

THE FUTURE OF MONEY: HOW DIGITAL PAYMENTS ARE CHANGING GLOBAL COMMERCE









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▶ INTRODUCTION

Like music, mail, and movies, money has gone digital. All over the world, electronic payment systems are changing the way businesses make money and the way consumers spend it. Mobile phones, already used by more than half the global population, bring speed and safety to transactions while cutting costs for merchants and allowing them to gather valuable information about their customers. Mobile payments also promote financial inclusion, widely believed to ripple out into stronger economic growth. No wonder banks, technology developers, telecoms providers, and retailers are racing to create payment apps for a cashless future.

Business leaders across a broad range of industries understand that customer-friendly digital payment systems can help them achieve their long-term growth goals. Our research shows 83% of executives think of payment technology as a tool for meeting strategic objectives. In fact, the world's fastest-growing enterprises—and some of the best-known consumer brands—already offer mobile pay options. It's clear that to remain competitive, companies must bring payment into the digital age. "The future is mobile, and that's where we think all merchants need to be," says Siddharth Arora, CEO and co-founder of Indian mobile payment company ePaisa.

83%

of executives think of payment technology as a tool for meeting strategic objectives.

To better understand how consumers and businesses use different payment types—and, more important, which methods they expect to be using a few years from now—we conducted a broad global survey, asking 2,300 respondents about their preferences and concerns. We found that many businesses underestimate their customers' taste for phone and tablet transactions, and that misapprehensions about mobile

payment technology have slowed its uptake. For example, consumers and executives alike greatly underestimate the security of mobile payments, and businesses don't fully appreciate their customers' enthusiasm for payment apps. Although some countries—notably emerging markets—are embracing mobile wallets, adoption is uneven, and long-held myths about cash persist.

While mobile money volume is growing at triple-digit annual rates, according to market researchers, it still accounts for only around 8% of transactions globally. To participate in its vast potential, our research suggests companies consider the Calls to Action highlighted below and at the end of each chapter of this report.

Yet 31%

say mobile money doesn't apply to their business.

CALLS TO ACTION

- ▶ **Address consumers' fears** about fraud and data security.
- ▶ **Educate merchants** in all channels, both online and brick-and-mortar, about the cost benefits of payment innovation.
- ▶ Develop payment strategies that **solve problems** for consumers.
- ▶ **Integrate rewards** programs into apps to encourage usage, which builds trust.
- ▶ **Work with policy-makers** to develop a regulatory framework that reflects the changing digital payment environment.

ABOUT THE RESEARCH

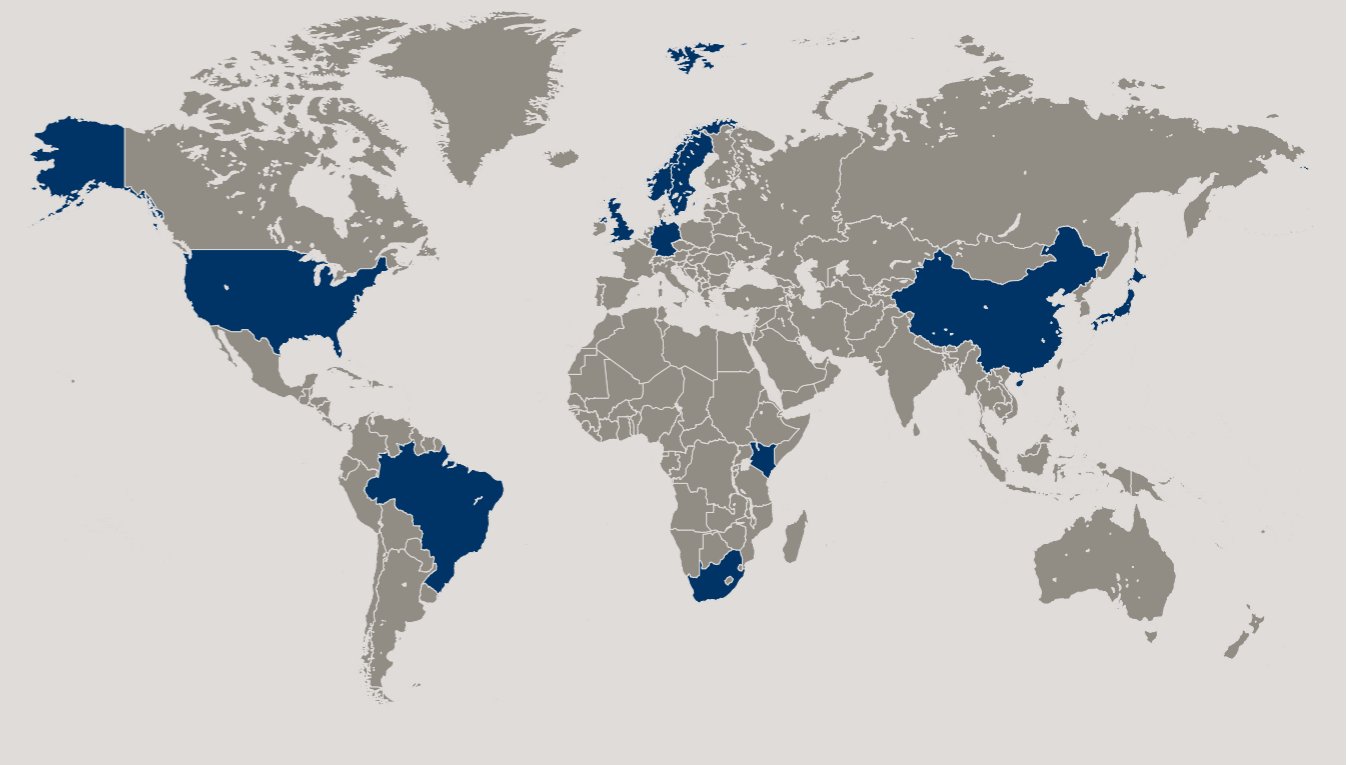
Oxford Economics and Charney Research, in partnership with NTT DATA, Inc. and Ingenico ePayments, conducted two online global surveys during fall 2016. We reached 2,000 consumers and 300 business executives, split evenly across the following 10 geographies: the US, the UK, Germany, Scandinavia (Norway, Sweden, and Denmark), Japan, China, India, Brazil, Kenya, and South Africa.

The executive survey covered the travel, gaming, technology, financial services, healthcare, and retail sectors, each 17% of the sample. Respondents are C-level and direct reports, including CEOs/presidents (26%) and owners/co-owners (33%). Their businesses range in size from less than \$100 million in annual revenue (25%) to more than \$5 billion (6%).

The consumer survey covered several age, income, and education bands to ensure a diverse sample of respondents, 58% of whom live in a city, 29% in a suburb, and 13% in a rural area.

We also conducted in-depth telephone interviews with nine business executives and payment experts from around the world. Our interviewees are quoted directly throughout this report, and we are grateful for their insights.

Fig. 1: We surveyed 2,000 consumers and 300 executives in 10 global geographies



E-PAYMENTS: A CRUCIAL PART OF GROWTH STRATEGY

Financially successful companies are ahead of the curve when it comes to e-payment adoption. Regardless of their business or industry, they know that the payment component of a transaction is the one people enjoy the least. Customers are happiest when the payment method is virtually invisible, while businesses want payment options that bring in more customers without costing a fortune in fees.

“Merchants are not super excited about payment in and of itself,” says James Anderson, executive vice president of digital payment products at Mastercard. “They’re super excited about sales, and better payment options help merchants sell more. They’re not wedded to a single payment system or model, and if there’s a better mousetrap out there, they will embrace it.”

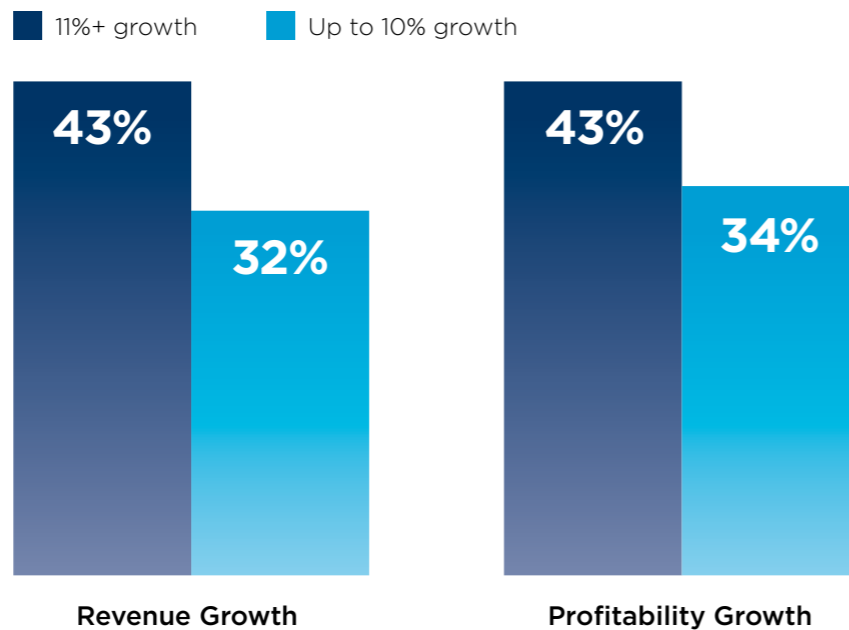
SUCCESSFUL BUSINESSES EMBRACE PAYMENT APPS

Although correlation does not necessarily imply causality, our survey shows the fastest-growing firms in terms of revenue are those conducting e-commerce via their websites and mobile apps. Among business respondents with annual revenue growth of 11% or more, 43% have an app that supports purchases and payments, compared with 32% of slower-growth businesses. (The gap is narrower, but 51% of fast growers have a website that supports purchases and payments, vs. 47% of slower-growth companies.)

Highly profitable firms show the same propensity for mobile payments. In our survey sample, 43% of businesses with annual profit growth of 11% or more offer a payment app, compared with 34% of companies whose profits are growing 10% a year or less. Strikingly, among firms with zero or negative profit growth, just 8% offer in-app payment capabilities.

Fig. 2: Fast-growing companies are more likely to have purchase and payment apps

Does your firm have a mobile app that supports purchases and payments? “Yes” responses



PAYMENT PARTNERSHIPS CAN FUEL GROWTH

Relationships with non-bank payment providers are also linked to growth. Financially successful firms are more likely to have partnerships with companies like PayPal, Alipay, Apple Pay, or M-Pesa than slower-growing companies, which is why major retail banks are scrambling to compete in mobile payments. In late October 2016, 19 US financial institutions (including Bank of America, Capital One, Citibank, JPMorgan Chase, and Wells Fargo) joined forces with the major card networks

and a dozen fintech providers to develop an app called Zelle, hoping to compete with mobile services like Venmo. Zelle is scheduled to launch later in 2017, facilitating quick money transfers and payments—and because the banks themselves are behind the app, funds will clear immediately rather than in a day or two.

The banks are also rolling out their own apps, which will test the limits of consumers’ trust in virtual tellers and

loan officers. “Banking will look different in a few years, because people will mainly see it through the lens of their phone and digital assistant,” predicts Michelle Katic, CEO of financial tech training firm BankersLab in San Francisco.

E-payments are a cornerstone for building new markets abroad and on the Internet.

BUILDING NEW MARKETS

E-payments lubricate cross-border commerce, which may be another reason the most profitable companies embrace them. Among companies with annual profit growth of 11% or better, 56% sell to international markets, compared with 44% of their slower-growing counterparts. And companies engaged in international trade receive 53% of their revenue from electronic payment methods—including mobile apps—while those selling only to the domestic market get 58% of their revenue from cash, checks, or physical credit cards. Fast-growing companies are also significantly more likely to sell their goods and services online (79%, vs. 64% of slower-growing companies). Clearly, e-payments are a cornerstone

for building new markets abroad and on the Internet.

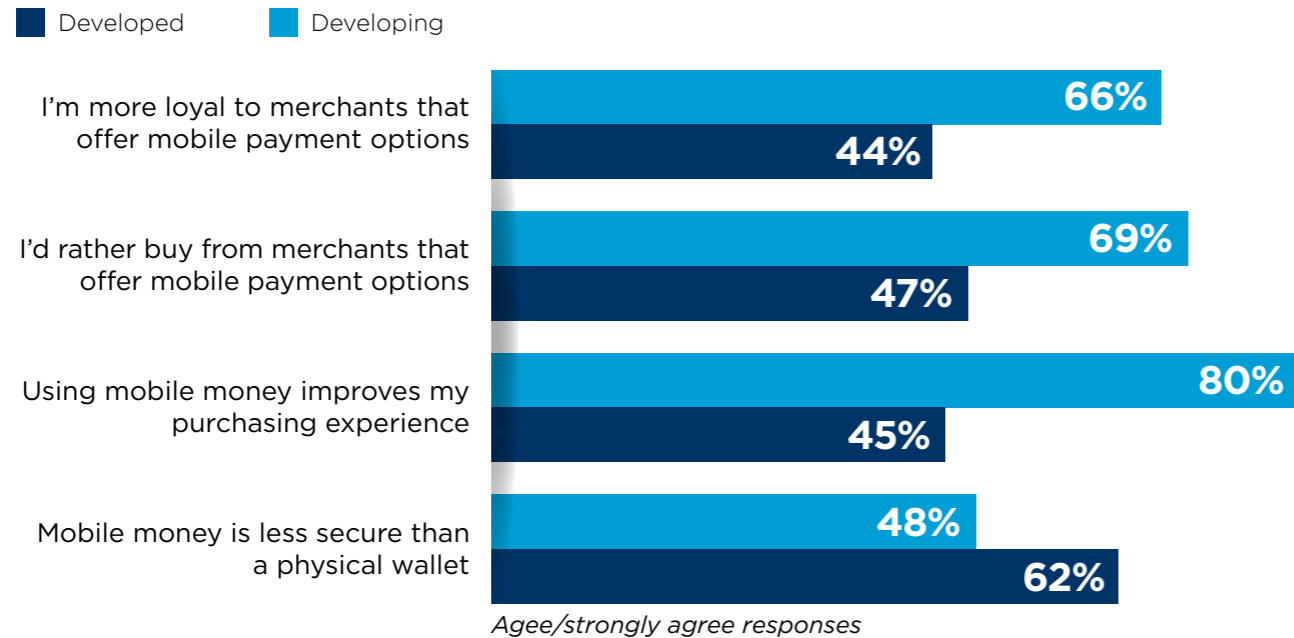
The world’s most dynamic economies—those with the most room to grow—are ahead of the developed world in embracing digital payments (see Fig. 3). In emerging markets, mobile phones give businesses and consumers access to affordable financial services, including peer-to-peer lending that boosts entrepreneurship. Our data confirm that developing nations are leap-frogging the developed world in mobile wallet adoption. Consumers in the five emerging markets we surveyed are twice as likely as their counterparts in the developed world to use mobile payments for things like travel, entertainment,

gaming, appliances, and clothing. Across all categories of goods and services, 58% of consumers in developing countries make mobile payments at least once a week, compared with only 39% in developed countries. In India, where GDP growth now surpasses China’s, ePaisa’s Mr. Arora believes traditional credit cards will completely disappear within five years.

58%
of consumers in developing countries make mobile payments at least once a week.

Fig. 3: Consumers in developing countries are more comfortable with mobile payments

To what extent do you agree with the following statements about mobile e-payments?



As Claire Calmejane, director of innovation at Lloyds Banking Group in London, observes, "In emerging markets, people just jump a generation of technology and go directly to mobile banking." These nations, where mobile money has gained dramatic wallet share, provide a glimpse of what the payments landscape could look like when the rest of the world catches up.

CALLS TO ACTION

- ▶ Forward-thinking companies adopt e-payments as part of a broad strategy to grow their business by bringing consumers innovative new products and processes.
- ▶ Adopting frictionless payments improves customer satisfaction, facilitates cross-border commerce, and makes online shopping more efficient.
- ▶ Companies must understand consumers' changing shopping preferences, including their enthusiasm for the ease and speed of mobile purchases.
- ▶ Forming partnerships with non-bank payment providers can promote growth and profitability.

A KILLER APP FOR AN OLD-SCHOOL BRAND

Quick-service restaurant company Dunkin' Brands has Dunkin' Donuts and Baskin-Robbins franchises all over the world. Founded in 1950, the homey American chain has undergone a radical makeover in the last few years and now competes with upscale rivals, offering gourmet teas and pastries alongside its traditional fast-food fare. Classy new décor and digital menu boards have modernized the ambiance in many locations. And in 2012, the company launched a mobile payment app that it says has boosted sales, improved loyalty, and accelerated store traffic.

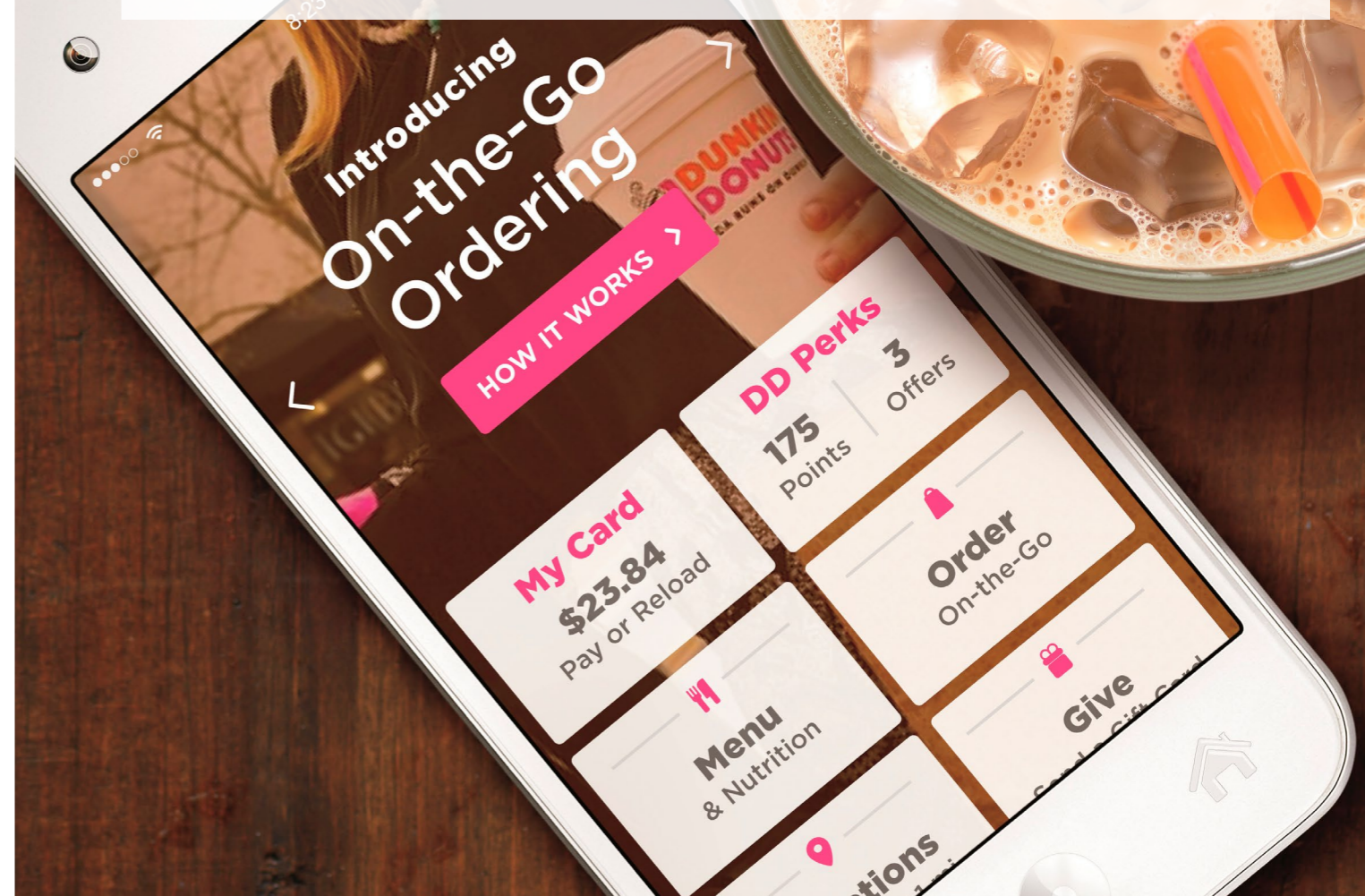
"We have a heavy presence in the US Northeast and Midwest," says Nick Holland, Dunkin'

Brands' digital marketing and innovation manager. "Some of these locations aren't necessarily in growth areas, so the franchisees are looking for ways to maximize their opportunity." The mobile app moves customers through the store faster, which means more transactions.

But the app is about more than volume. Mr. Holland says it streamlines the DD Perks rewards program, which has 5 million users. It lets customers send gifts to friends in the form of digital credits. The app's reload capability automatically replenishes when the user's balance hits a predetermined threshold. "Typically we see an uptick in average ticket size compared with people who pay

with cash," Mr. Holland says. "People see the app more like a credit card than a finite amount of money. So they'll get that larger coffee or that croissant." Larger reload amounts also mean lower swipe fees than franchise owners would pay on smaller, individual purchases by credit card, he adds.

Dunkin' Brands' strategy rests on the conviction that mobile wallets like Apple Pay and Android Pay "will become ubiquitous," Mr. Holland says. So the company is working with those providers—and also with Google and, potentially, PayPal, Venmo, and others. "Mobile payment has always been a tough sell," he says. "But now, we're on the cusp of a real tipping point."



THE MOBILE OPPORTUNITY

72%

of executives say accepting mobile payments can boost their sales, while 62% of consumers think mobile money enhances their buying experience.

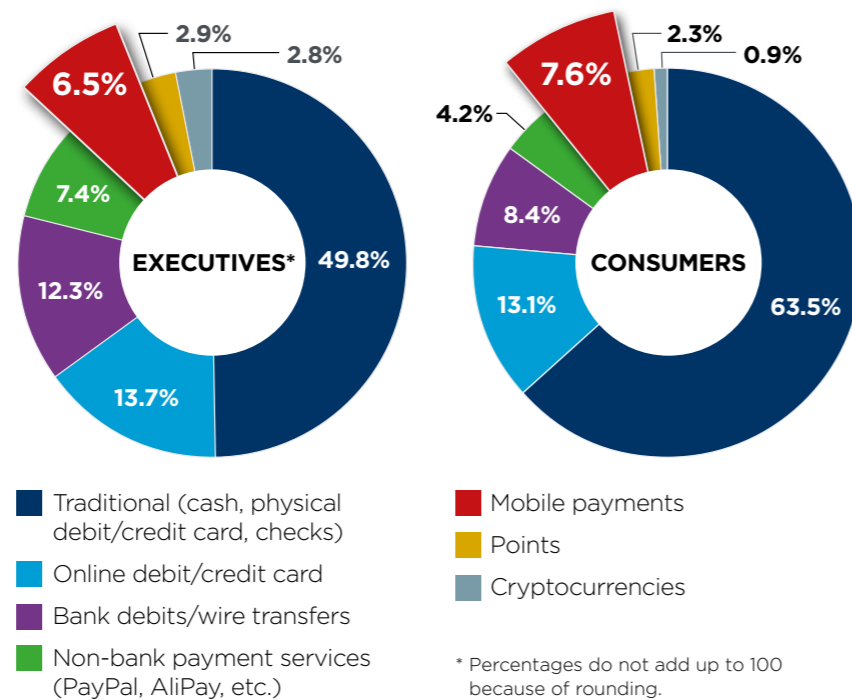
Globally, credit and debit card transactions still account for the lion's share of electronic payments. But mobile wallets clearly represent the next step in e-payment evolution. According to our survey, 72% of executives say accepting mobile payments can boost their sales—and more than two-thirds think failure to do so would put them at a competitive disadvantage. As for consumers, more than half would rather buy from merchants that offer mobile payment options, and 62% think mobile payments enhance their buying experience.

As mobile phones become a necessity rather than a luxury for more and more of the world's population, experts predict they'll increasingly be used as wallets. "Going forward, pretty much any phone you buy will also have the capability for mobile payment to happen," says Mr. Holland of Dunkin' Brands.

Indeed, many of the world's best-known consumer brands are betting that when people can shop without handling cards or cash, they'll spend more. It's not yet clear whether that bet is paying off.

Fig. 4: Digital payments have room to grow

Thinking about your customer transactions/purchases today, please provide a breakdown of how you get paid for/pay for purchases, with each method expressed as a percentage of total transactions.



Take Walmart, for example. The company does not disclose how much of its sales come through its Walmart Pay app or whether the percentage is growing, but Pymnts.com reports that mobile payment plays a big role in Walmart's strategy to compete with Amazon in e-commerce. The app boasts 22 million monthly users, and 90% of Walmart Pay transactions are made by customers who use it three to four times a month. The company is also forging partnerships with external mobile wallet providers, including Chase Pay.

In making payment speedy and invisible, mobile technology can solve problems and take the annoyance out of transactions, says James Anderson, EVP of digital products at Mastercard. . Uber realized that when people take taxis, they want to get where they're going, not fuss with cash and calculate tips. Starbucks and Dunkin' Donuts figured out that skipping a long coffee line makes consumers feel powerful and smart. "Somebody has to go out and understand the pain points of the consumer and deliver against those pain points," says Mr. Anderson. "That's what drives adoption."

"Somebody has to go out and understand the pain points of the consumer and deliver against those pain points."

James Anderson, EVP, Mastercard

INTENSE COMPETITION FOR MOBILE USERS

TrendForce, a global market research firm based in Taiwan, predicts that total mobile payment volume will soar from \$620 billion in 2016 to \$1.08 trillion in 2019. Those transactions will fuel global economic growth because many of them wouldn't take place any other way—for example, a Chinese farmer without a bank account can use a mobile wallet to buy animal feed. One academic study cited by the World Economic Forum found mobile money adds 0.47% to a country's total output by broadening financial inclusion and improving credit availability.¹

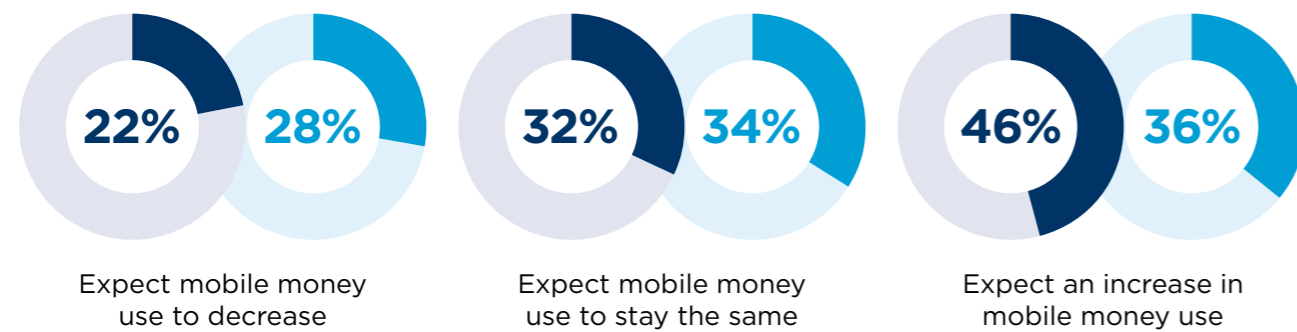
Along with the unbanked or financially underserved, Millennials represent a rapidly growing market for mobile payment apps. According to our survey, consumers aged 18 to 34 currently use a mobile phone or tablet for 9.2% of their monthly spending, compared with 6.8% among consumers over 50. And 47% of 18- to 34-year-olds expect their use of mobile wallets to increase in three years, vs. 36% of their 50-plus counterparts. That's not surprising for the phone-tethered generation known as digital natives.

Banks, phone providers, tech startups, and merchants are vying for dominance in mobile payments.

Fig 5: Younger consumers are bullish on mobile payments

Thinking about your spending habits in three years, please rate how you expect your use of mobile money to change?

● Younger than 50 years ● 50 years and older



As mobile wallets proliferate, who will dominate the market? So far, digital payment is an open playing field where financial service providers, phone companies, merchants, and tech startups all compete robustly. In fact, several recent polls show Millennials trust technology companies more than banks with their financial transactions.

But traditional banks understand the opportunities and are working hard to compete. Among our executive survey respondents, those in the banking and financial services sector are more likely than those in other industries to say mobile payments are

cost-effective, and they're also more likely to study mobile payment data for useful consumer information. And forward-thinking bankers are using mobile technology to disrupt their industry's business model—for example, using chatbots to alert users that by spending \$4 less per workday in coffee shops and putting the extra \$80 toward their monthly credit-card payment, they can save several hundred dollars in annual interest costs. "Banks have used customers' data against them, to sell them more products," says Anne Boden, CEO of the mobile-only Starling Bank in the UK. "We're helping customers use data to make better financial decisions."

Trust, as we will see, must form the bedrock of mobile wallet adoption. However, the winners in this hypercompetitive field are likely to be firms that use mobile technology to optimize not just the payment process but the full purchase experience. This can mean facilitating person-to-person transfers and gifts, linking to rewards plans, and remembering shopping preferences. Above all, it means saving the customer time.

The winners will be firms that use mobile technology to optimize the full purchase experience.

CALLS TO ACTION

- ▶ As mobile technology becomes a must-have, particularly among young "digital natives," commerce is increasingly migrating to phones and tablets, with mobile payment volume expected to top \$1 trillion in the next two years.
- ▶ Merchants that leverage mobile technology to shape the customer experience—with seamless payments, embedded reward programs, and other capabilities—will enjoy a competitive advantage.
- ▶ Brick-and-mortar retailers must understand consumers' changing shopping habits and expectations (for example, the ability to do digital price comparisons in real time).
- ▶ More than anything else, mobile payment adoption is driven by problem-solving. Successful in-app payment technology must address consumers' pain points.

MASTERCARD'S MOBILE STRATEGY

With 2.3 billion cards in circulation around the world, "a lazy company would just sit back," says James Anderson, EVP of digital payment products at Mastercard. Instead, his firm is embedding its brand in the mobile-payment ecosystem.

Mr. Anderson led the team that built the infrastructure supporting the loading of Mastercards into Apple Pay in 2014. Today, the network also supports Samsung Pay, Android Pay, Microsoft Wallet, and scores of merchant-specific apps. "The question we were trying to answer was, how do we take the power of the Mastercard network and bring it to smart devices?" says Mr. Anderson.

One part of the answer is the Masterpass app, which, like its plastic predecessor, is usually issued by a bank.

Financial institutions can integrate Masterpass into their existing apps or create a new one of their own. By helping banks—Mastercard's primary customers—build support for digital payments, Mastercard is looking to secure its place in the market.

Mr. Anderson says the company is designing innovative payment systems across all channels. So far, cards still lead, but "there are limitations to the efficacy of a card-based electronic payment service," he says. Cards work great in stores, but entering card data online is both onerous and insecure. Digital payment solves these problems.

"The mega trends we see are not just substitution of cash by electronic payments, but also substitution of physical commerce by digital commerce," Mr. Anderson says. "People are shopping more

online and in-app, and we need to make sure we're not just resting on our laurels and saying we're great at point-of-sale."

No matter who winds up dominating the market, the company wants to be part of the solution. "Is mobile payment going to be mainly a merchant-driven thing, or mainly a bank- and payment-tech-driven thing?" Mr. Anderson muses. "I'd say that's a very profound question, who's going to win the battle for consumer preference."

"There are limitations to the efficacy of a card-based electronic payment service."

James Anderson, EVP of digital payments, Mastercard



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STARLING BANK: WHO NEEDS BRANCHES?

Anne Boden launched the UK's Starling Bank in 2014 after a long career in banking and finance. The years after the global financial crisis convinced her that while the industry could address some of its problems, traditional banks weren't meeting the needs of 21st-century consumers. "I tried to fix the old system but couldn't," says Ms. Boden, who has a degree in computer science and is the former COO of Allied Irish Banks, "so I took the opportunity of starting a new bank." New, as in mobile-only.

Several things made the timing propitious, she explains. For one thing, post-crisis consolidation had left room for fresh competition. For another, the UK government relaxed the rules for launching new banks. "The hurdles are still very, very high," says Ms. Boden, "but getting a license is possible, not impossible."

Equally important, consumers were already buying groceries, listening to music, and hailing taxis with their phones. Yet the incumbent banks' apps, in Ms. Boden's opinion, simply migrated to mobile the same old services that branch tellers had performed—and that had already migrated online—with little innovation. "Nobody had gone back to first principles," she says. "Amazon had transformed shopping, iTunes had transformed the way you relate to your music, but nobody had really done that for banking."

"Amazon had transformed shopping, iTunes had transformed the way you relate to your music, but nobody had really done that for banking."

Anne Boden, CEO, Starling Bank

Starling's app lets customers do sophisticated budgeting by coordinating with their calendars so they can track, for example, how much they spend at specific times and places. A person who knows that a weekday lunch in the city is usually a business expense can automatically mark it as a tax deduction. A person on the way home from a vacation in a foreign country can program the app to disable a debit card so it can't be used there fraudulently after the traveler departs.

In Ms. Boden's view, this is how to use customer data to customers' advantage—and a departure from what traditional banks do. Because Starling offers current-account services only, "we're not in the business of trying to sell you more stuff" like insurance or loans, she says. "We're in the business of giving you information that can help you manage your financial life."

WHAT'S HINDERING MOBILE PAYMENT ADOPTION?

Encryption, tokenization, and authentication technology actually make mobile money far safer than other payment forms.

Experts warn about the danger and inefficiency of cash, and credit card hacks are increasingly common, yet few countries have embraced mobile payments as an everyday alternative. Globally, consumers still use currency or cards for about 70% of their transactions, with cash alone accounting for 35%.

One reason is the “stickiness” of old-school payment methods, especially cash. Except in places like Kenya and Brazil, where crime rates are high, people all over the world remain convinced that cash is the safest form of money. Faith in cash is extremely high in Japan, where about three-quarters of consumers deem it the most secure option, and in Germany, where around two-thirds feel the same. For the US, the figure is just under half.

“Never before in history have we been able to distill so much power and bandwidth to bring trust to a transaction.”

Cherian Abraham, digital payments and commerce executive, Experian

Then there’s the persistent perception that mobile payments aren’t safe. More than half of consumers worldwide believe mobile wallets are less secure than cash, and just 13% think mobile is the most secure choice. Many experts call this fear misguided, pointing out that encryption, tokenization, and authentication technology actually make mobile money

far safer than other payment forms. “A mobile phone is a very, very powerful piece of machinery,” says Starling Bank’s Ms. Boden. “It has a camera, it records your voice, and it knows where you are.” No other device has so many ways to confirm your identity.

Our survey suggests mobile payments trigger a positive feedback loop once adoption becomes widespread. For example, in Kenya, where mobile money has become the go-to payment method for half the country, 59% of consumers say it’s the safest way to conduct a transaction—the only country where a majority feels that way. By contrast, only 1% of consumers in Japan, 2% in the UK, and 4% in Germany feel similarly.

Consumers with primary schooling or less are most concerned about the security of mobile payments. About two-thirds (68%) of these respondents say mobile money is less secure than a physical wallet, compared with 54% of consumers who have a secondary or higher education. These consumers may be less aware of the security features associated with mobile payments, or may simply be more risk-averse.

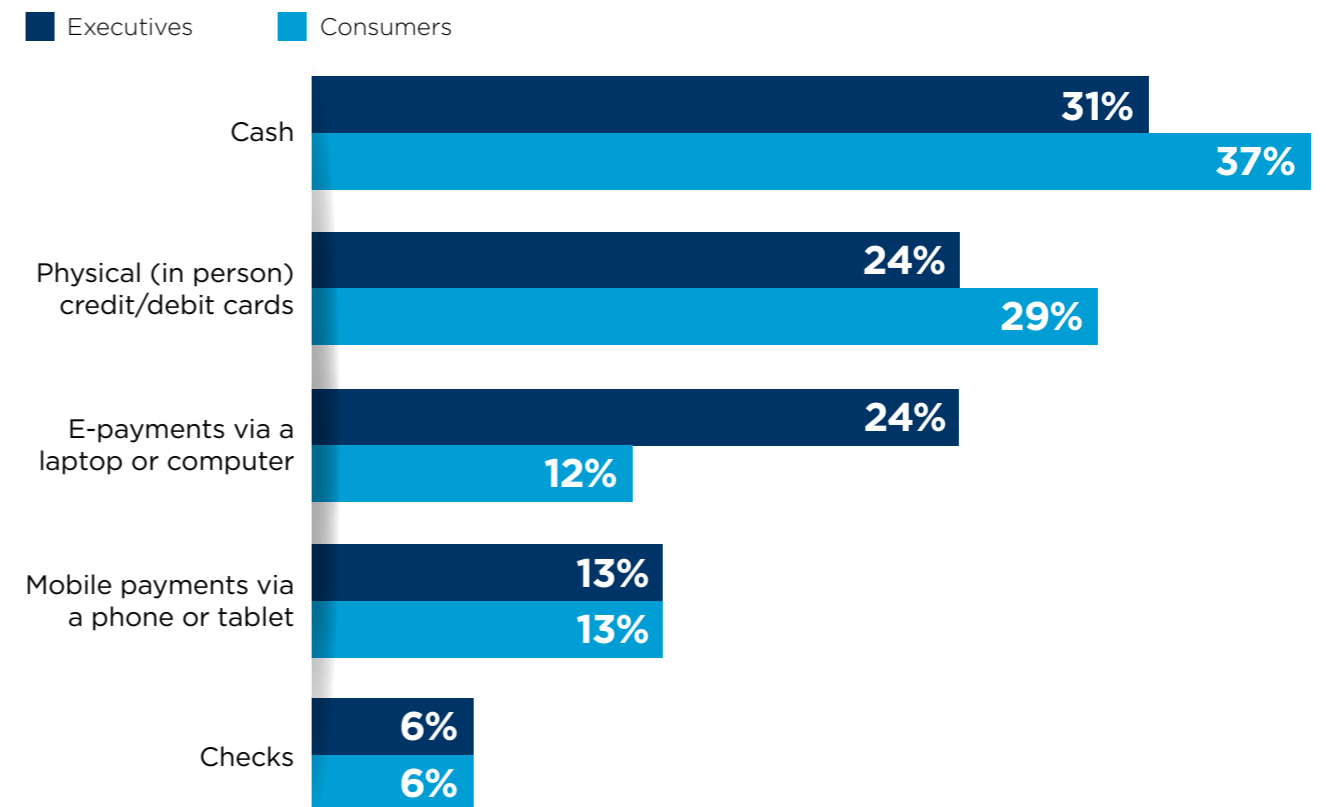
Many executives share consumers’ views, regarding cash as the safest payment form—especially in the retail sector. Only 13% of business respondents to our survey choose mobile payments as the safest option. Additionally, about three-quarters believe cash protects the privacy of their business as well as their customers’.

Cherian Abraham, Experian’s senior executive advising companies on digital payments and commerce, calls such beliefs irrational. “Everything tells us that mobile devices have within them all the capability to verify that whoever initiates the transaction—whether it’s a commercial transaction or an account opening or a login—is qualified to do that.”

Many companies aren’t offering state-of-the-art authentication technology.

Fig. 6: Neither executives nor consumers are convinced of mobile wallet security

Executives: Which do you think is the safest or most secure way to accept payments from your customers? **Consumers:** Which do you think is the safest or most secure way to make payments?



But in most of the world, that message hasn't gotten across. Among consumers globally, 70% fear hackers could steal their personal information when they use a mobile wallet, and 67% worry their money could be stolen. Our study suggests executives may not be taking these concerns seriously enough. Although they too worry about privacy and fraud, they're not as worried as their customers: 59% fear their customers' personal data could be hacked, and 58% think they could be robbed.

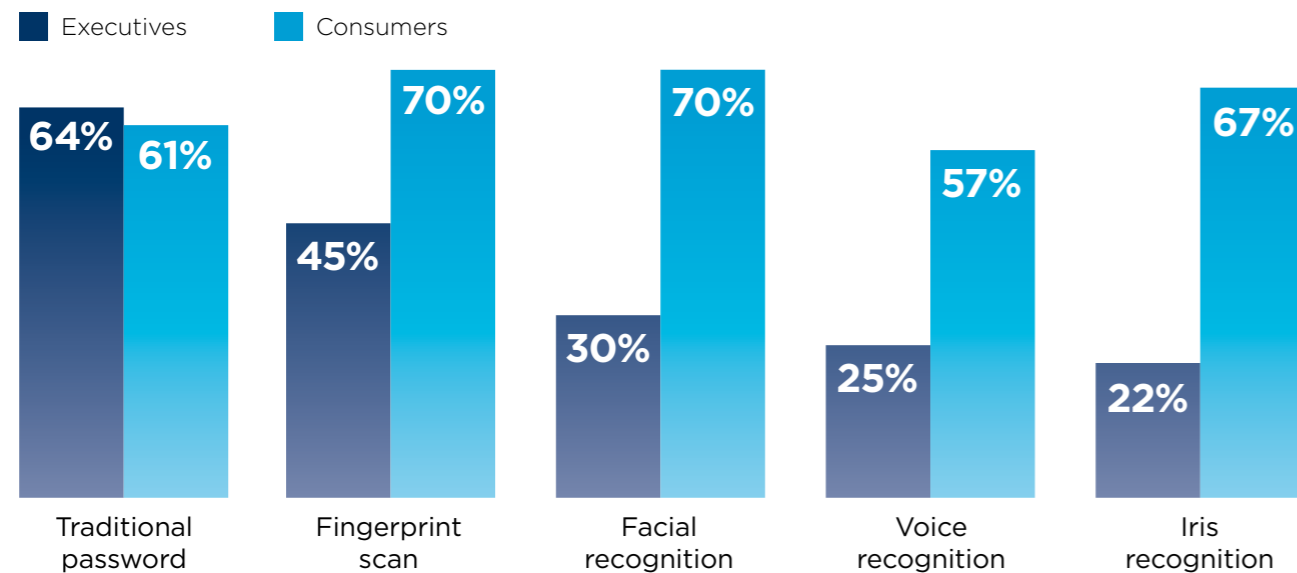
As a result, many companies aren't offering the state-of-the-art authentication technology that would ease their customers' anxieties about using mobile payment technology. Fewer than one-third of companies globally currently use or plan to use biometrics like face, voice, and iris recognition to secure mobile devices, relying on old-school passwords and finger scans (see Fig. 7). Yet consumer interest in such biometric features is strong. Over two-thirds of consumers say facial or iris recognition would make them more likely to use mobile payments, with over half making the same claim about voice recognition.

Fast-growth companies appear to be more in tune with customers on this point. More than a third of survey respondents with 11% or more annual profit or revenue growth currently use or plan to use voice or facial recognition, vs. fewer than a fifth of those with profit or revenue growth of 10% or less.

Fig. 7: Consumers crave biometric features

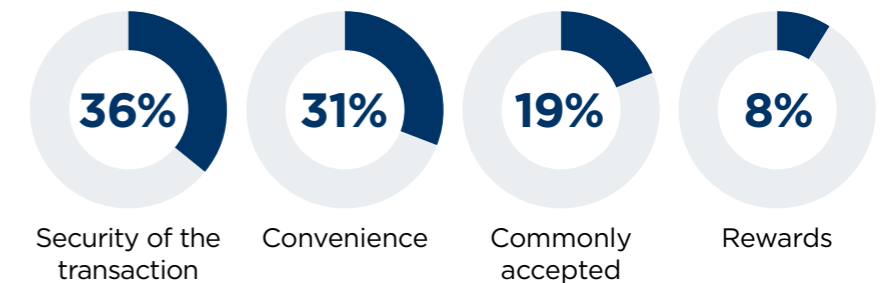
Executives: Which of the following security measures have you implemented or do you plan to implement to protect your customers' identity when using mobile payment methods? "Already implemented" and "In the process of implementing" responses

Consumers: To what extent would the following security measures make you more likely to use mobile money? "Somewhat more likely" and "Significantly more likely" responses



Security was the most widely cited factor in decisions about whether to use mobile money: 36% of consumers said it was the most important issue for them, convenience came in second at 31%, and only 8% chose rewards. Companies must take their customers' safety concerns more seriously and start providing the authentication features consumers want. Until they do, consumers won't make mobile wallets their go-to payment option. Points, discounts, and cash back are the icing on the cake—the cake itself is confidence.

Fig. 8: Transaction security trumps convenience
Which matters most to you in deciding to use mobile payments?



CALLS TO ACTION

- ▶ Perceptions about the security of mobile payments are very far from reality. Companies must educate consumers to correct public misunderstanding of mobile wallets' vulnerability.
- ▶ Many consumers cling to a belief in the safety and convenience of cash. Businesses aiming to encourage mobile payment adoption should educate their customers about the high costs of storing, transporting, and securing physical currency.
- ▶ Multi-step and biometric authentication features go a long way toward soothing consumers' fears about using mobile money. These are worthwhile investments for companies with mobile payment as part of their growth strategy.

KENYA AND CHINA: A GLIMPSE AHEAD

Kenya and China offer a preview of what the rest of the world may look like as mobile money matures.

In many ways, of course, these two emerging markets couldn't be more different. China, the world's second-largest economy, has a population of 1.4 billion and annual GDP of \$17.6 trillion. East Africa's Kenya has fewer than 43 million people, and its economy is about 8% the size of China's. Yet mobile payments have taken a firm hold in both.

"The difference between fintech in China and in the West is that fintech in China didn't start off as disruptive."

Zennon Kapron, founder, Kapronasia

The countries stand out as the biggest mobile money enthusiasts of any nation in our survey. Eighty-three percent of Kenyans and 70% of Chinese use it at least once a week. They also top the charts in terms of mobile transaction value: 21% of respondents' monthly spending is via mobile in Kenya, and in China it's 14%.

Despite their economic differences, mobile money satisfies a major market need in both nations. China's fast

growth over the past several decades created a huge new class of wealthy citizens, and the existing financial services infrastructure couldn't keep pace. Technology companies like Tencent and Alibaba's Alipay stepped in to fill the gaps. "The difference between fintech in China and in the West is that fintech in China didn't start off as disruptive," says Zennon Kapron, founder of Shanghai-based research and consulting firm Kapronasia. "Fintech here was really focused on fulfilling a need." Besides paying for goods and services and transferring money, people use Alipay to call taxis, buy movie tickets and make restaurant reservations, Mr. Kapron says.

In Kenya, telecommunications provider Safaricom created M-Pesa in 2007, recognizing that far more people had mobile phones than bank accounts. At first, the service was aimed at facilitating person-to-person payments; today, half the country's people use the service and a quarter of its GDP flows through it. Kenyans are so comfortable using their phones as wallets that 59% call mobile money the safest form of payment, compared with 1% of Japanese respondents and 2% of people in the UK.

Elizabeth Rossiello, CEO and founder of Nairobi-based trading platform BitPesa, says

mobile money has had an immense economic impact on Kenya: "M-Pesa's products lower the cost of domestic remittances, so you saw insane growth in the amount of transfers."

Interestingly, even though 85% of Chinese respondents say mobile money improves their purchasing experience, and 80% would rather buy from merchants that offer mobile payment options, they don't share Kenyans' trust in mobile money. In fact, 77% are worried about hackers stealing funds and 85% think mobile money puts their personal information at risk—a higher proportion than in any other country. Those concerns could reflect a general mistrust of financial services among Chinese citizens.

But experience may be changing their perceptions. The 14% of Chinese consumers who use mobile money every day call it the most secure payment method, suggesting that familiarity breeds trust. Furthermore, of all our consumer survey respondents, Chinese and Kenyans are most responsive to mobile-wallet incentives like loyalty programs and customized offers. As mobile money penetrates further into the developed economies, their consumers too are likely to focus less on risks and more on rewards.

CRYPTOCURRENCIES: WHERE THERE'S A USE CASE...

Critics often dismiss Bitcoin, Ether, and other virtual currencies as toys for anti-government cranks or enablers of the shadow economy. But according to our data, cryptocurrency users are tech-savvy, successful, and bullish on mobile payments—and digital currencies are gaining interest, especially among profitable firms and in several emerging markets.

Globally, more than one company in four (27%) already receives payments in virtual currency, most often in the technology and banking sectors. The practice is tied to company size: 39% of businesses with more than 1,000 employees accept cryptocurrencies, vs. only 8% of firms with fewer than 100 workers. It's also tied to profitability. Whereas 41% of companies with profits growing by 11% a year or more take cryptocurrencies, just 16% of those with 1%-10% annual profit growth do. No firms with zero or negative profit growth report accepting virtual currencies.

We also found alignment between cryptocurrency use and mobile wallet adoption. Among companies, 48% of those taking mobile payments also accept cryptocurrencies, compared with 7% of businesses that don't accept mobile money. Consumers who make mobile payments at least once a day use digital currencies twice as often as those who don't use mobile money. And consumers who use cryptocurrency are significantly more likely than those who don't to say they'd rather buy from merchants that accept mobile payment.

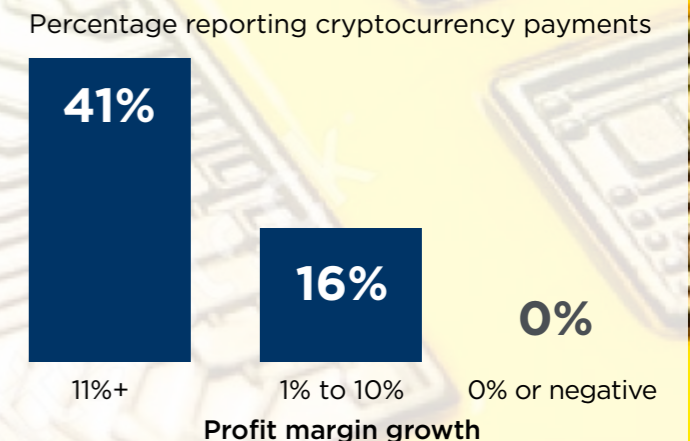
Bitcoin and its brethren are still far from mainstream. Globally, just 24% of executives and 9% of consumers responding to our survey say they personally own and use cryptocurrencies. Yet in parts of the world, virtual currencies are facilitating cross-border trade by creating a new payment platform. BitPesa's Ms. Rossiello says she discovered crippling foreign exchange inefficiencies while working in microfinance in Africa five years ago. African microlenders were

getting funds from abroad in dollars or pounds or euros, then making loans in local currencies. "The huge problem was this mismatch between currencies in trying to manage assets and liabilities," says Ms. Rossiello, whose company has offices in Nairobi, Lagos, Dakar, and London.

According to Ms. Rossiello, the global SWIFT messaging system doesn't work well in Africa because only two banks do most of the currency clearing for the continent. That means pricing is distorted, and the system is inefficient and slow. She hit on the idea of using bitcoin to create a parallel system that leverages existing regulation and infrastructure—including traditional bank accounts and mobile accounts—to settle B2B transactions. "Just for that small period of time when I need to make a market between Kenyan shilling and Japanese yen, I can communicate with my yen broker via a decentralized ledger—via bitcoin," Ms. Rossiello explains.

She finds it amusing when the business press touts blockchain as "the technology that will save the planet." Instead, she says, BitPesa is using cryptocurrency to solve the unsexy but urgent problem of foreign-exchange settlement. In the process, as her company website says, she takes the pain out of doing business in Africa.

Fig. 9: More profitable firms are more likely to accept cryptocurrencies



CLOSING THE APP GAP

For decades, guarantees from credit card issuers have reassured users that they won't be on the hook for fraudulent purchases—and that same reassurance must be the first step toward a mobile-money future.

Nearly 75% of consumers in our survey say guarantees against monetary fraud would encourage them to use mobile payments, but only 44% of businesses currently offer or plan to offer such guarantees. Highly profitable companies are mostly likely to get it: 53% of businesses with annual profit growth above 10% offer or plan to indemnify customers against losses from fraud. And strikingly, no companies in our sample with zero or negative profit growth offer fraud protection.

Along with educating consumers about the high security of mobile payment technology, businesses that aim to encourage its use must make sure their customers feel safe from theft. When mobile payment is funded with a credit card account, it should be simple to communicate that using a phone or tablet comes with the same guarantees as paying with a physical card.

But like consumers, businesses harbor misconceptions about accepting mobile payments. Globally, a quarter of our executive respondents cited the cost of buying and running

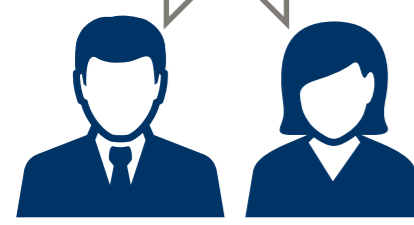
COMPANIES MUST DO MORE TO ADDRESS FRAUD FEARS

74%
I'm more willing to use mobile payments if I know any losses from fraud will be paid back to me.



CONSUMERS

44%
We already offer or are in the process of offering guarantees that losses due to fraud will be repaid to encourage mobile payments.



EXECUTIVES

a mobile payment system as a barrier; 32% cited concern about fraudulent transactions; and 37% fear hackers can steal proprietary customer data. However, the chip-and-PIN terminals that many retailers have already bought to process credit and debit card transactions are enabled for mobile wallets too. "The hardware is designed to be globally compatible with both chip cards and mobile payments," says Dunkin' Brands' Mr. Holland. "The terminals are future-proofed—and merchants have bought into mobile payments without knowing necessarily they've done that. So the technology is there."

As for transaction costs, mobile payments can reduce swipe fees, especially onerous for businesses in the developed world where fees are significantly higher than in India, China, and other emerging markets. Because consumers usually refill their mobile wallets with enough funds to cover more than one transaction, retailers pay fewer per-transaction fees.

Mobile money also improves privacy and anti-fraud protection for merchants, according to Mr. Abraham at Experian, whose services include verifying customer identification for businesses. "Never before in history have we been able to distill so much power and bandwidth to bring trust to a transaction," he says.

WHERE REGULATORS ARE OPENING DOORS

The job of improving payment systems doesn't fall only to companies. In many countries, policy-makers and financial regulators are encouraging the spread of mobile money. Fintech professionals in the UK, China, and India laud their governments' efforts to promote innovation in payments technology.

Mobile banking and payment technology is developing rapidly in the UK, which is anxious to maintain London's importance as a financial hub. "In the UK, the regulator and the government are really favorable to fintech, and they are really proactive," says Claire Calmejane, Lloyds Banking Group's innovation director.

She praises the "sandbox" created by the UK Financial Conduct Authority, a "safe space" letting firms test new products, services, and delivery mechanisms in a relaxed regulatory environment. Partnering with startups, Lloyds has used the sandbox to run more than 100 experiments over the past two years—a third of which led to new products.

In China, authorities allow new payment technologies to promote competition in financial services, formerly monopolized by sluggish state-owned banks. Since 2014, retailers in China's booming e-commerce sector—notably Alibaba—have also

offered financial services. Now, traditional banks have joined the mobile money fray. However, the Bank of China recently capped amounts for mobile money transactions, citing security fears.

"[Financial] regulations around China are a little bit less developed than in the US," says fintech consultant Mr. Kapron. "Because of that, they're able to take a more pragmatic approach. They're definitely supportive of innovation, but they want to see it built in a sustainable manner without tremendous amounts of risk."

India, by contrast, historically barred mobile phone operators from providing financial services. But since Prime Minister Narendra Modi took office in 2014, his government has green-lighted mobile money as part of a crackdown on the large, cash-based underground economy. "It's all about reducing the amount of cash transactions in the country, reducing the amount of black money that is circulating in the country," says ePaisa's Mr. Arora. "So the government is very pro-digitization, and it's completely helping us."

In many countries, policy-makers and financial regulators are encouraging the spread of mobile money.

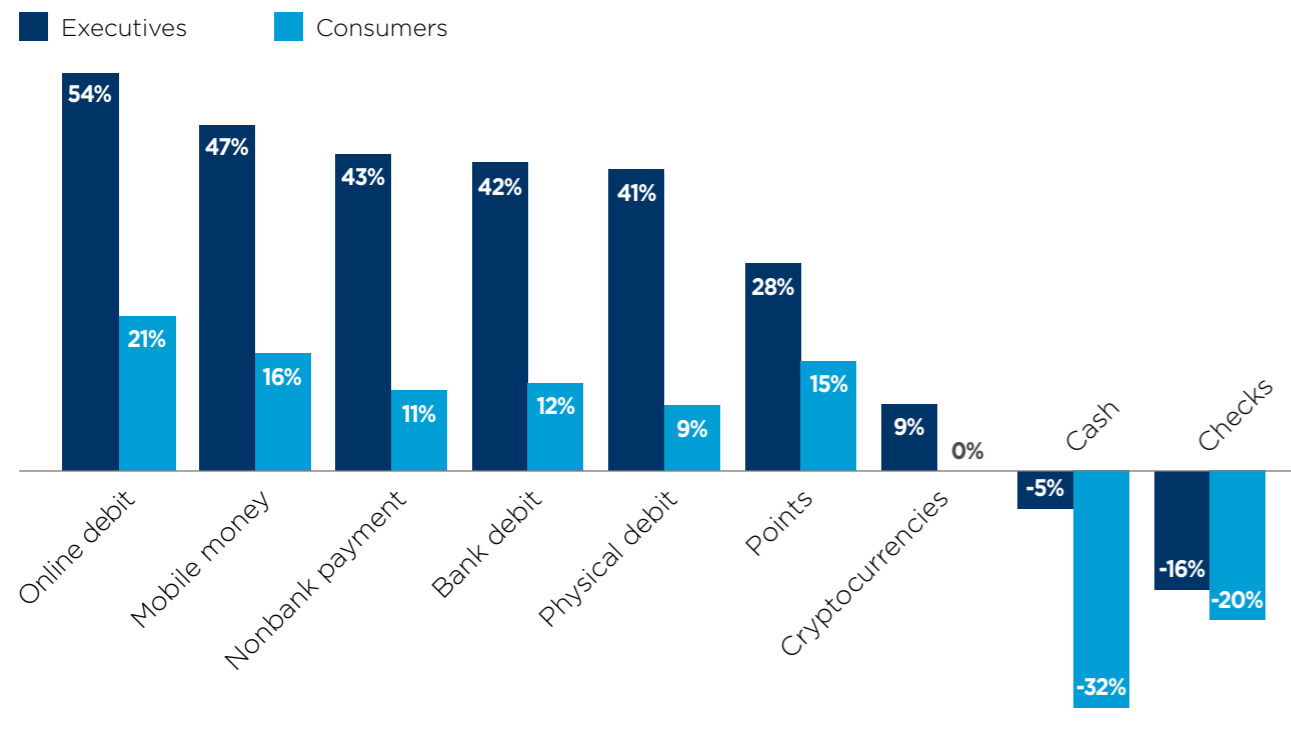
THE FUTURE OF MONEY? DEPENDS ON WHOM YOU ASK

Around the world, despite their misgivings, most consumers see the future of money as much less cash- and card-based. Only 27% think that in 10 years, people will use a mix of payment types not very different from what they use today. In fact, a third of consumers globally think mobile will be the dominant payment form. But executives have a much more conservative vision. A surprising 40% of business leaders think the payment landscape in 10 years will look a lot like today's—and just 5% think cash will be less prevalent three years from now.

Even fast-growing businesses don't fully recognize the market opportunity for mobile money. Consumers are more ready to go cashless than many executives think. If companies are to remain competitive and use mobile payments to their advantage, they will need to close this gap in expectations.

Fig. 10: Consumers expect to use far less cash in the next three years

Thinking about payment types you'll be accepting/using in three years, please rate how you expect your company's/your use of these payment methods to change. *Net expected change*



CALLS TO ACTION

- ▶ Consumers have come to expect indemnification against fraud when they make non-cash payments, because credit card transactions—both physical and online—come with this guarantee. Customers must be educated to understand that they are safe from losses when mobile payments are funded with credit card accounts. Providers of non-card-funded e-payment methods should consider offering similar guarantees.
- ▶ Although some countries are pushing to eliminate physical currency, most developed economies won't become totally cashless societies in the near future. However, consumers are more ready to move away from cash than many business leaders realize.
- ▶ E-payments will continue posting steady growth over the next three years, with mobile payments driven by consumers' increasing dependence on their phones and tablets.
- ▶ Mobile payments are more evolution than revolution. The demand deposit accounts that finance most consumer transactions aren't changing—but the ways to access them are.

CONCLUSION: MOBILE MONEY MATURITY

Until quite recently in Germany, people paid for cars and even apartments with cash, because they didn't believe in borrowing. Many Americans can still remember standing in line to cash their paychecks at a bank branch. Today, these practices seem quaint. In the developed world, life without credit and debit cards is as hard to imagine as life without online shopping. Meanwhile, some developing countries have skipped cards almost entirely, building commerce and financial inclusion on mobile transactions.

Because our relationship with money is deeply personal, payment habits change slowly—but they can and do change. The road to a future of safe and speedy mobile transactions begins with trust. Business leaders need to better understand the cost and security benefits of mobile payment technology. They need to review their assumptions about consumers' payment preferences. They need to reassure their customers that mobile wallets come with the same indemnification as old-school

credit cards, and with greater protection against theft. Finally, they need to harness the technology's potential for delivering the security, convenience, and rewards that consumers have come to expect from a payment system.

CALLS TO ACTION

- ▶ **Innovation:** Make sure you are aggressively investing in innovation, including mobile and electronic payments, as a part of your larger growth strategy.
- ▶ **Security:** Identify and solve your customers' biggest security concerns, before, during, and after transactions. Educate consumers about the safety of e-payments to address their misperceptions.
- ▶ **Partnerships:** In a highly competitive payment environment, be open to new forms of partnership, including across industries and channels. Find the weak links in your value chain and use partnerships to make them stronger.

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