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A Review of the International Landscape of Innovation in Payments and Insights for UK Payments

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Summary Findings

An Accenture report commissioned by the Payment Systems Regulator

Foreword

In this report Accenture has scanned worldwide innovations in payments for the UK Payment Systems Regulator. We reviewed over 100 payments innovations from simple consumer apps to major infrastructure changes, and payments policy initiatives. We identify their motives, key features, interactions and the policies used. We have reviewed each innovation to identify its impact and relevance for UK payments.


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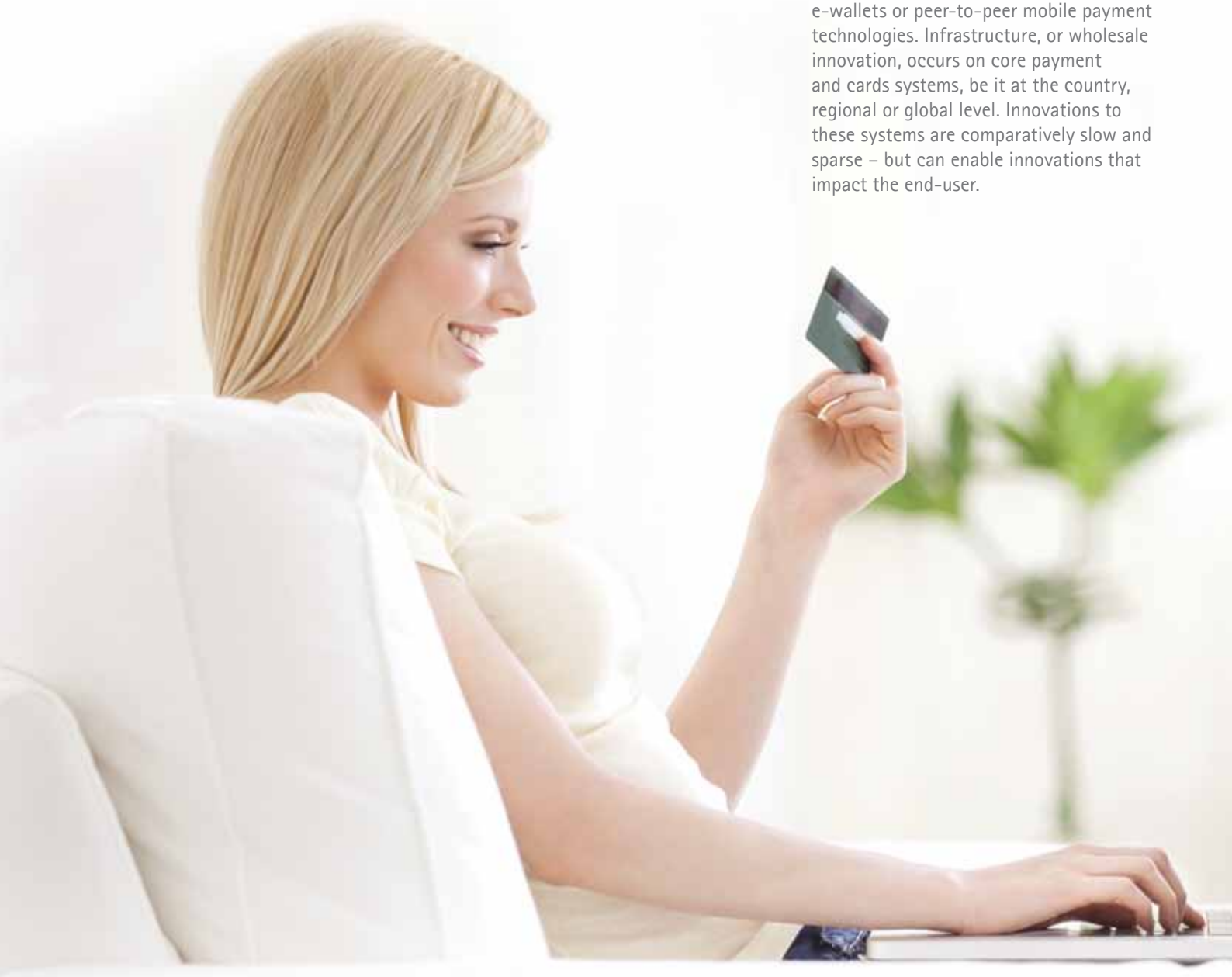
Summary findings

Innovation in payments is occurring around the world. Small companies, banks, card companies, payment service providers (PSP), and non-financial institutions such as retailers are all innovating in payments. At stores, online, on mobiles and through the middleware systems and backend infrastructures that connect payers to PSPs to payees we see substantial innovation taking place.

Starting with a definition – what is innovation?

We define payments innovation as something new – it need not be radical – but something that is new, different and which delivers on an incentive for the innovator and a benefit for users. We have reviewed over 100 payment innovations for this report from a wide selection of countries and companies.

We identified two broad categories of payments innovation – infrastructure and end-user. The two are interdependent but the majority of innovation (over 60 percent of cases reviewed) occurs on the end-user side. These might include, for example, contactless payments, e-wallets or peer-to-peer mobile payment technologies. Infrastructure, or wholesale innovation, occurs on core payment and cards systems, be it at the country, regional or global level. Innovations to these systems are comparatively slow and sparse – but can enable innovations that impact the end-user.



Where is innovation happening?

We have reviewed the most recent developments in payments innovation worldwide and selected cases based on the impact of the innovation where it was delivered and its relevance to UK payments. In addition, some cases were included in this study upon specific request from the PSR.[1]

As part of the study we defined a Payments Innovation Methodology which includes:

- Value chain – a framework defining users, payment services providers, devices, channels and processes in the payments and cards ecosystems
- Taxonomy – a list of categories which inform the classification of features of innovation including by lead actor, incentives, benefits, and barriers
- Prioritisation – a method to benchmark, rank and prioritise examples of payments innovation

The value chain identifies where innovation occurs across participants, channels and devices within the payments ecosystem. Our analysis across 100+ innovations therefore summarises where, specifically, we see payments innovation occurring – i.e., where innovation is most "intense". We defined a range of thresholds for each dimension of the value chain to demonstrate how frequently it features in our list of cases. Figure 1 summarises the findings.[2]

Summary statistics

In this study, statistics are displayed based on analysis of 100+ case studies in payments innovation from around the world. These are used in two ways:

1. Value chain

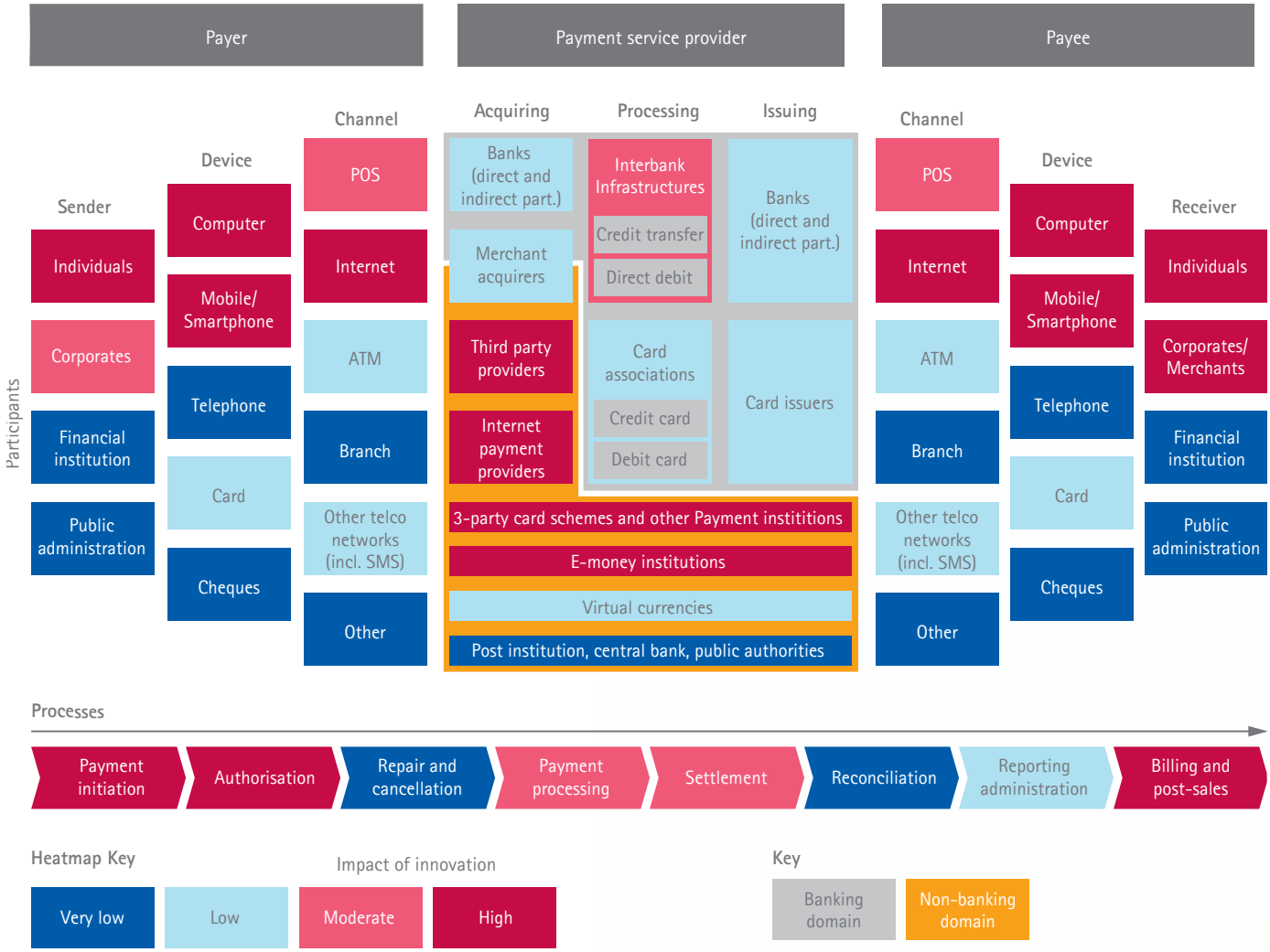
A value chain has been created for each case study, highlighting which element(s) of the value chain are impacted by that case study in innovation. These values have been aggregated across 100+ case studies to create an innovation "heatmap" which shows where innovation in payments is occurring. For example, a dark red box on the heatmap for "individuals" within the sender category indicates that an individual user features in more than 70% of cases reviewed (see Figure 1).

2. Taxonomy

The innovation taxonomy includes 10+ categories for classifying features of innovations including actors leading the innovation (Figure 2), incentives (Figure 3), benefits delivered (Figure 4) and barriers to innovation (Figure 5). Each case study was categorised within this framework – for example, a single lead actor was identified for each case study, a single main incentive, and so on. Data gathered in the innovation taxonomy was then aggregated to identify trends across the selection of 100+ case studies.

A view of the value chain

Figure 1: Payments innovation value chain and heatmap

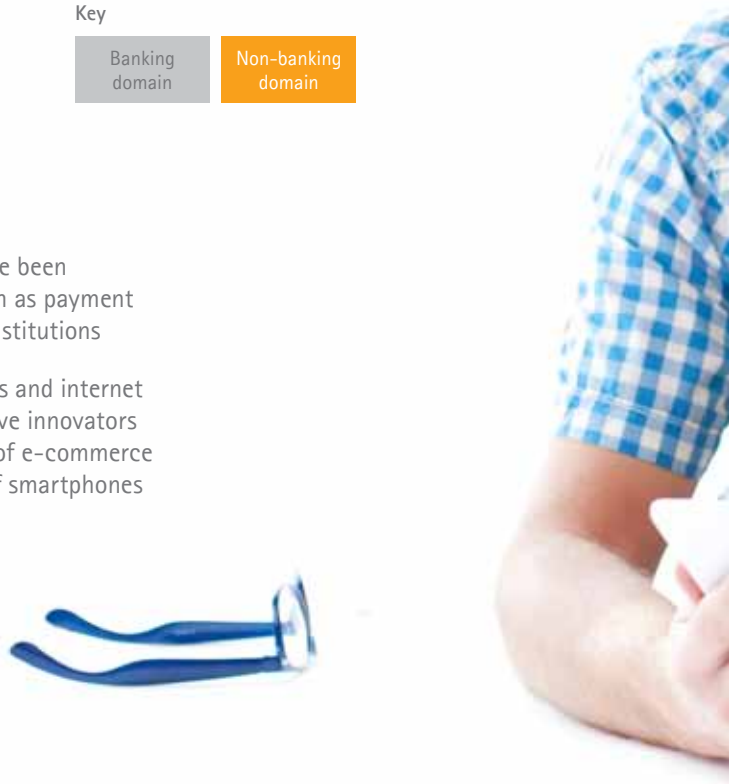


Payment user

- C2B and C2C segments account for >95% of innovations
- Many of these are enabled by new technologies focused on end-user innovations – in some cases however infrastructure innovations are enabling downstream end-user innovations such as faster payment schemes enabling real-time services (Swish)

PSP

- >40% of innovations have been launched by non banks such as payment institutions and e-money institutions
- Mobile payment operators and internet gateways are the most active innovators seeking to take advantage of e-commerce growth and the adoption of smartphones



Device

• 60% of innovations involve mobile phones and 18% are cross channel solutions enabling payments using both smartphones and computers

Payment system

• 17% of innovations involve interbank infrastructures with initiatives launched to process payments in real-time (10%), to adopt international standards (4%) and to support processing of online payments by banks (3%)

Channel

• >55% of innovations are internet-based and c. 25% occur at point-of-sale – these innovations lower processing costs (e.g. Square) and are focused on reducing use of cash /cheques /cards (e.g. NFC initiatives in Canada and Spain)

Process

• >70% of cases impact payment initiation, authorisation; c. 50% are processing and settlement innovations

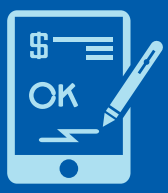
• A second tier of cases (>40%, e.g. Boku, Klarna) bring improvements to the end user's billing experience through a new payment option, with others providing new reporting and analytics services (e.g. Square's B2B data service)

Types of innovation

There are two broad categories of payments innovation – end-user and infrastructure. Within these categories we have identified five types of payments innovation:

End-user innovation

1. Card payments: innovations that present a new way to use or accept cards from users for card present transactions (e.g. contactless cards, mobile point-of-sale solutions such as Square)



3. Mobile payments

This covers three areas:

- Mobile payments using traditional bank accounts (e.g. Swish, IKO)
- Mobile payments using a mobile phone bill collection process (e.g. Boku, GCASH)
- Mobile payments using prepaid accounts (e.g. PayPal, Belgacom-BNPP, MCX)

2. Internet payments

This covers four areas:

- Online banking e-payments (e.g. iDEAL, MyBank, and POLi)
- Overlay services (e.g. SOFORT Banking)
- E-money (e.g. PayPal, Click&Buy, Skrill)
- Internet payment gateways: Adyen, Ogone, Skrill Global Collect

4. Electronic invoicing and billing payment: innovations that improve the billing experience (e.g. Klarna, Cheque imaging in Singapore)

Infrastructure innovation

5. Improvements in infrastructure

This covers three areas:

- Real-time payments processing (e.g. Bankgirot)
- Vision for a cashless system (e.g. Nigeria cashlite, Sweden)
- Adoption of international standards (e.g. adoption of ISO20022 with SIC4, SEPA, Japan)

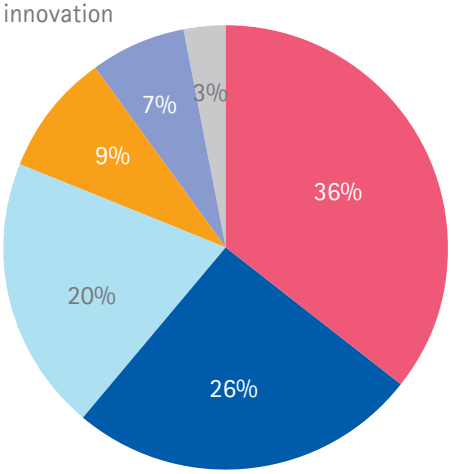
Who innovates?

Innovators range from small start-ups such as Traxpay, Klarna and Jumio to established companies such as ExxonMobil diversifying into payments, to banks such as Royal Bank of Canada and to non-financial institutions including retailers such as Starbucks and telcos such as NTT Docomo in Japan.

We have reviewed the most recent developments in payments innovation worldwide and selected cases based on impact and relevance to the UK.[3] Of these innovations, more than 35% were launched by credit institutions (a category which includes banks) either in the interbank or cards areas. Payment institutions - a category which includes third party providers, internet services providers or acquirers – accounted for 26% of innovations and telcos accounted for 9%. Governments and other public bodies, whilst not necessarily innovating themselves, can facilitate and drive change. In this way, governments are facilitating one fifth of cases scanned. We noted that many of these innovations were new payment systems, highlighting the important role of governments in these innovations.

Figure 2: Actors leading payments innovation; top innovations outside the UK

% of cases within category listed as primary actor leading launch of innovation



*central bank/public entity is not a lead innovator, but an agent which facilitates and drives change amongst other participants.

What are the incentives for innovation?

Innovation typically occurs because there is a commercial incentive for the actors leading the innovation. Our worldwide scan has identified five common incentives for innovation:

- **Increased revenues through new service offerings (42% of cases).** Innovations which deliver new revenue streams, often driven by the emergence of new business models and value propositions led by non-bank payment institutions, third parties and start-ups. Klarna for example, a new a "pay on delivery" service, has been launched to take advantage of growing e-commerce in Europe

- **Increased revenues through service differentiation (23% of cases).** Innovations within existing revenue streams deliver an improved customer experience or drive cross-selling, often driven by banks. With iDEAL for instance – an online banking e-payments solution – banks offer an alternative payment online method without requiring consumers to share sensitive data with third parties

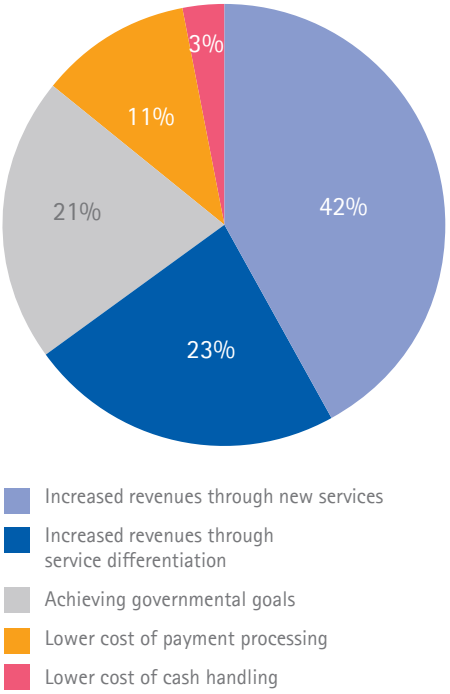
- **Achieving governmental goals (21% of cases).** Innovations which stem from government as an initiator or facilitator – but which are not necessarily delivered by governments – such as faster payment systems, electronic billing or national digital wallet solutions. This includes, for example, SADAD, the electronic invoice presentment and payment system in Saudi Arabia

- **Lower cost of payment processing (11% of cases).** Innovations which reduce the cost of processing a payment, such as cheque imaging or retailer-led innovations. MCX is a consortium of US retailers building a private payment scheme seeking lower cost of payment processing by avoiding the cost of interchange fees to accept card payments

- **Lower cost of cash handling (3% of cases).** Innovations which reduce the cost of cash handling, such as NFC or Bluetooth low energy innovations at point-of-sale and peer to peer mobile payment services which displace the use of cash. Contactless payments, including contactless cards but also NFC-enabled mobile payments at point-of-sale, migrate low value payments from cash to non-cash forms. Examples include those launched in Canada following the issuing of guidelines for NFC payments by the Canadian Bankers Association

Figure 3: Incentives for payments innovation; top innovations outside the UK

% of cases with category listed as primary incentive for launching innovation



Who benefits from innovation?

The benefits derived from innovations apply to those sending a payment – the payers – and those receiving a payment – the payee. These are not necessarily those participants driving or leading innovations, but they are the end-users impacted by them and include in the majority of cases individuals and corporates or merchants. The benefits described here influence the incentives already discussed, since larger end-user benefits will positively influence demand for payment innovations.

Benefits for Payer

- **New payment option (43% of cases).** These include new payment methods for the individual, such as mobile wallets, direct account authorisation services or pay on delivery options

- **Faster payment processing (combined 21% of cases).** This describes an improvement for an individual or business facilitated by real-time payment systems and overlay services that have emerged

- **Ease of use/frictionless payments (combined 19% of cases).** This describes a benefit which delivers a shorter time and/or fewer, simpler steps to completing a transaction (e.g. at point of initiation). For example, new features to mobile apps which leverage social media, email or SMS which prevent the payer from having to remember long, detailed passwords

- **Protection against fraud and default (8% of cases).** This includes a range of services that ensure greater protection of personal information and identity, ranging from wallets which secure card credentials in the cloud to behavioural biometrics which recognise users based on how they interact with their online banking module, strengthening the customer authentication process

Benefits for Payee

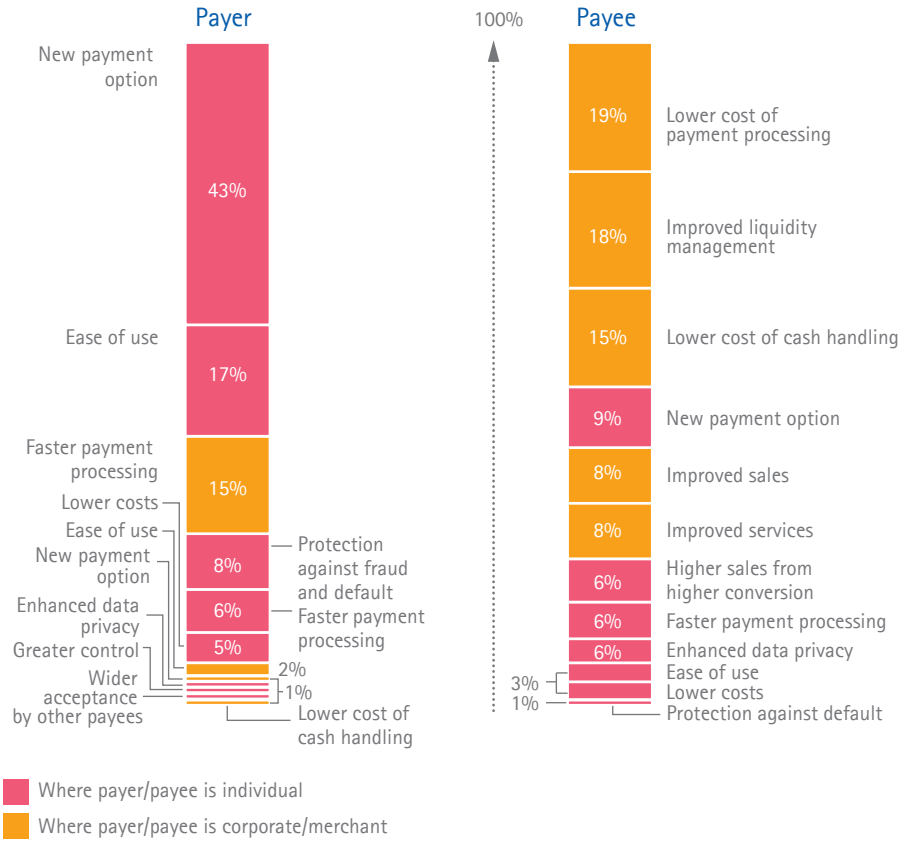
- **Lower cost of payment processing (19% of cases).** These include cases that reduce the cost to the corporate or merchant of processing a payment, such as direct to account authorisation services or electronic billing and invoicing

- **Improved liquidity management (18% of cases).** These include innovations that help businesses manage liquidity better, such as trade services which facilitate real-time document management or core innovations to payment systems

- **Lower cost of cash handling (15% of cases).** These include innovations that displace the use of cash and which provide benefits for both merchants and banks

- **Improved sales (8% of cases).** This includes cases that deliver an improvement in conversion rates, improved cross-selling, or reaching new customer segments

Figure 4: Benefits faced by payer/payee; top innovations outside the UK
% of cases with category listed as primary benefit



What are the common barriers to innovation?

At the height of the dot.com bubble there were more than 100 start-ups promising to revolutionise the way consumers pay and transfer money. Today, there are few survivors, PayPal being chief among them. In our research we identified a single primary barrier to innovation for each case study that was overcome by the innovators. Typically these barriers occur in one of two areas: first, barriers which prevent PSPs from launching innovations, and second, barriers which prevent solutions from being adopted by either payers or payees.

Barriers faced by PSPs

Barriers which reduce the incentive to innovate:

- **Need to incentivise industry collaboration (37% of cases).** Where there is a barrier to collective action where collaboration is required to reduce cost, spread risk through investment sharing or to ensure sufficient demand by pooling resources

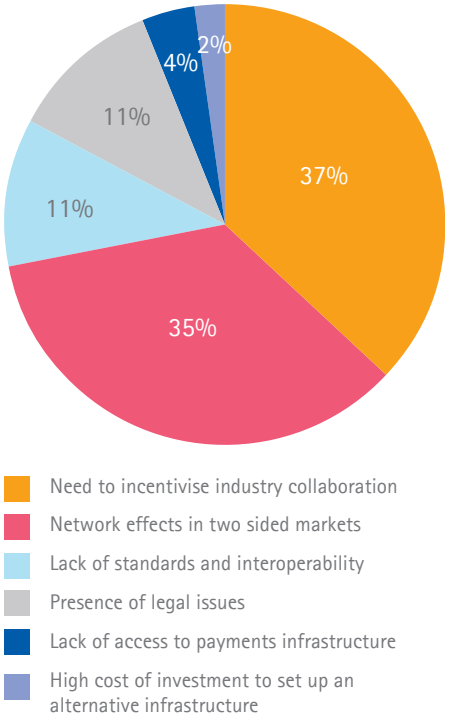
- **Network effects in a two sided market (35% of cases).** Where there are two distinct user groups – payer and payee – that provide each other with network benefits. Where a product needs to be easily adopted by payers whilst at the same time creating sufficient demand to drive scale of adoption and recover cost of investment

- **Lack of standards and interoperability (11% of cases).** Where standards are required to ensure the efficient transmission of payment communications, as with NFC at point-of-sale, which may limit the adoption of services such as Giropay for in-store and mobile enabled purchases

- **Presence of legal issues (11% of cases).** Lack of a legal framework which states the rights, responsibilities and liability regimes of all players involved in a payments ecosystem or which leaves sufficient legal uncertainty as to present an obstacle to innovation. For example, some innovators we have researched have innovative propositions in similiar countries (e.g. US and Australia) that are not rolled out in the UK

A fifth barrier, "lack of access to payments infrastructure", features in a relatively low percentage of cases in this study. This should not be seen as indicating that this is a rare barrier to innovation. In the sample reviewed a high percentage of innovations were delivered by participants who did not have access to payments infrastructures.

Figure 5: Barriers faced by PSP; top innovations outside the UK
% of cases with category listed as primary barrier



Barriers which result from low Payer and Payee adoption levels

Our research showed that there were four main factors which restricted adoption levels by payers and payees, creating a barrier for innovators:

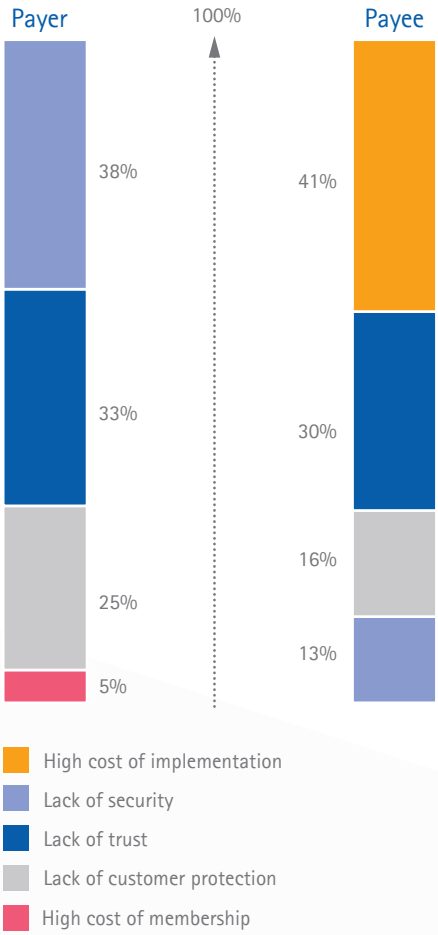
- **Lack of trust in branding or in a new scheme (33% of cases for payers, 30% for payees).** Where pricing or charges are unclear for the payer or where there is a high frequency of fraud for the payee

- **Lack of customer protection (25% of cases for payers, 16% for payees).** Where there is a lack of a clear liability regime, settlement rules or payment guarantee. For example, where e-merchants are reluctant to accept direct authorisation services such as iDEAL if mandates by affiliated internet payments providers are not transparent

- **Lack of security of IT infrastructure (38% of cases for payers, 13% for payees).** Where there are concerns about weak data privacy and security of personal information, or service interruptions which may affect a payees' business

- **High cost of membership (5% of cases for payers) or implementation (41% of cases for payees).** Where membership costs for payers or costs of implementation for payees are too high, as in the case of renewal of point-of-sale terminals

Figure 6: Barriers faced by payer/payee; top innovations outside the UK
% of cases with category listed as primary barrier



What policy tools are used by regulators to enable innovation in other countries?

Through our research of 100+ worldwide payments innovations we identified a set of policy tools used by other governments, central banks and regulators to enable innovation. These have been synthesised to produce a toolkit of the common tools used and range from formal (**changing regulations**) to informal (**dialogue and moral suasion**).

Policy tools used by other governments to enable innovation

Changing regulations

- **Setting standards/interoperability** – ensuring the integrity, security and wider adoption of new payments technologies (e.g. migration to ISO20022 with SEPA)

- **Setting deadlines** – driving the development of services by setting deadlines (e.g. SEPA end date regulation)

- **Setting new legal framework** – validating new business models in payments (e.g. PSD2, e-money directive)

- **Issuing licenses** – issuing licenses for the launch of a new technology or service to drive faster adoption (e.g. Nigeria mobile payments license competition, e-wallet in Philippines)

- **Controlling pricing** – controlling pricing to reduce uncertainty and increase investment (e.g. interchange cap regulation)

Dialogue and moral suasion

- **Setting vision** – setting goals that drive a behaviour or desired outcome (e.g. NFC standards in Canada, real-time payments system in Sweden)

- **Advocacy** – engaging in discussion with other regulatory and/or industry bodies to influence policy (e.g. Nordic collaborations on shared infrastructure)

Monitoring

- **Monitor** – monitor, observe, scan; allow the industry to drive innovation (e.g. Boku carrier billing service, Kaching mobile solution by CBA in Australia)

- **Inspections** – verifying that emerging business models do not put customers, payments ecosystems and financial stability at risk (e.g. AML/KYC checks)

- **Producing reports and payments statistics** – tracking payment developments (e.g. Kenya Central Bank tracking mobile payments access and new services after M-PESA)

Imposing sanctions

- **Setting penalties** – controlling behaviour through penalties and charges for non-compliance with rules (e.g. European Commission threats of fines to Visa and MasterCard for interchange fees)

Key lessons from worldwide innovations

In our research we identified a high volume and variety of payments innovations which launched, thrived and delivered value to participants of payments systems. The following research findings are relevant to the UK:

1. Consider end-user and infrastructure. A consideration of both end-user and infrastructure innovation can maximise benefits from the development of innovative offerings. The majority of innovation occurs on the end-user side; in rare cases, a balance does exist between infrastructure and end-user innovation with NPP in Australia a good example of real-time clearing and overlay services.

2. Many different firms innovate. Innovators range from small start-ups such as Traxpay, Klarna and Jumio to established companies diversifying into payments, to banks such as Royal Bank of Canada and to non-financial institutions including retailers such as Starbucks and telcos such as NTT Docomo in Japan.

3. Profits are the primary incentive for innovation. Increased profits can come from additional revenues or reducing costs, but achieving profitability is difficult. Innovations without a clear profit source are unlikely to succeed. MyBank is an example of this problem. It was launched in 2013, with an obscure revenue model, and dilutes card interchange revenues among participants for online purchases – adoption is very slow, and mainly in countries where card usage is low, such as Italy.

4. Mass adoption is important. Many innovations that exist and are delivering value are still struggling for mass, ubiquitous adoption. However, there are some that have high adoption levels, e.g. Square and Starbucks in the US, and MobilePay in Denmark. We noticed that actors in countries that are developing visions have used interventions to correct industry activity – consolidating rather than fragmenting the area (e.g. Dubai regulator interventions into mobile payment systems) to drive mass adoption. Mass adoption requires coordination among many stakeholders and a focus on delivering benefits to payers and payees.

5. Failure is an acceptable outcome of innovation and can be a sign of healthy competition. Barriers to innovation exist however failures are not always a sign of the presence of high barriers to innovation. Failure can be a sign of healthy competition. However, expensive, slow failures can be a sign of an unhealthy climate for innovation and misallocated resources.

6. A policy toolkit exists to facilitate change. In this study we identified a set of policy tools used by other governments, central banks and regulators to enable innovation. These policy tools range from formal (changing regulations) to informal (dialogue and moral suasion). The selection of policy tools depended on a number factors, including the type of innovation and barriers present. However we found that innovation that affected the core infrastructure required the most intervention and policy setting from a regulator to drive change. Less was required for end user applications that derived from existing systems, where monitoring was important for general compliance.

Appendix

Selected case studies referenced in summary findings

Case Title	Case Summary
Bankgirot	Retail real-time interbanking payments system
Belgacom-BNPP wallet	Bank and telco ecosystem for payments and loyalty in Belgium
Boku	A mobile payment method which bills purchases from vendors through carrier billing
Canada NFC Consortium	Government-driven NFC consortium of payment standards in Canada
Cashlite	Nigerian policy to drive digital payments vs cash
Cheque imaging in Singapore	Online image based cheque clearing system in Singapore
Click&Buy	Global e-money service
GCash	Electronic wallet service linked to a mobile phone (SMS based)
Giropay	Online banking e-payment authorisation service in Germany
iDeal	Current account authorisation service in the Netherlands (online/mobile)
IKO	Current account authorisation service in Poland (online/mobile)
Japan migration to ISO20022	Bank of Japan redesign of real-time interbanking system to ensure it is ISO 20022 XML compliant
Jumio	Online and mobile payments and identity verification service
Kaching	Mobile banking application enabling P2P payments
Klarna	Pay on delivery system for online purchases
Mambo	Failed Australian project aimed to create a single identity for online payments across banks
MCX	Consortium of US retailers building private payment scheme
MobilePay	Mass P2P mobile payment solution
MyBank	Europe-wide current account authorisation service (online/mobile)
NPP Australia	Australian real-time payment system
NTT Docomo and Mastercard	NTT Docomo and MasterCard mobile NFC payment initative
PayPal	New store value account uses for payments online and mobile
Poli	Retail payment system for debit payments over the internet
Royal Bank of Canada NFC	NFC-enabled mobile wallet
SADAD	Electronic invoice presentment and payment in Saudi Arabia
SIC4 Switzerland	Swiss interbank scheme that has adopted XML-based financial services messaging format / ISO 20022
Skrill	Global e-money service
SOFORT banking	Overlay services in Germany
Square	Mobile point-of-sale device and payments service
Starbucks	Mobile payments and loyalty app (US)
Swish	Swedish current account payment for mobile/online transactions
Traxpay	B2B store of value and authentication of payments

References

1. In particular, several case studies on real-time interbanking payment system and infrastructure innovations were included in this study at the request of the PSR

2. The methodology and criteria are explained in detail in the report

3. We have also included a short selection of "failure" cases where lessons learned were relevant to the UK and understanding barriers to innovation

About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 293,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$28.6 billion for the fiscal year ended Aug. 31, 2013. Its home page is www.accenture.com.

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