaid cards. A faster payments system would allow more businesses to pay weekly workers through direct deposit. Given that 17 percent of workers in the U.S. are temporary employees, the potential savings is significant.

Automated e-invoicing solutions:

Enhancements to payments clearing systems could allow for new remittance data solutions that digitize the back office for businesses. While payments system modernization is not essential for e-invoicing, it

can be a catalyst for improved business-to-business e-invoicing solutions. For example, Australia's New Payments Platform aims to provide more information-rich transactions by enabling commercial overlays on top of the basic invoicing infrastructure. It would then be possible to develop products and services that automate e-invoicing along the entire procure-to-pay value chain, thus pushing the industry to realize the potential of e-invoicing. Converting invoices from paper to electronic yields a cost savings of up to about 70 per-

The UK's Faster Payments

With the launch of its Faster Payments service (FPS) in May 2008, the United Kingdom initiated the global shift toward faster payments. This real-time clearing infrastructure includes 10 member banks, and enables phone and Internet payments through a continuous, real-time clearing system. Payments take one of four forms: single, immediate payments; forward-dated payments; standing-order payments; and direct-corporate-access payments.

Single, immediate payments are the primary use case, and grew 40 percent CAGR from 2009 to 2014, reaching 8 percent of transactions in 2014. Over 90 percent of transaction accounts in the UK can receive FPS payments. Banks generally do not charge consumers for sending payments through the system, but they do charge corporate customers.

Since 2012, participating banks have been building customer-facing products and services that leverage FPS. Barclays Pingit, for example, enables users to send and receive payments using a mobile number. More recently, the system has expanded to allow customers to purchase and use bus tickets through their smartphones, and to send and receive electronic gift cards using mobile payments.

Launched in April 2014, the UK Payments Council's PayM service enables customers of 16 participating banks to send and receive payments using a mobile number as a proxy. Some banks, such as HSBC, have extended PayM to business customers as well.

Another mobile payments service that leverages the Faster Payments service infrastructure is Zapp, which is expected to launch this year. Zapp is owned by UK banks and can be integrated into existing mobile banking apps so that users can make in-store and on-line purchases through mobile devices.

These innovations demonstrate the ability of a back-end, real-time clearing system to facilitate products and services that create value for customers and enable banks to compete more effectively against non-bank financial service providers. How widely adopted these products and services will be, and how banks will monetize them—whether through direct fees or through increased customer engagement and cross-selling opportunities—is still an open question.

cent per invoice; the value of automated invoicing, then, is indeed significant.

Strengthening customer relationships

Person-to-person payments: Person-to-person (P2P) payments products and services enabled by a faster payments infrastructure could play a critical role in banks' efforts to strengthen and retain existing customer relationships. This is particularly relevant today, as the space is under siege by non-banks. Emerging payments players such as PayPal, Venmo, Alibaba's Alipay, and Tencent's WeChat have used P2P payments to gain a user base for adjacent services, particularly e-commerce. Large technology players such as Apple, Google and Facebook are working on their

own P2P solutions as they seek to intensify their engagement with existing customers and solidify their control over the mobile commerce experience.

A real-time payments system would allow banks to offer a P2P product that provides immediate funds availability—something not widely available today, and a service that younger consumers are coming to expect. The product should be simple and easy to use, allow end-users to choose a payments speed, and be supported by a P2P identity directory that stores users' payment information and enables ubiquitous payments across banks. Banks that offer a product with these features could retain and increase their current cus-

tomers' engagement, slow the shift in market share toward third-party providers, and create new revenue streams in digital financial services.

To capture the monetization opportunities presented by a modernized payments system, financial institutions must relentlessly focus on design, customer experience, accessibility and convenience.

Acquiring new and previously underserved customers

A modernized payments infrastructure would also enable banks to better meet the needs of “underbanked” consumers. Approximately 18 to 25 percent of the 25 million underbanked consumers in the U.S. say they use non-bank/alternative financial services providers because they are faster. The ability to receive payments and use funds in real time could help banks win share among these customers. With the underbanked segment spending \$89 billion just on interest and fees for alternative financial services, the value at stake in the U.S. alone is high.

Furthermore, the prevalence of mobile phones and mobile financial services among underbanked consumers suggests that the mobile channel could be a cost-effective way to scale distribution of mobile payments tools built on a faster-payments infrastructure. New products and services could be designed specifically to bring segments of the

underbanked into the mainstream banking arena; for example, small-dollar, immediate loans could be provided in near-real-time through text notification. A number of startups are already attacking this space; for example, Affirm enables merchants to offer customers instant lines of credit for purchasing items on their sites.

Infrastructure is only the beginning

While some existing revenue streams (such as paper-based services) will no doubt be impacted by a modernized system, the digitization of information, the rise of mobile commerce, and end-users' rapidly changing expectations all create the opportunity for banks to boost customer engagement, gain a greater share of wallet, and acquire new customers.

New revenue streams will be the primary source of return on investment in a modernized payments infrastructure, but it is worth noting that additional cost savings could be significant if banks seize this opportunity to integrate their payments architecture. Some banks may gravitate toward payments hub architecture, which helps usher innovation into production—and thus to expedite revenue growth. Often, however, it is more cost-effective for banks to integrate payments platforms through multiple, smaller integration points, such as the fraud management system or the transaction banking system. Based on case examples from around the world, McKinsey estimates that banks can reduce their payments-related IT spending by 20 to 30 percent when they integrate their payments architecture.

To capture the monetization opportunities presented by a modernized payments sys-

tem, financial institutions must relentlessly focus on design, customer experience, accessibility and convenience. Building the infrastructure is a necessary condition for success, but banks will need to strengthen their front-end product development capabilities in order to fulfill the new system's

potential. If they do, the investment in faster payments will be well worth the return.

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In the next issue

The next issue of *McKinsey on Payments* coincides with the 2015 Sibos conference to be held October 12 to 15 in Singapore. The issue will include articles on the following topics:

Supply-chain finance

An overview of structural factors shaping the supply-chain finance market, including globalization, technology improvements and network effects, and a view on how to capture the opportunity.

Mobile payments

New McKinsey research sizes the mobile payments opportunity, and presents insights on how players along the mobile value chain can use segmentation to improve their performance.

