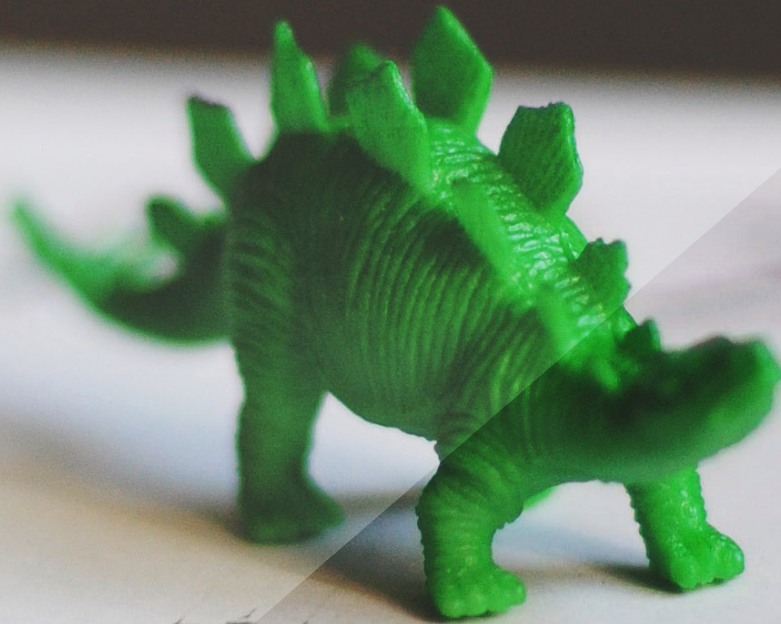




## The Future of Payments

# Part II. Moving to Digital Wallets and the Extinction of Plastic Cards

#PositiveImpact



Part I. Cash: the Dinosaur Will Survive ... For Now

Part II. Moving to Digital Wallets and the Extinction of Plastic Cards

Part III. Digital Currencies: the Ultimate Hard Power Tool



# Summary on a Page

When people discuss the future of payments they tend to predict the end of cash. Our view is different. Not only do we think cash will be around for a long time, we see the transition to digital payments as having the potential to do no less than rebalance global economic power.

This piece is the second in a series of three pieces that examines the past, present, and future of the payments industry. We analyse the unexpected results of our proprietary survey of 3,600 customers across the US, UK, China, Germany, France and Italy and forecast trends in cash, online, mobile, crypto, and blockchain. The implications for customers and business are important; the potential macro and geopolitical consequences are profound.

We start by using the lessons of history to predict that cash will be a part of the economy for decades to come. Over centuries, people have developed a deep-rooted trust in paper and coins during uncertain times. Today is no different. For example, the trade war between the US and China has led notable investors to increase their cash holdings. Our survey shows that people also like cash because it allows them to more easily track their spending.

While cash will stay, the coming decade will see digital payments grow at light speed. That will lead to the death of the plastic card. Over the next five years, we expect mobile payments to comprise two-fifths of in-store purchases in the US, quadruple the current level. Similar growth is expected in other developed countries, however, different countries will see different levels of shrinkage in cash and plastic cards. In emerging markets, the effect could arrive even sooner. Many customers in these countries are transitioning directly from cash to mobile payments without ever owning a plastic card.

Digitalisation will give businesses extra incentive to smooth the payments transition. For starters, when customers are comfortable with a payment technology, they tend to think less about how much they spend. Furthermore, as the data gleaned from payments becomes increasingly valuable, payment fees will approach zero. Business-to-business transactions will also benefit. Currently, corporates wait almost 70 days for payment from business customers. The number one reason for this is inefficient internal processes which lead to payment delays, something digitalisation can fix.

We can deduce much about the future of payments from developments in China where the country is developing world-leading digital payments infrastructure. There, the value of online payments is equivalent to three-quarters of GDP, almost double the proportion in 2012. Today, just under half of in-store purchases in China are made via a digital wallet, way above the levels in developed markets.

As China (and India) develop electronic, crypto, and peer-to-peer strategies, the epicentre of global economic power could shift. China is working on a digital currency backed by its central bank that could be used as a soft- or hard-power tool. In fact, if companies doing business in China are forced to adopt a digital yuan, it will certainly erode the dollar's primacy in the global financial market.

Many are sceptical about digital currencies citing the large energy needs and point out that currencies such as bitcoin and Facebook's libra have encountered significant regulatory hurdles. Yet, if the growth in blockchain wallet users continues to mirror that of internet users, then by the end of the decade, they will number 200 million, quadruple the current level. This will be encouraged by governments, banks, corporates, and payment providers who all stand to benefit from the digitalisation of payments. And when countries and companies eventually look back at the way they transitioned to digital payments, it may become very apparent how they achieved their standing in the world economy.

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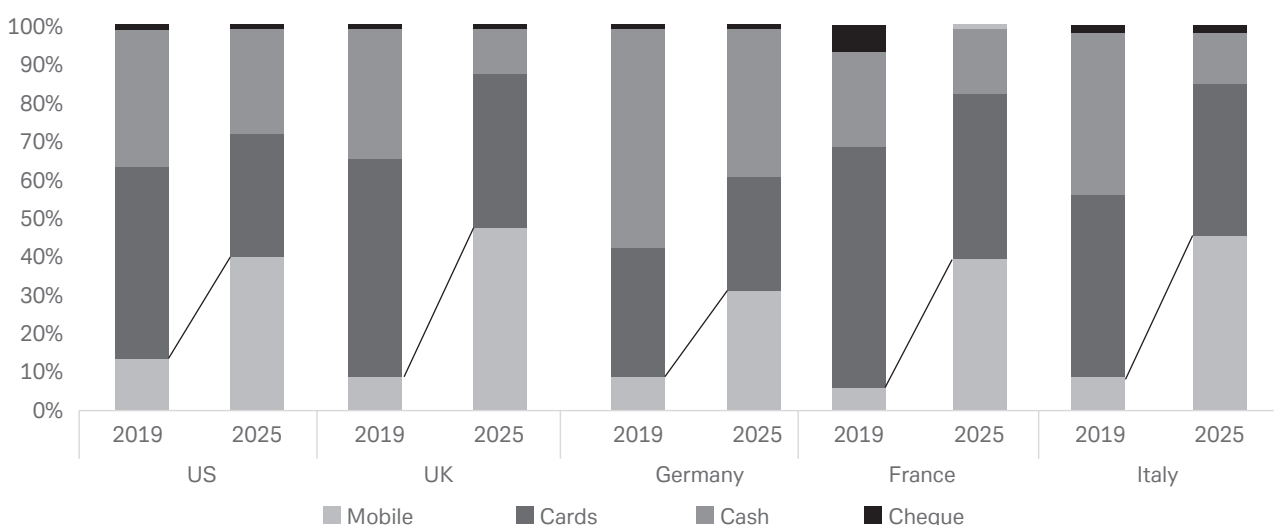
# Introduction

Fintech companies and smartphones have facilitated banking innovations that could inaugurate a new integrated and dematerialised ecosystem for payments. On the business-to-consumer side, smartphones are making plastic cards obsolete (see our previous piece [The end of cash plastic cards](#)). People in advanced countries are gradually adopting smartphone-based payments in the context of each country's infrastructure. Eager adoption by millennials and increased digitisation of country infrastructures could diminish the use of plastic cards over the next decade—even as people continue to use humble notes and coins.

Most people we surveyed are not ready to abandon their beautiful leather wallets, but most of them also believe that digital wallets are more than a fad. Most plan to use a smartphone wallet more in the next six months, and most believe that digital wallets will replace traditional wallets within the next five years.

This trend opens outstanding opportunities for brands, retailers, and, on a broader scale, any business selling directly to consumers. Digital wallets can allow businesses to better know, interact with, and personalise products for their customers. Personalisation enables companies to stand out in the field and gain market share. This is particularly the case with millennials who surveys show see smaller, custom brands as offering better quality products. Looking forward to 2025, we expect e-Wallets to be the second-most preferred method of payments after cards and the most preferred method among millennials.

Weekly in-store purchases per country in 2019 and 2025



Source: Deutsche Bank dbDIG. Note: We expect purchases with cheques to be lower than 1 percent and nearly all cards to be contactless in 2025 in the US, UK, Germany, France, and Italy.

At one level it is strange that B2B customer satisfaction indices rank lower than 50 percent. This is systematically lower than B2C companies, which typically score at 65 to 85 percent. Some of the biggest B2B problems are late payments, collection, and recovery. In fact, payment time has increased by 10 percent over the last decade and the average time to payment is now nearly 70 days. One reason for this long average delay relates to business clients who deliberately extend payment terms to maximise their working capital. But the primary reason for long delays is inefficient internal processes and methods for tracking receivables. This factor is frequently overlooked because the focus has been on shifting companies away from cheques to electronic payments. This change requires businesses to gather and manage all the data, including that required to make timely payments and track deliveries.

In this section, we will focus on the key global fintech transitions related to payments—for both B2B and B2C. Understanding these changes will provide a framework for better understanding possible outcomes—the topic of the third piece in this series.

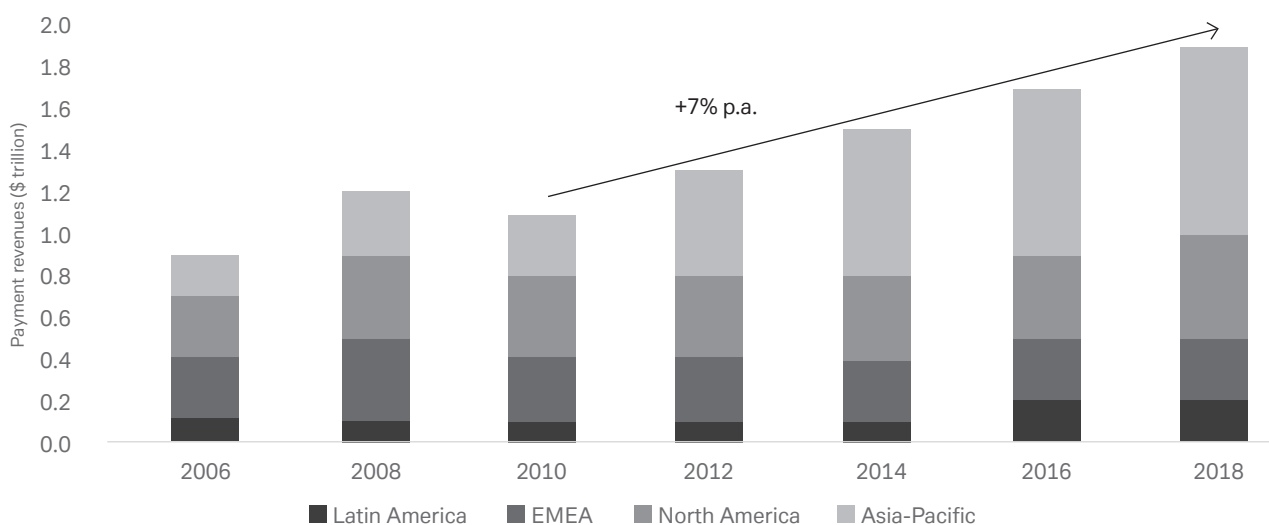
# Payments and Smartphones

As we explain in [Part I. Cash: the Dinosaur Will Survive ... For Now](#), the question of whether we will see the end of cash in the 2020s is a distraction. The right questions are: Which new means of payment will emerge and which existing ones will disappear the soonest? What if plastic cards, a relatively recent invention, disappear first?

The digital payment revolution is rooted in the 2008 global financial crisis. At that time, liquidity in the financial system was low, people struggled to borrow money, and distrust in the banking system grew. Since then, regulation over traditional banks has strengthened. Meanwhile, most fintech players have operated below the radar and have not been subject to the full array of banking regulations. The number of deals and the amount of capital raised for payments innovation have strongly accelerated in recent years. Today, about a third of fintech deals and capital raised relates to the payments industry.

The growth in the sector has been phenomenal. Global payments revenues have nearly doubled in the last ten years to almost \$2 trillion. Unsurprisingly, the Asia-Pacific region, due to its market size and mass adoption of new technologies, represents nearly half of worldwide payments revenues.

Global payment revenues (\$ trillion)



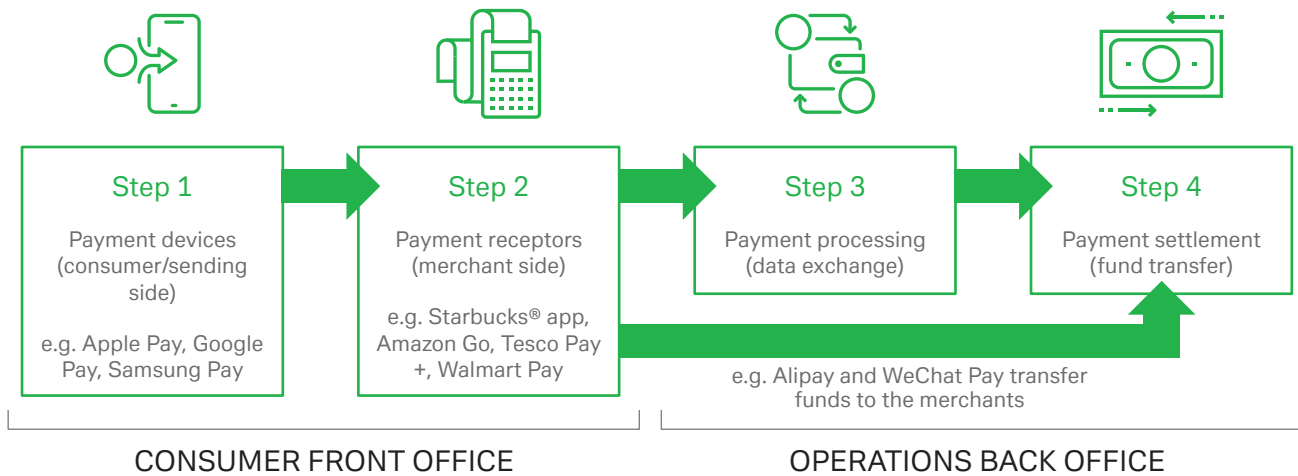
Source: McKinsey Global Payments Map.

When Apple released its first-generation iPhone in 2007, few predicted that smartphones would be so successful. Today in the US, individuals spend on average three hours per day on their phones and check incoming messages nearly eighty times per day. Millennials, especially, are attracted by smartphone convenience and are addicted to the flow of information (messages, email, social networks, app alerts, news, etc.).

The centralisation of all these functions into a “one size fits all” device has, of course, greatly expanded the use of phones for making financial transactions. That, in turn, has spawned a plethora of payment services, such as Apple Pay and Google Pay (to name just two). These services have strengthened the retail payment value chain in which there is an interdependence of smartphones and payment services – essential for today’s major fintech transitions.

The payment value chain is complex and highly intermediated. Simplistically, it can be split into two successive phases: the “consumer front office” and the “operation back office.”

## The retail payment value chain



Within the consumer front office framework, the consumer (or the sending side, broadly speaking) first initiates a payment using a device. The payment moves through different channels (e.g. Internet, mobile payment platform, bank branch storefront, etc.). Then the data are transferred to the payment receptors of the merchant's bank (the acquirer/processor). This first phase involves the highest distribution of sensitive data and might involve tens or even hundreds of millions of consumers and merchants in short amounts of time. That data is subject to many points of vulnerability. Security measures to protect data vary greatly and are still in the early stages of development.

### Consumer Front Office: Three Types of Mobile Payments Players

New players such as Apple Pay, Google Pay, and Samsung Pay have recently offered more convenience and speed to users. They enable users to store electronically, on a mobile phone, the personal and financial information that has traditionally been stored on plastic cards. Thus, the mobile phone replaces the traditional wallet and serves as a contactless payment tool. Importantly, this emerging system does not disintermediate the value chain; it creates, at least so far, an additional intermediary, which means increased fees for the merchant, but more convenience for customers.

The second type relates to retailers that set up payments through their own apps. This approach also doesn't remove (or add) intermediaries. But customers can avoid copying and pasting their card details into Apple Pay or Google Pay because they enter their cards details into the app.

The most popular and well-known app of this sort is the Starbucks Rewards app with about 17 million US memberships in 2019. Thirty percent of payments at Starbucks stores occur with the company's points program. More recently, grocery stores have started offering mobile payments. For example, the British multinational grocery chain Tesco introduced Tesco Pay + and the American behemoth Walmart launched a Walmart Pay app. Both the Tesco and Walmart apps mimic the system Starbucks introduced in 2011.

The Starbucks mobile payment app initially allowed customers to make payments and to store their Starbucks gift cards within the app. Now customers can also store their credit card information in the Starbucks app, enabling them to scan their smartphones at the register when they pay for their coffee.

Amazon Go stores implemented a system by which customers check-in to the physical store, select the items they want from the shelves, and then walk out of the store without going through a checkout line with a cashier. Payment occurs automatically by the power of sophisticated in-store technology that includes overhead cameras, weight sensors, smartphone payments, and other innovations.

The third type of payment app provides features such as credit card payments, bank account management, P2P transfers, prepaid mobile phone payments, bus and train ticket purchases, food orders, ride hailing services, insurance selections, and digital identification document storage. Examples of this type are the Chinese mobile payments Alipay and WeChat.

## Big tech retail payments

		Reach	
		Domestic	Global
Payments infrastructure	Overlay	Venmo <sup>1</sup>	Apple Pay, Google Pay, PayPal, <i>Calibra</i> <sup>3</sup>
	Standalone	Alipay, M-Pesa <sup>2</sup> , WeChat Pay, Swish <sup>4</sup>	<i>Libra</i>

Source: Bank for International Settlements (2019). Note: A standard font indicates a system or service in operation; an italic font indicates a proposal. <sup>1</sup>Venmo is a mobile US payments app owned by PayPal. <sup>2</sup>M-Pesa is a mobile phone-based money transfer, financing and microfinancing service. <sup>3</sup>Calibra is the mobile wallet that Facebook intends to run on top of the Libra network. <sup>4</sup>Swish is a mobile Swedish payments app launched in 2012 by six large Swedish banks in cooperation with the Swedish central bank. "Overlay" systems build an innovative customer interface that improves the ease with which customers can instruct and receive payments. These systems then use existing payments infrastructure, such as correspondent banking, credit card, or retail payment systems, to process and settle payments. Standalone systems are "closed-loop" payment systems and do not interact with or depend on existing payments infrastructure. In these systems, payments are processed, cleared, and settled by the platform provider independently of any other system. "Domestic" platforms provide payment services within the jurisdiction or region of the platform provider. "Global" platforms provide payment services to users in several jurisdictions.

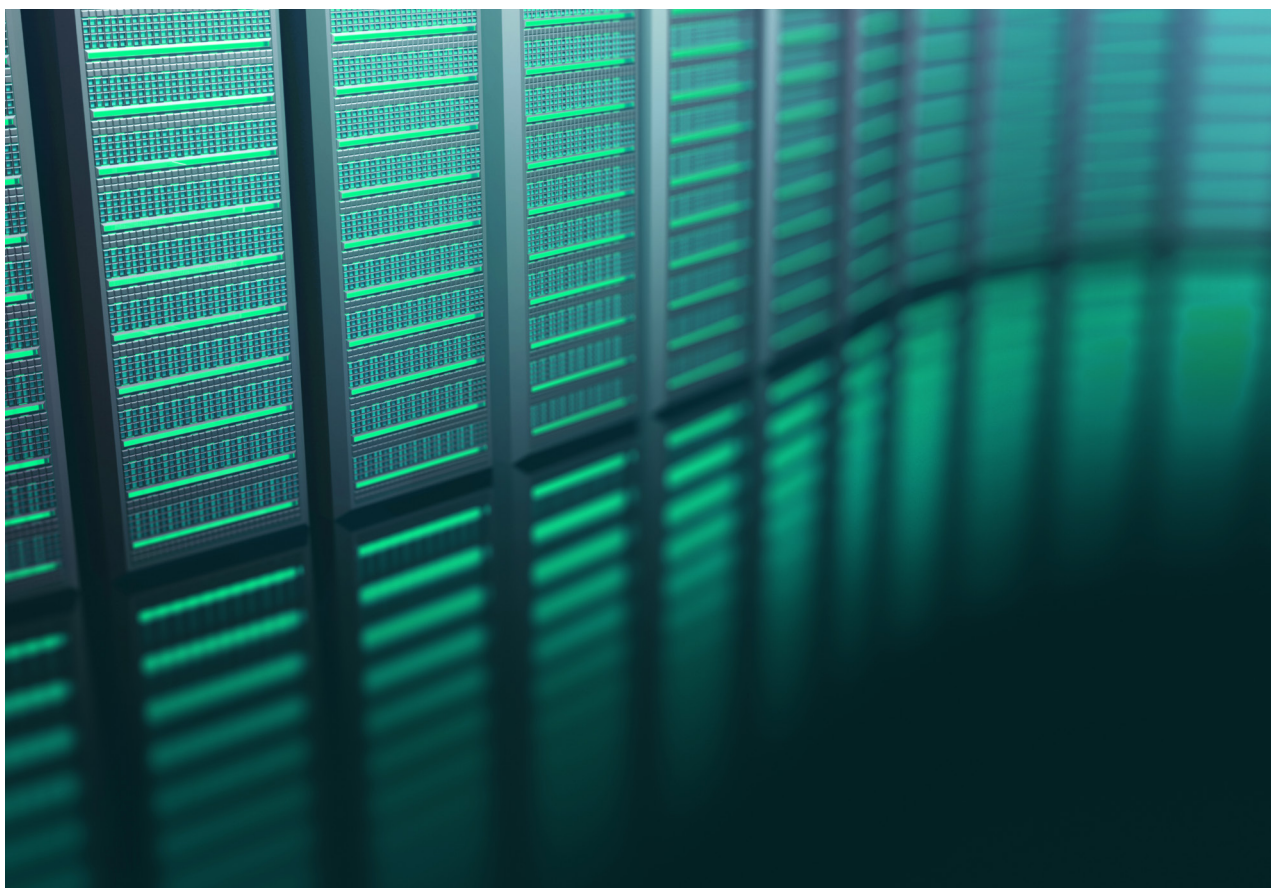
## Back Office Operations: Authenticating and Transferring Payments

The second step relates to the "operation back office." First, the merchant bank contacts the payment bank. Then the payment is processed through data exchange via the card platform (e.g. Visa, Mastercard). Finally, the payment is authenticated and the funds are transferred between the two accounts.

This second stage involves the highest *concentration* of organisations that gather sensitive data. Fewer than twenty organizations in the world process billions of transactions with few points of vulnerability. The strongest security measures are found in countries with mature government infrastructure.

There is potential in the second phase for significant efficiency gains in sharing and exchanging data. Distributed ledger technologies (DLTs) – still very much in their early days – promise to fundamentally improve international payments by speeding cross-border payments, with reduced fees and increased transparency regarding delivery timing and the final payment amount. The most obvious applications of blockchain to the banking industry include clearings and settlements, payments, trade finance, identity, and syndicated loans.

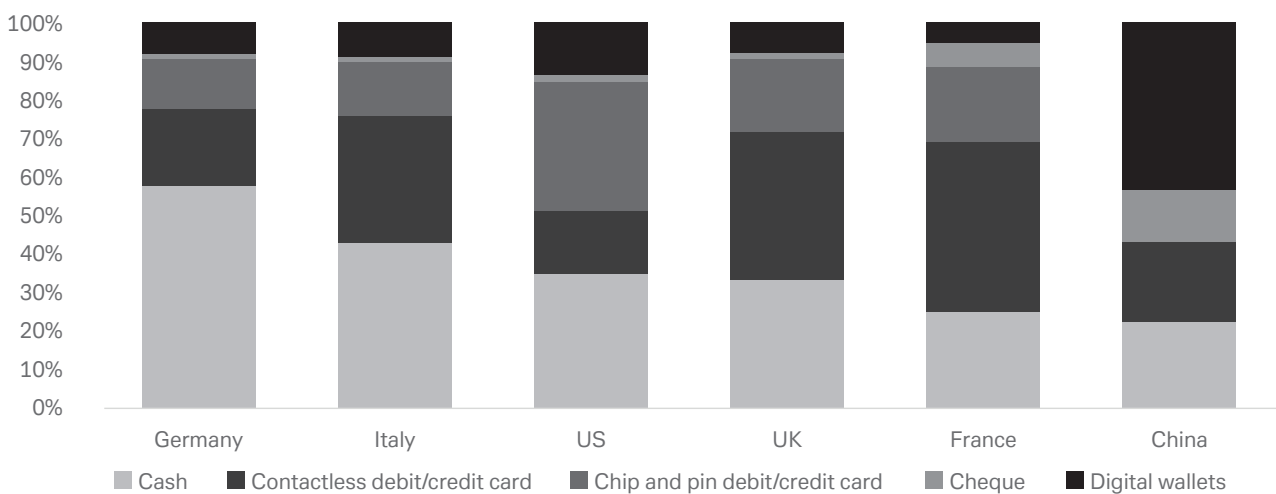
In short, the trend is toward dematerialising payments and streamlining customer experience.



# The Dematerialisation of Payments

Cash is still used widely and is unlikely to disappear within the next decade. However, it is losing momentum to dematerialised payments, as we can see in the graph below. Over the last decade, contactless payments have gained momentum.

Payment methods for weekly in-store purchases per country in 2019

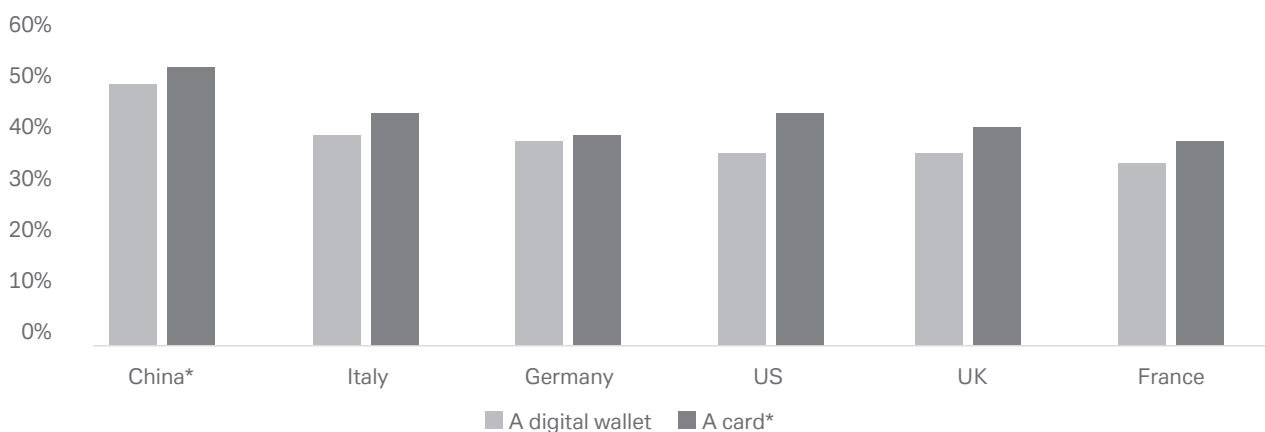


Source: Deutsche Bank dbDIG. Note: Chip and pin (not contactless enabled) debit/ credit card; Contactless (with chip and pin) debit/ credit card.

Dematerialisation continues with the widespread use of contactless payments that include plastic cards (credit and debit cards) and other devices, such as smartphones and watches. In parallel to the contactless novelty, card providers have forged alliances with technology firms (Apple Pay, Google Pay, Samsung Pay, etc.) to increase their reach and to incentivise people to pay via digital or plastic cards.

According to our survey, when people are comfortable with a payment technology, they tend to think even less about the amount they spend. This is particularly true for the Chinese, who are massive users of digital wallets and mobile apps.

Customers think less about the amount they spend when using a card



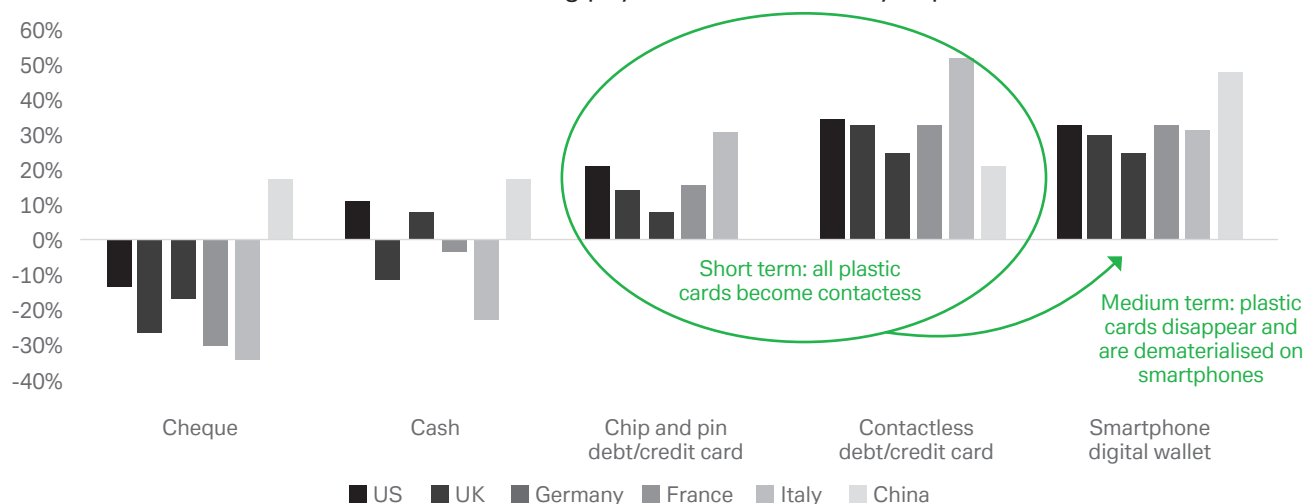
Source: Deutsche Bank dbDIG. Note: The graph above shows the percentage of people who agree with two statements: "I tend to think less about the amount I spend when using a digital wallet" and "I tend to think less about the amount I spend when using a card." \* For China the second column represents the percentage of people who agree with "I tend to think less about the amount I spend when using a mobile app."

Current trends show that most newly-issued cards are contactless, meaning that they can be used without inserting or swiping them in a card reader. The next step will likely be the complete dematerialisation of plastic cards as more people pay with a smartphone.

In emerging economies, digital wallets are replacing cash at light speed. That's because a large part of the unbanked population in emerging economies is transitioning straight from cash to smartphone payments, thereby skipping plastic cards completely. In India, cash payments declined from 59 percent in 2000 to 30 percent in 2016. In China, cash payments dropped from 63 percent of payments in 2000 to only 11 percent in 2016.

By contrast, cash and plastic cards are well ingrained in the cultures of advanced economies.<sup>1</sup> Forty percent of citizens in developed nations reported that they prefer traditional payments over digital wallets. However, despite this slower adoption rate, most people in these nations believe that digital wallets will eventually replace traditional wallets within the next five years. China and Sweden offer two remarkable illustrations of what could resemble the payment industry in many other nations in the short-to-medium term.

In the next six months, which of the following payments methods do you plan to use more?



Source: Deutsche Bank dbDIG. Note: The statistics include citizens already using the channel. Positive (negative) number means an increase (decrease) in usage.

In Western Europe, contactless technology has been around for a decade and is now commonly used. In the UK, France and Italy, contactless payments are by far the preferred method. Over half of the people in these countries believe that contactless payments are convenient. They understand that cash is rarely needed because cards are accepted everywhere.

### The United States: Leading in Innovation, Lagging in Adoption

Given that Silicon Valley gave birth to smartphone payment providers (e.g. Apple Pay, Google Pay), it is puzzling to see that only 13 percent of Americans use digital wallets on a weekly basis and nearly three-fifths have started within the last year. The US offers a stunning illustration of how physical payments—cash and plastic cards—are ingrained in the culture. On average, Americans hold a record number of plastic cards and an average of \$47 in cash per person. Americans say they favour cash and cards because they are faster and convenient, and because most digital wallets offer no rewards and no cashback. So, even though the US is arguably the world's leading payments innovator, card innovations are just starting to take off.

As a large number of firms are involved in the transaction process in the US—banks, credit card companies, payment processors—the cost of transactions for US merchants can be higher due to all the processing fees. Digital wallets and payments systems like PayPal, Apple Pay, and Google Pay are also connected to this system, but both are still relatively small, especially compared with firms such as Alipay and WeChat Pay in China.

<sup>1</sup> One exception is Sweden, where the use of physical cash is declining substantially. According to a nationwide survey conducted by the Sveriges Riksbank—the Swedish central bank—only 18 percent of Swedes reported using cash compared to 40 percent in 2010. Purchases are usually done as digital transaction by cards, online, or by using Swish, Sweden's most popular mobile payment app. The following factors help: strong broadband coverage, even in remote areas; a small, tech-savvy population; and a deeper trust in institutions and new technologies.



Although contactless cards became widely available in the US later than in other advanced countries, usage is nonetheless growing. A fifth of Americans have received their first contactless card in the last twelve months and another fifth will soon receive one. As a result, just 16 percent of US citizens pay with a contactless card. By comparison, 38 percent of those in the UK use a contactless card.

In short, physical payments—normal cash and plastic cards—are still ingrained in the American culture. Americans also say they are not interested in having a digital wallet if it means no rewards or cashback offers, benefits that are common with cards.

### Europe and Mobile Payments: The Beginning of a Promising Long Road

In Europe, mobile payment technology is just beginning. Apple Pay commenced in Europe in 2014 and Google Pay and Samsung Pay began in 2015. So far, only 7 percent of Europeans use smartphones to pay and 70 percent of those started in the last two years, including 44 percent last year. However, these low rates are primed to take-off over the next five years for two main reasons. Most Europeans surveyed believed that digital wallets are not just a fad. They agree that digital wallets could replace traditional wallets within the next five years. This transition is already happening. Citizens who report using active cards less than twelve months ago also mentioned using a digital wallet more frequently. Indeed, a third of Europeans plan to use mobile payments more in the next six months.

Consumers said they chose mobile payments for the convenience, speed, and absence of fees. Retailers are taking note. Many are installing a mobile payment app “to fit customer desire.” The key benefit is reduced effort; with mobile payments, there is no need to type in a PIN or handle cash, which removes a psychological barrier.



# The Chinese Experience: Bringing B2C and B2B Clients Together

The penetration rate of online payments in China rose from 8.6 percent of GDP in 2000 to more than 40 percent in 2012 and 76 percent in 2016. Yet, credit card usage rates among the Chinese generally rank much lower than in developed countries. Among the key reasons are that the Chinese economy is not developed enough for widespread credit card use, and that the Chinese government actively promotes its internet banking infrastructure.

Against this backdrop, China has seen explosive growth across online e-commerce and social networking platforms. It is a pioneer in digital payment solutions and adoption.

Alipay was initially created as a payment solution for its B2C system called Taobao, which acted as an intermediary between consumers and merchants to improve trust. Taobao held the money paid by customers in an escrow account. If the customer was satisfied, Taobao would release the funds to the merchant. This improved consumers' trust and increased business for merchants. Taobao soon realised that it had a lot of capital in its deposit pool. To improve on its product, it offered to pay interest on the deposits in users' Alipay accounts. This money market account gave users a higher interest rate than the rate offered by traditional banks. As a result, more customers put money into their Alipay accounts; that is, they started using it like a traditional bank account.<sup>2</sup>

WeChat was created as a messaging platform like WhatsApp. In 2013, it launched WeChat Pay for P2P transactions and purchases from online vendors. WeChat Pay later introduced a money market account just like Alipay to create its own virtual banking system. Now small businesses can set up app-based business accounts to market and sell goods and services. Users share products and services with groups or friendship circles through the app. The seller only needs a picture, a product description, and a QR code linked to the seller's bank account.

Today, WeChat Pay and Alipay are the most popular payment methods in China. According to a Penguin intelligence study conducted in 2017, 92 percent of Chinese citizens in major cities claimed to use either WeChat Pay or Alipay. These services are used for everything from e-commerce to ride sharing, as well as for government transactions.

As a result of these developments, the big risk to cards comes from mobile payments. In 2004, mobile payments emerged in China with Alipay. Our survey showed that today Alipay is by far the favourite payment method. Chinese citizens paid 47 percent of their small, regular in-store purchases via mobile payments. Two-fifths are convinced that digital wallets will replace traditional wallets in the next five years.

There are several reasons that explain the popularity of mobile payments in China. First, the Chinese government has been playing an active role in building a Chinese world-class infrastructure to support digitisation. It operates as an investor, developer, and consumer.

As such, Chinese customers have quickly moved from cash to mobile payments. They consider mobile use to be secure, convenient, and reliable. Half of Chinese citizens also plan to use mobile payments more over the next six months.

In turn, Chinese retailers have embraced mobile payments. In fact, some stores have begun to accept only mobile payments and have refused cash. This led the Chinese central bank to issue a formal notice in 2018 to clarify that renminbi cash is legal tender in China and should not be refused.

By 2013, China had more than six hundred million Internet users, more than any other country in the world. Among these people, 83 percent used smartphones while 81 percent accessed the Internet via personal computer. The number of people using PCs to access the Internet has steadily grown at a rate of 10 percent per year. Chinese youth have been spending more than half of their leisure time on the Internet, making China the world's largest market for smartphones, e-commerce, and online games.

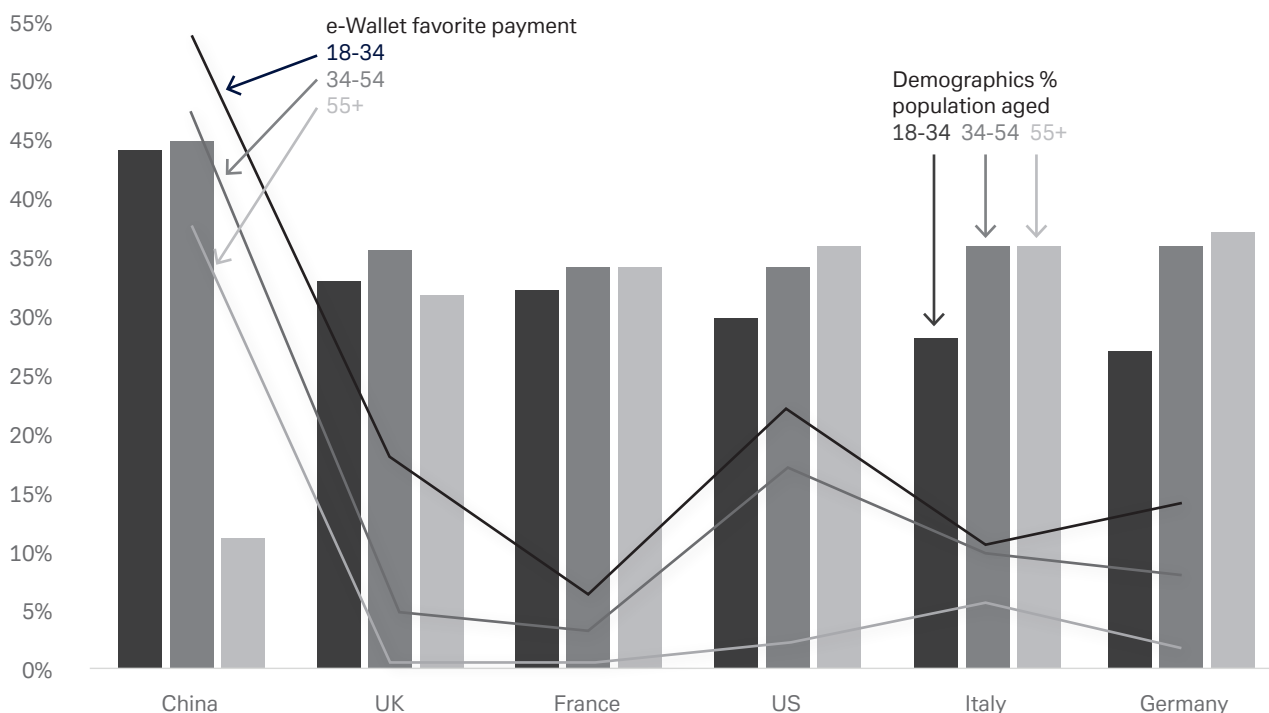
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<sup>2</sup> To prevent fraud and protect customers, the People's Bank of China announced a series of measures to tighten control over payment groups (e.g. increased reserve requirement, zero interest on all customer funds, central clearing requirement) since 2017

## Can the US and Europe Emulate China?

Large firms engaged in digital payments, including Apple, Google, and PayPal, hope the answer to the question above is yes. However, it takes much longer to change ingrained habits of people in a legacy system than it does to start a new system from scratch. People in China, India, and other Southeast Asian countries readily jump from a cash-based society into a digital-payment society. Because digital payment services are vastly more convenient than the cash-only market, the transition is natural. Moreover, China and Southeast Asian countries have a significantly larger young populations than are found in Europe and the US, and young populations tend to be more open to adopting new technologies.

### Demographics and digital wallet favourite methods of payment comparison between China and advanced economies



Source: Deutsche Bank dbDIG. Note: Demographics account for the percentage population represented in the 18-34, 35-54, and 55+ brackets. This excludes people under the age of 18. The representation of China is of those with Internet access living in cities ranked as tier 1 through 4.

People in legacy systems, such as those in the US and Europe, have a long history of using credit cards. This makes it harder for consumers to shift to digital payments. It's an uphill battle for digital payment methods to replace traditional consumer behaviour. For this reason, the mobile US payments app Venmo, initially a digital wallet only, eventually introduced a Venmo debit card that deducts money from a person's Venmo balance. This is a compromise between digital and card payments.

If we look at the next five years in Germany, while keeping in mind that nation's current demographics and Germans' favourite payment methods and payment method intentions, we can expect cash to remain the most popular in-store payment method. Elsewhere we expect e-Wallets to be the second most-preferred method of payment after cards and the most preferred method among millennials.

# Data is the New Gold: Monetising Data in a Free Payment World

Most brands, retailers, and companies that sell directly to consumers have now developed a mobile app, for a variety of reasons related to consumer engagement. These mobile apps can contain a loyalty card or a prepaid card that users can load with funds for spending in a physical store or online. This approach is very popular with chain restaurants and coffee shops because users are confident that they will spend \$15 to \$25 each month.

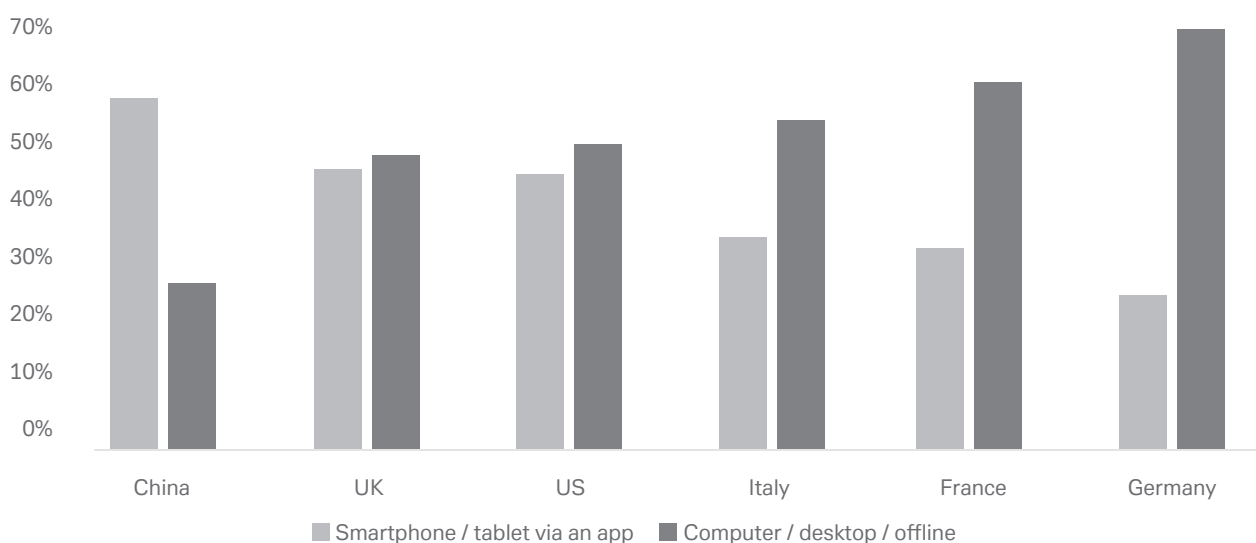
Companies that build apps or websites can take advantage of payment APIs from banks and vendors so they can offer more options to consumers and seamlessly integrate with the means of payments. Some of these products, such as Appsflyer or Braze, can track user behaviour on a mobile device and offer targeted advertisements and discounts. Rewards and discounts can be managed through mobile apps as well as through scannable mobile coupons or automated cash-back options.

Some companies have avidly used apps to track personal data (age, gender, address, weight, height, etc.) to provide better and more personalised advice. Some insurance corporations have directly partnered with credit card providers, providing enhanced insurance services in innovative ways.

Chinese citizens have particularly realised the importance of in-app payments. 42 percent of Chinese people surveyed said that e-Wallets are just a fad and believe that in-app payments will be more widely used in the future.

Larger brands that have a strategic interest in selling direct to consumers must offer direct payments rather than rely on third parties. Mobile apps such as Apple Pay and Google Pay collect fees while collecting and analysing customer data. For this reason, companies often insource their payment systems in a company app. Uber, Lyft, Starbucks, Tesco, and Walmart have made sure to safeguard customer relationships by offering loyalty programs, rewards, invitations, and special discounts, and other benefits. As a result, we expect payment fees to soon approach zero—while companies collect a record amount of data. Because data reveals customer patterns, it has become the new gold.

## Preferred channels for financial transactions



Deutsche Bank dbDIG. Note: the difference between the two columns accounts for indifferent between the two financial transactions channels.

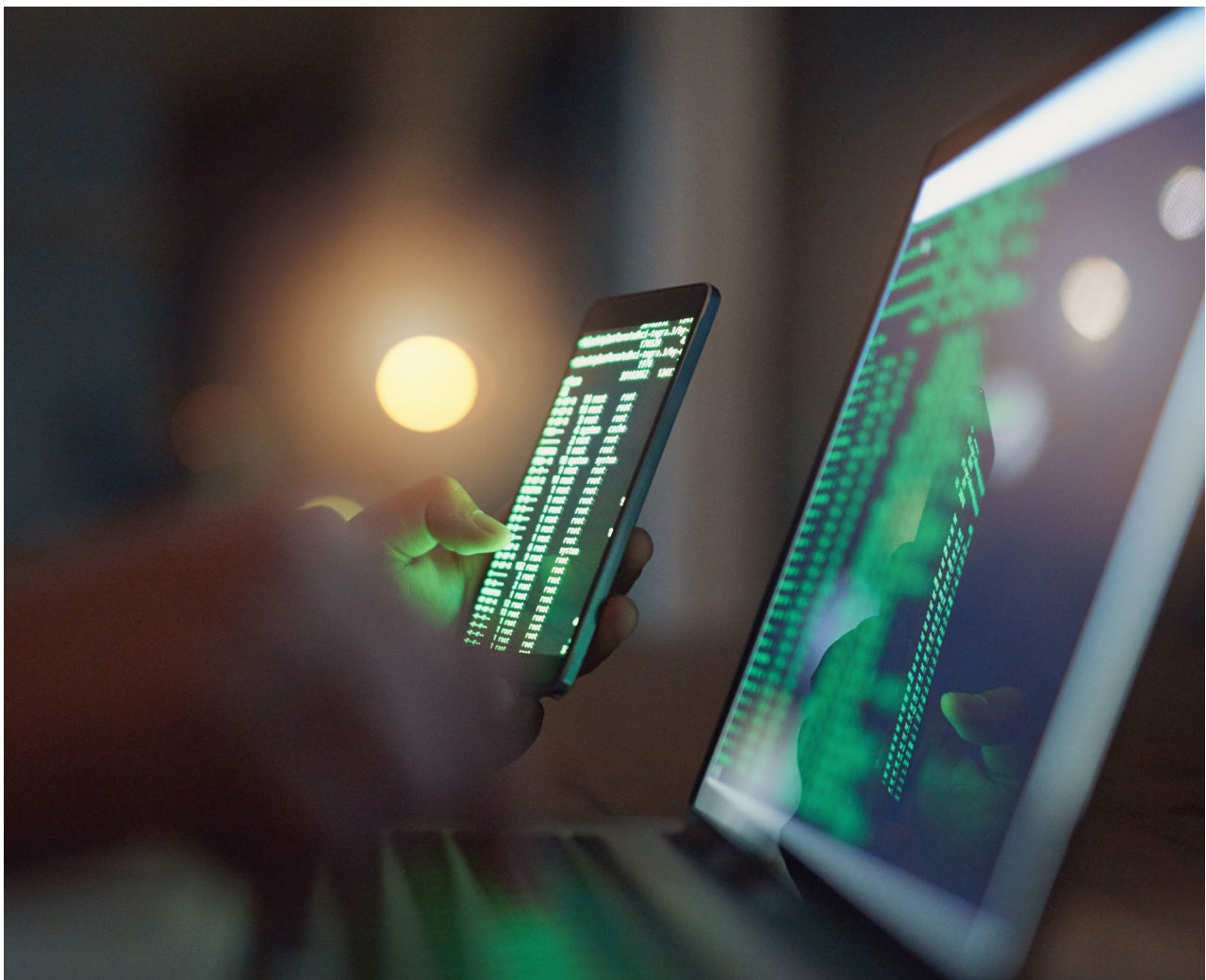
## What Are the Benefits of Data for B2B Businesses?

The discussion above has been focused on two themes: the importance of knowing the consumer better by collecting data and offering them an easy, personalised experience through suggestions, seamless payments, and rewards. This approach works well for companies dealing with many small consumers. However, it works less well for B2B companies dealing with a few large customers.

As indicated earlier, companies struggle to manage working capital and recover payments from bad payers. Quite often, large B2B corporations are organised as a myriad of SMEs that focus on a specific product or customer segment. To resolve these problems, each SME needs considerable financial staffing for billing, data collection, accounting, and payments; managing and tracking B2B payments is a highly manual process.

Digitisation of B2B payments offers a remarkable opportunity for optimisation. The transition of payments from cheques (or even worse, cash) to wire transfers provides a far better tracking method. When trust is strong between supplier and consumer, then a direct debit mandate is even better. Indeed, digitising payments is the first step toward automation. Billing software is already widespread, but when combined with direct debit (or at least wire transfer) it allows companies to track and automate the whole back office. The software can automatically process direct debits, track payments made on time (or not), remind customers automatically, and confirm that payments were made.

Automation of back office payments processes has a triple advantage: it reduces costs; it reduces complexity and coordination, which also lowers costs; and it saves time, thereby helping to conserve working capital and investments.



# Conclusion

As changes in payment methods advance at a rapid pace, two technological advances could disrupt card providers: peer-to-peer payments and cryptocurrencies.

The main *raison d'être* of card platforms is to facilitate settlements between the bank accounts of a merchant and a payer. The development of peer-to-peer payments and e-Wallets to facilitate non-cash transfers between individuals will disrupt card platforms. An app can connect directly to a bank account and ensure e-Wallet settlements are finalised. If these platforms become widely used for merchant transactions, then they could also shortcut businesses that provide consumers with cards.

Cryptocurrencies could also undermine this arrangement because they are traded peer-to-peer without need for a commercial bank or card platform. We analyse how cryptocurrencies could reshape the economic landscape in part three of this series.



# Appendix

Selected data from dbDIG survey of over 3,600 customers (further data available upon request).

## Demographics of people who prefer plastic cards and digital wallets payment methods

	Plastic Cards (Contactless & Chip and Pin)						Digital Wallets (Smartphone & Watch)					
	US	UK	Germany	France	Italy	China	US	UK	Germany	France	Italy	China
Base	53%	62%	33%	76%	58%	16%	13%	8%	7%	4%	9%	50%
Female	55%	64%	34%	73%	58%	16%	11%	9%	7%	3%	7%	51%
Male	50%	61%	31%	78%	59%	16%	16%	6%	7%	4%	10%	47%
18-34	40%	58%	31%	64%	48%	17%	22%	18%	14%	7%	10%	54%
35-54	51%	63%	40%	82%	56%	17%	17%	5%	8%	3%	10%	47%
55+	64%	67%	27%	81%	69%	4%	2%	1%	2%	1%	6%	38%
Rural/ Countryside	48%	65%	30%	80%	57%	14%	9%	4%	5%	2%	1%	46%
Suburban	59%	63%	34%	74%	55%	20%	11%	7%	8%	4%	8%	41%
Urban	43%	60%	33%	74%	59%	15%	20%	12%	8%	4%	11%	53%
Up to €20,000			20%	67%	41%				4%	2%	10%	
€20,000 to €29,999			31%	72%	63%				8%	1%	6%	
€30,000 to €39,999			31%	75%	62%				6%	2%	7%	
€40,000 to €49,999			15%	84%	64%				18%	5%	15%	
€50,000 to €69,999			47%	79%	64%				6%	4%	10%	
€70,000 to €99,999			44%	88%	73%				9%	2%	9%	
€100,000+			39%	61%	61%				11%	28%	6%	
Up to £20,000		56%						7%				
£20,000 to £29,999		61%						7%				
£30,000 to £49,999		63%						8%				
£50,000 to £69,999		69%						11%				
£70,000+		71%						6%				
Up to \$15,000	27%						18%					
\$15,000 to \$24,999	48%						12%					
\$25,000 to \$34,999	48%						14%					
\$35,000 to \$49,999	48%						14%					
\$50,000 to \$99,999	58%						12%					
\$100,000 to \$149,999	71%						10%					
\$150,000+	61%						16%					
Up to ¥119,999						16%						42%
¥120,000 to ¥179,999						15%						48%
¥180,000 to ¥239,999						17%						49%
¥240,000 to ¥299,999						16%						48%
¥300,000 to ¥449,999						13%						72%
¥450,000 to ¥599,999						5%						79%
¥600,000 to ¥999,999						28%						56%
¥1,000,000+						22%						67%

## Favorite in-store payment method per country

	US	UK	Germany	France	Italy	China
Cash	33%	29%	59%	18%	33%	22%
Contactless (with chip and pin) debit / credit card	17%	49%	22%	57%	46%	16%
Chip and pin (not contactless enabled) debit / credit card	36%	13%	10%	19%	12%	
Digital Wallet	13%	8%	7%	4%	9%	50%
Cheque	2%	0%	1%	3%	0%	13%
Prefer dematerialized payments	6%	70%	40%	79%	67%	66%
Prefer cash & cheque payments	34%	30%	60%	21%	33%	35%

## What percentage of these weekly in-store purchases do you pay for using the following methods?

	US	UK	Germany	France	Italy	China
Cash	35%	33%	57%	25%	43%	23%
Contactless debit / credit card	16%	38%	20%	45%	33%	20%
Chip and pin debit / credit card	34%	20%	14%	18%	14%	
Cheque	2%	1%	1%	7%	1%	14%
Smartphone digital wallet	11%	7%	7%	3%	7%	36%
Smartwatch digital wallet	2%	1%	1%	2%	2%	7%

## In the next six months, are you planning on using the following payment methods more, less or about the same for small, regular in-store purchases?

	US	UK	Germany	France	Italy	China
Cheque	-12%	-25%	-16%	-28%	-33%	18%
Cash	11%	-10%	8%	-2%	-21%	16%
Chip and pin debit / credit card	21%	14%	8%	16%	30%	
Contactless debit / credit card	34%	33%	25%	33%	51%	21%
Smartphone digital wallet	33%	29%	25%	33%	32%	47%
Smartwatch digital wallet	23%	20%	4%	28%	14%	28%

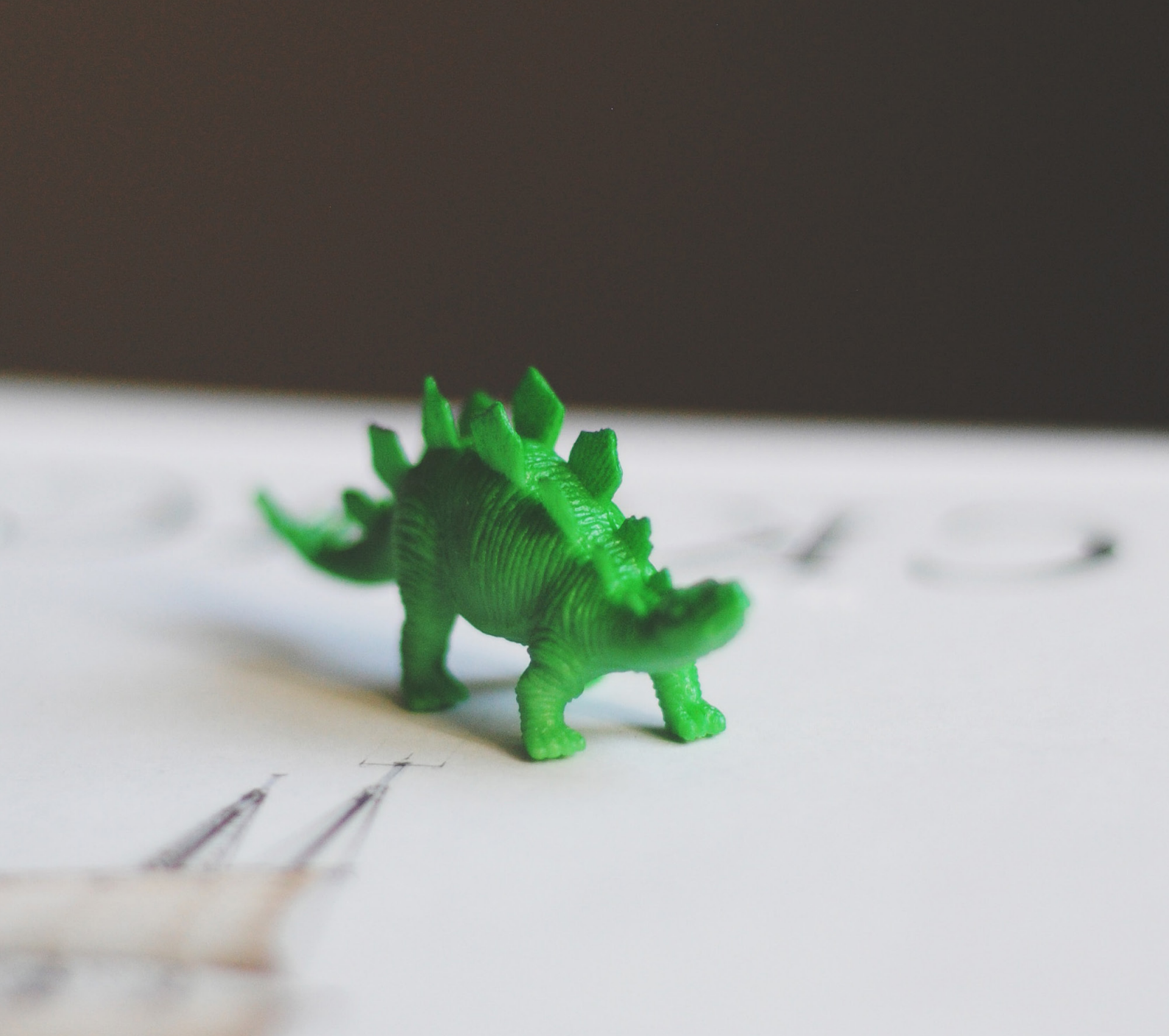


Which, if any, of the following are the main reasons for a digital wallet being your most preferred payment method?

	US	UK	Germany	France	Italy	China
Really convenient	44%	51%	55%	43%	54%	43%
Means I have fewer things to carry	25%	47%	27%	52%	27%	28%
Saves time as I don't have to take my wallet out	28%	47%	30%	38%	37%	35%
Digital wallet is free	26%	38%	20%	38%	35%	27%
Don't need to worry about not having money on me	24%	43%	32%	24%	29%	29%
I'm going cashless / don't carry cash with me	28%	45%	23%	24%	23%	18%
Reduces the chances of me being robbed / mugged	21%	19%	18%	38%	23%	18%
Easier to see what I have spent money on	20%	28%	27%	14%	33%	27%
Offers extra security	26%	19%	25%	29%	25%	25%
Easier to manage my budget	23%	17%	16%	38%	21%	27%
Trying to lessen the amount of cards I have	18%	15%	20%	29%	13%	18%
Most places are going cashless	18%	21%	27%	14%	4%	23%
Most digital wallets offer discounts, rewards, and prizes	23%	11%	20%	19%	13%	26%
Helps organise my credit cards	9%	9%	11%	19%	15%	18%
Don't like using plastic cards	11%	6%	18%	14%	8%	12%
None of these	4%	0%	7%	0%	0%	1%

Demographics of people who prefer smartphones and tablet via an app vs computer/desktop, offline to conduct financial transactions

	Smartphone / Tablet Via an App						Computer / Desktop / Offline					
	US	UK	Germany	France	Italy	China	US	UK	Germany	France	Italy	China
Base	44%	45%	25%	32%	34%	57%	49%	48%	68%	59%	54%	26%
Female	50%	59%	58%	57%	59%	51%	45%	44%	48%	45%	42%	47%
Male	50%	41%	42%	43%	41%	49%	55%	56%	52%	55%	58%	53%
18-34	39%	52%	47%	48%	49%	49%	24%	13%	19%	25%	16%	51%
35-54	39%	35%	39%	42%	37%	41%	28%	35%	35%	29%	40%	41%
55+	21%	13%	14%	11%	15%	10%	48%	52%	45%	46%	44%	8%
Rural/ Countryside	15%	16%	24%	27%	17%	6%	15%	24%	18%	28%	14%	3%
Suburban	55%	51%	29%	19%	21%	25%	56%	52%	26%	23%	21%	30%
Urban	30%	33%	47%	53%	62%	68%	29%	24%	57%	49%	65%	67%
Up to €20,000			12%	13%	25%				15%	15%	15%	
€20,000 to €29,999			17%	14%	17%				11%	18%	19%	
€30,000 to €39,999			31%	25%	30%				33%	23%	30%	
€40,000 to €49,999			8%	15%	5%				5%	16%	6%	
€50,000 to €69,999			13%	17%	12%				21%	16%	19%	
€70,000 to €99,999			16%	11%	7%				11%	8%	9%	
€100,000+			3%	4%	4%				3%	3%	3%	
Up to £20,000		18%						23%				
£20,000 to £29,999		36%						29%				
£30,000 to £49,999		29%						24%				
£50,000 to £69,999		12%						12%				
£70,000+		5%						11%				
Up to \$15,000	12%						10%					
\$15,000 to \$24,999	10%						10%					
\$25,000 to \$34,999	11%						11%					
\$35,000 to \$49,999	14%						9%					
\$50,000 to \$99,999	38%						30%					
\$100,000 to \$149,999	7%						14%					
\$150,000+	9%						16%					
Up to ¥119,999						30%						26%
¥120,000 to ¥179,999						22%						30%
¥180,000 to ¥239,999						23%						15%
¥240,000 to ¥299,999						9%						10%
¥300,000 to ¥449,999						6%						7%
¥450,000 to ¥599,999						3%						7%
¥600,000 to ¥999,999						3%						2%
¥1,000,000+						4%						3%



*We would like to thank Anthony Chaimowitz for his contribution to this piece.*

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