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# Competition and innovation in payments

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An analysis of market functioning  
and innovation

Prepared for  
VocaLink

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## Executive summary

VocaLink has commissioned Oxera to provide a review of the opportunities for greater competition and innovation in payment systems in the UK, in the context of VocaLink's own vision for change in the UK payments landscape. The report will be used as evidence to inform the PSR's market review into the ownership and competitiveness of the provision of infrastructure services.

Competition in payment systems has been a subject of much debate for more than a decade (i.e. since the Cruickshank review of UK banking in early 2000 and subsequent Office of Fair Trading studies). These reviews and studies have led to significant policy reforms that have changed the landscape of the UK payments sector. The most recent of these is the creation of the Payment Systems Regulator, with duties to promote competition, innovation and the interests of service users. The PSR was launched on April 2015, with the initiation of two market reviews, one of which examines the ownership and competitiveness of infrastructure provision.<sup>1</sup>

### Purpose of this report

Given the PSR's focus on competition for the provision of infrastructure services for payment systems, the purpose of this report is two-fold:

- assessing the current state of competition for the underlying infrastructure of payment systems, and the incentives for innovation across the value chain for payment systems; and
- examining the economic features of VocaLink's vision and the possible effect of these features on competition and innovation.

While this study focuses on competition for the provision of infrastructure services, it is also important to remember that competition also happens elsewhere in the value chain for payment systems. In particular, end-consumers can generally choose from several payment methods, depending on the particular transaction situation. For example:

- for payments over the Internet, most consumers have access to debit and credit cards and other payment products such as PayPal, for example;
- when paying a bill such as a utility bill, consumers can use debit or credit cards, direct debit (e.g. a continuous payment authority), credit transfer, cash or, in the UK, a service such as PayPoint;
- for payments in a retail outlet, debit and credit cards and cash are generally available as payment methods.

Looking ahead, in relation to innovation in particular, developments in new technology (e.g. VocaLink's Pay by Bank app, which allow consumers to pay retailers using a credit transfer) are expected to allow consumers to use interbank payments for payment at the physical point of sale (e.g. in store), thus competing with card payments. Increasing choice for consumers would be expected to place competitive constraints on different payment methods.

As well as looking to the future, it is worth examining recent developments in payment systems outside the UK. Over the previous five years, Payment Service

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<sup>1</sup> The final terms of reference are provided in Payment Systems Regulator (2015), 'Market review into the ownership and competitiveness of infrastructure provision', June.

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Providers (PSPs) operating across Europe have experienced significant changes in how payment services are provided, with the introduction of the Single Euro Payments Area (SEPA). SEPA is a eurozone concept, which was introduced following the development of the single currency, in order to make it easier to pay for goods and services electronically in another euro area country. SEPA has created a market with multiple infrastructure providers competing simultaneously to provide payment processing services to PSPs across different European countries. Infrastructure providers have adopted the same messaging standard (ISO20022) in order to exchange information and allow for 'interoperability' between competing providers. SEPA therefore provides an example of how regulatory pressures have led to a larger, more competitive market for payment services.

### **Examining market failures**

A well-designed regulatory framework for the payments sector should start with an assessment of the 'market failures' that the regulatory intervention seeks to remedy—'market failures' are situations where the market, left to its own devices, may not provide the best outcome for consumers.

For a number of utility sectors, markets were identified as natural monopolies (i.e. most economically served by one player).<sup>2</sup> Price control regulation was therefore introduced to curb market power and mimic the disciplines of a competitive market. Over the years, much attention has been placed on the exact scope of natural monopoly, with the result that, in many of these sectors, regulation has been rolled back from the potentially competitive areas in order to allow for new entry and to enable market forces to flourish. Indeed, the experience of utility regulation is that regulators have typically sought to introduce as much competition as is feasible, restricting price and access regulation to the remaining monopoly facilities.

Three further points are relevant to understanding the context in payment systems.

- First, there is no clear evidence that payment systems are a natural monopoly, with the experience from Europe and SEPA (as discussed above) suggesting otherwise.
- Second, the PSR has a statutory duty to promote the interests of service users, competition and innovation. The first two of these are similar to the duties of other regulators, while the third (innovation) is unique to the PSR. There is a perception that price control regulation is generally not conducive to innovation. This is why, in recent times, some economic regulators have sought to introduce additional competitive mechanisms in order to stimulate innovation (e.g. innovation funds, which are open to competition from third parties).
- Third, payment systems are subject to significant technological developments and therefore share some similarities with other sectors that have undergone major technological changes, including telecoms and the trading and post-trading of securities. In these sectors, advances in technology have facilitated the introduction of competition for many services that were previously provided as a monopoly.

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<sup>2</sup> Natural monopoly exists if, over the relevant range of outputs, the costs of production are minimised by concentrating production in a single firm. This would result from the presence of economies of scale, which would lead to unit costs falling with the output level.

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It is therefore important to consider the specific features of payment systems, in order to understand market failures, their drivers and how technology will affect them before deciding on whether a remedy is necessary and, if so, what sort of remedy.

### **Examining the current model for the provision of infrastructure**

In the context of the Bacs, FPS and LINK payment systems, the current model for the provision of infrastructure services (which has arisen from commercial, regulatory, technological and economic developments) has delivered beneficial market outcomes for the users of payment systems:

- the current arrangements have delivered reliable and resilient payment systems, as is evident from recent measures of performance reliability for Bacs, FPS and LINK;
- a competitive process has been undertaken for each of the service contracts (with several competitors), with the exception of Bacs. Prices have fallen for the three service contracts; and
- innovation has occurred, with two recent studies demonstrating that the current model has delivered innovative payment systems, for example real-time payment processing.

However, the current model of competition can be improved. In particular, there are features of the payments market that may limit the scope for competition, with Bacs being the main payment system that has experienced no competition for the contract to provide processing services—although user ownership of the infrastructure provider may have placed a constraint on VocaLink as the only provider of infrastructure services for Bacs. The features that may limit the scope for competition include the following.

Central to a functioning transaction is that all participants adopt the same messaging standard, scheme rules and working practices. The existing UK standards have delivered a reliable and resilient service, but have evolved from legacy systems that may now act as a barrier to switching infrastructure provider, because existing potential providers use different messaging standards to the legacy Bacs one. In addition, if the direct member PSPs would incur substantial upfront costs in order to switch infrastructure provider (e.g. to reconfigure back-office systems to communicate with the standard used by the new provider), then this would be a barrier as the upfront costs are likely to exceed the benefits to the individual PSP.

### **Looking ahead and the incentives for innovation**

The payments market has changed substantially in recent years and is expected to change further going forward, with the emergence of new technology. This technological challenge to VocaLink's business gives the firm a natural incentive to innovate. However, it is important to ensure that the incentives for innovation work well for all participants across the payments value chain and to ensure that participants are well placed to take advantage of these opportunities for innovation.

### **Scheme innovation**

The incentives for innovation have been well documented in several studies, with a distinction between two types of innovation: unilateral and collective.

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Unilateral innovations can be brought forward by a single company, which bears the cost of the innovation and receives the benefits. The PSP would consider implementing an innovation if the expected benefits were to exceed the upfront cost on a net present value (NPV) basis—i.e. if it were to pass the private cost–benefit analysis case (or CBA case).<sup>3</sup> As such, PSPs should be adequately incentivised to proceed with the innovation.

Collective innovations, however, require adoption from a critical mass of PSPs. We understand from VocaLink that, at the scheme level, the scheme working practices may restrict the development of collective innovations on the Bacs and FPS infrastructure, with such innovations requiring the agreement of the direct member PSPs. This means that for collective innovations to proceed they would need to pass the private CBA for most of the direct member PSPs. In other words, the expected benefits would need to exceed the upfront costs of the investment for most of the direct member PSPs.

There are reasons why such innovations may not pass the private CBA case for most PSPs—for example, if the collective innovation:

- provides no competitive advantage;
- does not take account of previous investment decisions (e.g. if a PSP has recently invested in a new system, which it would have to write off);
- rivals a unilateral development of the PSP.

This may mean that innovations that deliver benefits to the industry or society overall may not be taken forward—a source of ‘market failure’. These ‘market failures’ could be dealt with in different ways:

- having a regulatory coordination function for those innovations that do not confer a competitive advantage, but have an industry or social benefit—the PSR has decided that the Payment Strategy Forum will have this coordinating role;
- changing the scheme working practices to allow for a subset of PSPs to agree to take forward and adopt an innovation.

### **Infrastructure provider innovation**

Initiatives that further enhance competition would be expected to promote innovation. In an environment with multiple infrastructure providers competing to process payment instructions on behalf of users (under a competition for the market, or a competition in the market model), those competitors would be expected to offer different and bespoke service offerings (e.g. providing a ‘menu’ of services) in order to ‘beat the competition’.

### **An overview of the proposals in VocaLink’s vision**

VocaLink’s vision contains proposed changes to the future regulation of payment systems.<sup>4</sup> They include the following.

- An access solution (i.e. the ‘single front door’)—VocaLink would create an access solution, which builds on the recent trend in payment systems towards

<sup>3</sup> The NPV is defined as the present value of cash flows generated less initial investment. Cost–benefit analysis (CBA) is a systematic process for calculating and comparing the costs and benefits of a particular investment or regulatory policy intervention with the status quo.

<sup>4</sup> VocaLink’s vision is set out in an accompanying document. VocaLink (2015), ‘A vision for future competitive and innovative resilient payment systems’, November.

aggregator services (i.e. PSPs connect to a third party, which acts as a technical aggregator combining demand from several PSPs). The vision builds on this development through providing one access solution for all payment systems and, most notably, providing functionality that translates a payment instruction received on one messaging format into a different messaging format for processing. This access solution would be expected to be a contested service.

- Changing the current ownership model—the vision proposes expanding the current ownership beyond the current user shareholders, in order to further promote the basis for competition and innovation.
- Reforms to the schemes and their working practices—the vision proposes introducing bilateral contracting, with the intention to allow PSPs to opt out of particular services, or allow a subset of PSPs to agree to take forward a collective innovation. The creation of a standards body would ensure that a technical body would maintain a capability for interoperability and competition in the market.

VocaLink envisages the potential for both greater competition *for* the market and, further, competition *in* the market, given the changes in technology and suggested reforms to the schemes and their working practices.

### **Competition for the market**

The single front door would be expected to remove barriers to switching that may arise at the PSP level of the value chain and would otherwise mean that a scheme would be unwilling to introduce a new infrastructure provider because PSPs would not be able to communicate with the new provider. Not all PSPs and corporates would have to upgrade their back-office systems in order for the industry to migrate effectively to a new standard. This is because the single front door, as described in the vision, would serve as a translator. This would mean that a payment instruction could originate on the legacy standard (e.g. Standard 18), with the single front door translating the message into another messaging standard for processing (e.g. ISO20022) and potentially returning it to the legacy standard (e.g. Standard 18) for delivery to the other bank. In theory, this would also remove entry barriers for any new entrant infrastructure provider—e.g. they would not have to invest in obsolete systems in order to compete for the Bacs service contract.

One of the main advantages of the immediate reforms proposed in the VocaLink vision for the contract renewal is that, if successful, it would enhance competition in an incremental and low-risk way—e.g. without mandating that banks upgrade their back-office infrastructure at the same time.

Two additional points are relevant.

First, while the schemes currently undertake the competitive tendering process to select the infrastructure provider, the PSR or another third party may need to design, or at least be comfortable with, the competitive framework for the competitive tendering process. This was the approach adopted for the recent competitive tendering process for the renewal of the LINK ATM contract, with the new LINK scheme company deciding to engage a third party to oversee the process. The purpose of such a role would be to provide new entrant infrastructure providers with additional assurances that the competitive process would be conducted on a level playing field.



Second, there is a question about whether prospective competitors to the single front door would require access to information on standards (e.g. guidance on the format of the messaging standard) or intellectual property to provide the interface with the PSPs and corporates (e.g. in relation to the underlying code). In relation to standards, we understand that the scheme company owns this information and would be responsible for providing such information to new entrants. As regards intellectual property held at the infrastructure level, we understand that VocaLink is not obligated to share intellectual property, as such information could be replicated from information held by the scheme. Access to this information would therefore be subject to commercial negotiations.

### **Competition in the market**

VocaLink's vision sets out the possibility of having several infrastructure providers competing simultaneously to provide payment processing services, which would align with the SEPA model. Indeed, we understand from VocaLink's vision that some PSPs (e.g. the large UK banks) are also active in the eurozone (where the SEPA model is in place) and may already have some of the necessary interfaces with the SEPA systems—e.g. they may already process their euro payments in line with the SEPA messaging standard and processing rules. The introduction of a mechanism that allows for interoperability between the UK and the European messaging standard (e.g. for the smaller PSPs with no SEPA interface) would be expected to further assist with moving towards such a model.

### **Implications of the proposed changes in the vision on the incentives for innovation**

**Reforms to the scheme companies and their working practices.** Reforming this aspect of the scheme arrangements would make it easier for a subset of direct member PSPs (i.e. the PSPs for which the innovation has passed the private CBA case) to proceed with a new collective innovation, thus removing the potential barrier to certain types of collective innovations or the development of non-core innovations that may have existed in the past.

**Competition for the market.** Increasing competition for the market for the three core contracts would be expected to enhance innovation. This is because VocaLink and potential new entrants would be required to bid for the contract, based on the service offered and the price, and would thus have the incentive to develop new innovative propositions in order to win the contracts with individual PSPs.

**Changes to ownership.** By widening the ownership beyond the banks and building societies that compete with each other in the downstream market for retail banking services, innovations that focus on meeting the needs of a wider set of users may be further incentivised. Divestment of ownership, for example, may enhance the incentive to push innovations that are suited to different business models, especially in a future payments market where new entrant PSPs (e.g. from the so-called 'FinTech' companies) are expected to present a greater challenge to the established retail banks.

### **Overall assessment of the changes proposed in VocaLink's vision**

First, the changes proposed in the vision address the structural features of payment systems that have the potential to restrict the development of competition and the promotion of innovation:

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- the single front door, as described in the vision, has the potential to reduce bank switching costs and the cost of entry for European infrastructure providers (e.g. Equens). This would be expected to enhance competition for the existing contracts for the provision of infrastructure services for Bacs, FPS and LINK ATM;
- divestment of ownership grows VocaLink's incentive to compete and to meet the demand of a wider set of interests;
- removing some of the constraints that may act to limit the incentives for innovation—e.g. the current scheme working practices, which we understand mean that innovations that require access to the underlying infrastructure of payment systems would require the agreement of direct member PSPs at the scheme level. Removing some of these constraints would be expected to enhance the incentives for innovation across the payments value chain.

In addition, the VocaLink vision proposes to move towards a competitive model that aligns with the model in place elsewhere in Europe, with multiple payment processors competing simultaneously to process payments on behalf of PSPs (i.e. with the SEPA model that was introduced in the eurozone, as discussed above). We note from the VocaLink vision that some of the large PSPs in the UK may already have some interfaces with the SEPA model in Europe, in order to process their euro payments. This may therefore assist with moving towards the competitive model in place in the eurozone. In addition, having a mechanism in place to allow for interoperability between the UK and the SEPA messaging standard (e.g. for the smaller PSPs with no SEPA interface), as proposed under VocaLink's vision with the creation of the single front door, would be expected to further assist with integration between the UK and the eurozone. Such a move would be expected to create benefits to service users from infrastructure providers being able to operate on a larger scale in a larger European market.

VocaLink's vision would therefore be expected to increase competition and enhance the incentives for innovation across the value chain.

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# 1 Introduction

## 1.1 Motivation for the report

From the early 2000s, there have been several government and industry reviews examining the functioning of the market for electronic payment systems. This began with the Cruickshank review in 2000 and a subsequent Office of Fair Trading (OFT) study in 2003, which led to the creation of an OFT Payments Task Force in 2004.<sup>5</sup> These initiatives have led to several reforms, the most recent of which was the introduction of a new economic regulator to oversee payment systems in the UK.<sup>6</sup> In April 2014, the Payment Systems Regulator (PSR) was established with statutory objectives to promote:

- competition;
- innovation;
- the interests of service users.<sup>7</sup>

The PSR was launched on April 2015, with the initiation of two market reviews and various other industry initiatives, including the creation of a Payment Strategy Forum to collaborate on industry-wide innovations. The market reviews will cover the following features of payment systems:

- market review into the ownership and competitiveness of infrastructure provision;<sup>8</sup>
- market review into the supply of indirect access to payment systems.<sup>9</sup>

Recognising the PSR's statutory objectives and the scope of the market reviews, a key contribution to the PSR's own analysis will be understanding the nature of competition, prospects for competition, and incentives for innovation in payment systems. Oxera has been commissioned by VocaLink to comment on VocaLink's own vision for how the provision of UK payments infrastructure should be regulated over the next few years, given these regulatory aims.<sup>10</sup> The purpose of this report is therefore twofold:

- assessing the current state of competition for the underlying infrastructure of payment systems, and the incentives for innovation across the value chain for payment systems;
- examining the economic features of VocaLink's vision and the possible effect of these features on competition and innovation.

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<sup>5</sup> See, for example, Cruickshank, D. (2000), 'Competition in UK banking: a report to the Chancellor of the Exchequer', March; Office of Fair Trading (2003), 'UK payment systems: an OFT market study of clearing systems and review of plastic card networks', May; and Office of Fair Trading (2005), 'First annual progress report of the Payment Systems Task Force', a report prepared for the Payment Systems Task Force by the Office of Fair Trading, May.

<sup>6</sup> It was decided that the PSR would be a subsidiary of the Financial Conduct Authority (FCA) following an HM Treasury consultation on UK payment systems. HM Treasury (2013), 'Opening up UK payment: response to consultation', October.

<sup>7</sup> Payment Systems Regulator (2015), 'The PSR purpose', <https://www.psr.org.uk/about-psr/psr-purpose>, last accessed on 17 August 2015. See also PSR (2015), 'A new regulatory framework for payment systems in the UK: policy statement', March.

<sup>8</sup> The final terms of reference are provided in Payment Systems Regulator (2015), 'Market review into the ownership and competitiveness of infrastructure provision', June.

<sup>9</sup> The final terms of reference are provided in Payment Systems Regulator (2015), 'Market review into the supply of indirect access to payment systems', May.

<sup>10</sup> VocaLink's vision is set out in an accompanying document. VocaLink (2015), 'A vision for future competitive and innovative resilient payment systems', November.

This report draws on economic theory and literature, the existing evidence base and new empirical analysis to assess competition and the incentives for innovation.<sup>11</sup> It is one of two reports prepared for VocaLink and accompanies VocaLink's own vision for the future of payment systems.<sup>12</sup> These reports will be submitted to the PSR as evidence in order to inform its market reviews.

## 1.2 What is a payment system?

Payment systems enable the transfer of 'money' between individuals or companies. While the definition of money tends to change over time, the term commonly refers to cash and claims against credit institutions in the form of deposits.<sup>13</sup> An interbank payment system involves multiple players of different types. Figure 1.1 illustrates the value chain in the UK payments sector and the interactions between the various stakeholders. In particular, the figure shows the key components of a payment system, which are the scheme, its infrastructure and the member banks.

The figure illustrates the different ways in which banks (or other financial institutions) can connect to the payment system. A bank can become a member of the payment scheme, and connect directly to its infrastructure (this requires investment in back-office interface infrastructure). These members are referred to as *direct* members. Alternatively, a member can access the payment system *indirectly* via another (direct) member. Banks that are not members of the payment scheme can also obtain access via direct members.

In the retail function, banks also provide value-added products (VAPs), such as mobile payments or electronic invoicing and bill payment, on top of the payment service.<sup>14</sup> Some of these products are offered by third-party providers, which compete with banks in this segment of the market. Independent VAP providers generally require access to information on scheme and infrastructure standards in order to deliver their products and services.

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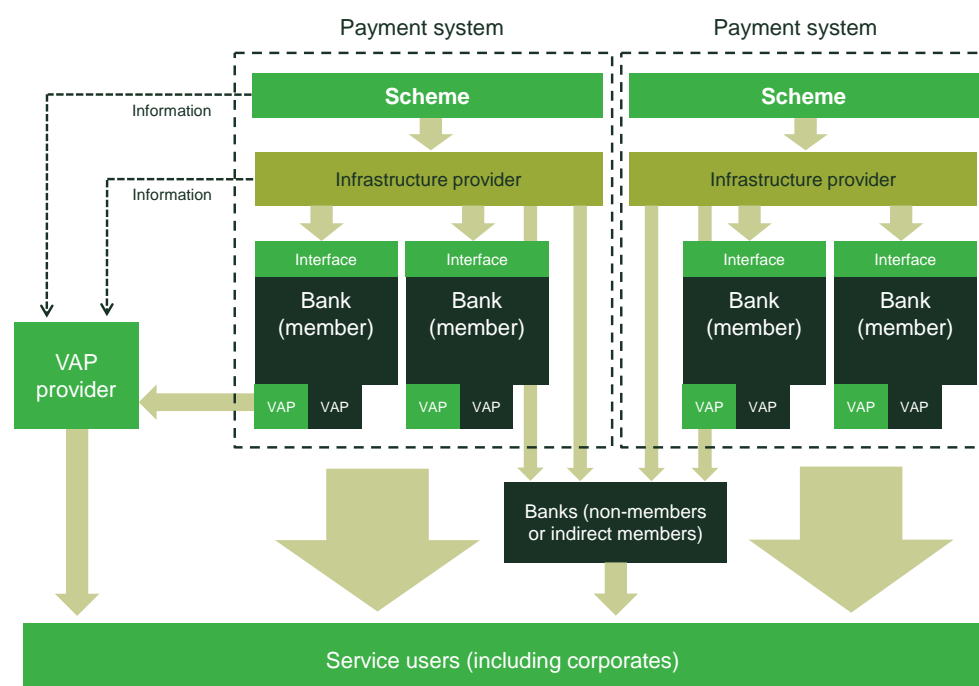
<sup>11</sup> See, for example, Payment Systems Regulator and Ofcom (2014), 'Innovation in UK consumer electronic payments: A collaborative study by Ofcom and the Payment Systems Regulator', November; KPMG (2014), 'UK Payments Infrastructure: Exploring Opportunities', August; London Economics (2014), 'Competition and collaboration in UK payment systems', report commissioned by the PSR; and Oxera (2014), 'Money-go-round: insights into the economics and regulation of payment systems', *Agenda*, May.

<sup>12</sup> Oxera (2015), 'Governance and ownership of payment systems infrastructure', report prepared for VocaLink, November.

<sup>13</sup> See, for example, Bank of England (2000), 'Oversight of Payment Systems', November.

<sup>14</sup> Electronic invoicing allows users to create, send, receive and process invoices and purchase orders online and is a recent move away from paper-based invoicing systems. Electronic invoicing is discussed as a recent innovation in Accenture (2014), 'Review of the International Landscape of Innovation in Payments and Insights for UK Payments', report commissioned by the Payment Systems Regulator, p. 33. RBS, for example, has introduced e-invoicing services. RBS, 'e-invoicing explained: The fast, efficient, secure way to manage invoices', <http://www.rbs.co.uk/corporate/electronic-services/g7/e-invoicing/explained.ashx>, last accessed 15 September 2015.

**Figure 1.1 Overview of the interaction between different players**



Source: Oxera.

For ease of reference, the key terms used in this study are defined in Box 1.1.

### Box 1.1 Glossary of key terms used for the study

**The ‘scheme’ company or ‘interbank operator’**—the organisation responsible for managing and operating the payment system. This involves setting the format of the electronic message (i.e. the technical standard), the rules for processing the payment (e.g. the payment cycle), and procuring processing functions from an infrastructure provider. There is a separate ‘scheme’ company for each of the interbank payment systems. Currently, the scheme company is owned by scheme members, who are also (direct) member PSPs.

**Payment Service Providers (PSPs)**—provide services for the purposes of enabling the transfer of funds—the banks (members and non-members) are the PSPs in Figure 1.1.

**The infrastructure provider**—provides central processing infrastructure for the purposes of operating a payment system to the scheme company under a contract. The central infrastructure comprises a package of systems and services (i.e. hardware and software) used to process funds transfers.

**Value-added products (VAPs)**—in the retail market, banks also provide VAPs on top of the payment service. Some of these products are offered by third-party providers, which compete with banks in this segment of the retail market. Independent VAP providers generally require access to information on scheme and infrastructure standards in order to deliver their products and services.

**Service users**—those who use, or are likely to use, services provided by payment systems. This includes both sides of a payment transaction (i.e. payer and payee).

Source: Oxera, based on Payment Systems Regulator (2015), ‘Market review into the ownership and competitiveness of infrastructure provision’, June.

This study focuses on the payment systems that are ‘designated’ for oversight by the PSR and for which VocaLink provides the underlying infrastructure—i.e. Faster Payments Service (FPS), Bacs and LINK ATM services.<sup>15</sup>

### 1.3 Assessing the current state of competition and innovation

Competition could happen at the different levels of the value chain.

- **Competition among PSPs**—PSPs compete with each other in the context of retail banking, with PSPs developing new VAPs (e.g. RBS emergency cash, Barclays Pingit) in order to retain existing customers and attract new customers. Another relevant example relates to the recent emergence of mobile payments—e.g. competition between Zapp and Apple Pay (a VAP introduced by a non-bank PSP)—with such competition happening on top of the underlying payment systems infrastructure.<sup>16</sup>
- **Competition at the ‘scheme’ level**—a group of PSPs could establish a new ‘scheme’ company for a new interbank payment system, which would compete with an existing scheme company.
- **Competition for the provision of infrastructure services**—a new entrant infrastructure provider could seek to displace the incumbent provider, with the new entrant providing infrastructure processing services to the scheme company.

It is also important to remember that, at the consumer end of the value chain, consumers can choose from several payment methods, depending on the situation. For example:

- for payments over the Internet, most consumers have access to debit and credit cards and other payment products such as PayPal or Zapp (or ‘Pay by Bank app’) in the UK;
- for transactions at a private property (for example, paying a plumber), consumers can generally use cash, debit or credit cards (for example, by calling the office of the service provider and making the payment over the phone), or new mobile payment methods;
- when paying a bill such as a utility bill, consumers can use debit or credit cards, direct debit, credit transfer, or cash (or, in the UK, a service such as PayPoint);
- for payments in a retail outlet, debit and credit cards, and cash are generally available as payment methods.

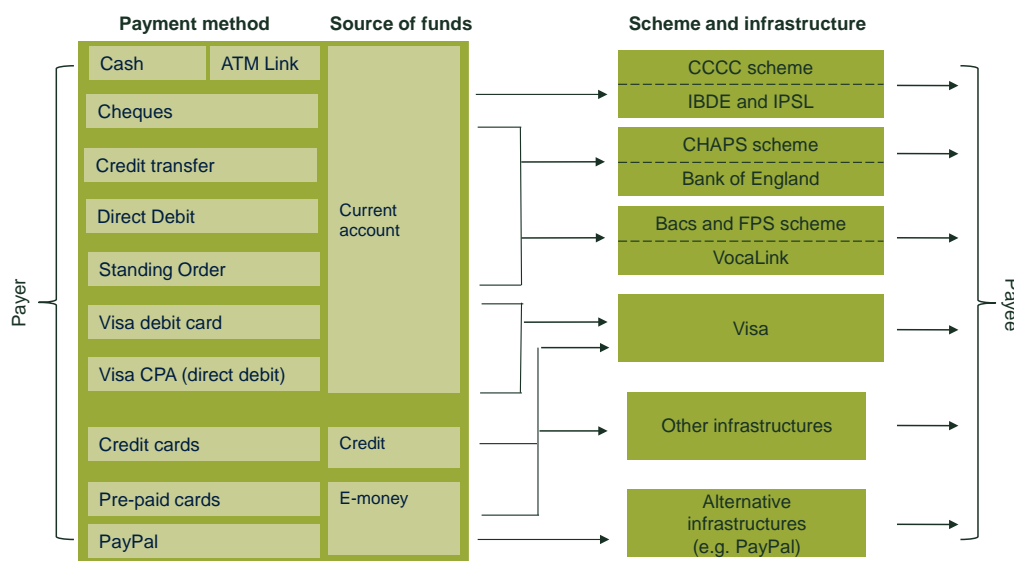
In relation to this latter area in particular, looking ahead, developments in new technology (e.g. Pay by Bank app, which allow consumers to pay retailers using a credit transfer) are expected to allow consumers to use interbank payments for payment at the physical point of sale (e.g. in store), thus competing with card payments.

Increasing choice for consumers would be expected to place competitive constraints on different payment methods. Figure 1.2 provides an overview of the different payment methods available to consumers.

<sup>15</sup> HM Treasury (2015), ‘Designation of payment systems: response to the consultation’, March.

<sup>16</sup> *Financial Times* (2015), ‘UK banks seek to Zapp Apple with digital payment services’, <http://www.ft.com/cms/s/0/4bc7b682-23e0-11e5-9c4e-a775d2b173ca.html#axzz3lnBdDOnd>, July, last accessed 15 September 2015.

**Figure 1.2 Payment products, schemes and infrastructures (based on the UK)**



Source: Oxera.

Given the focus of the PSR market review and where the industry is today, this study focuses on competition for the provision of infrastructure services, unless stated otherwise.

This study examines the processes that led to the current contracts for Bacs, FPS and LINK ATM services, including whether the contract was awarded through a competitive process and the negotiation process leading to the contract renewal. To complement this analysis, the study also examines several market outcomes, including:

- prices over time;<sup>17</sup>
- choice;
- service quality;
- innovation.

Focusing on this latter area in particular, in light of recent technological developments, the promotion of innovation is clearly a key priority in the payment systems market in the UK and other countries. Hence, this study examines the incentives for innovation in the payment systems value chain and the extent to which current incentives align with the priority to unlock future innovations as technology continues to develop.

#### 1.4 VocaLink's vision and developments in Europe

This study is also forward-looking and therefore examines the changes to payment systems regulation proposed in VocaLink's vision, and the possible effect on competition and on incentives for innovation. In addition, it considers these initiatives in the context of the broader developments in payment systems in Europe.

<sup>17</sup> Other types of analysis (such as an international price comparison) are beyond the scope of this report.

### 1.4.1 VocaLink's vision for payment systems

VocaLink's vision proposes to integrate with the European model over time, with the main features of VocaLink's vision summarised in Box 1.2 below.

#### Box 1.2 Features of VocaLink's vision

1. **Making access easier to payment systems:** The vision involves VocaLink developing an indirect access portal called the 'single front door'. We understand that the single front door would allow PSPs to connect directly to the infrastructure (providing an alternative to the current model of indirect access). It would therefore be expected to address concerns raised about indirect access to payment systems. In addition, we understand that the single front door would provide a single point of access to the three main service contracts (Bacs, FPS and LINK ATM services) by providing switching and formatting functionality for PSPs. We understand that this builds on new innovations in access, with aggregator services for FPS for example.
2. **Reducing the barriers to entry and switching for infrastructure providers:** We understand that, in addition to providing indirect access, the 'single front door' would be able to perform a translation function, which would translate a payment instruction originated on a legacy standard (e.g. standard 18 for Bacs) onto the standard used for processing (which could be ISO20022, for example). In theory, this would be expected to avoid the PSPs incurring upfront investment associated with renewing new back office systems (e.g. in order to move to a new standard for the payment system), which may currently act as a barrier to switching away from the legacy standard for example. VocaLink's vision also proposes that the PSR examines the scheme company rules and working practices, in order to ensure that they allow for entry from new entrants that use the SEPA standard.
3. **Reforming the scheme arrangements:** The vision proposes to introduce bilateral contracting between the PSPs and the infrastructure providers, in order to incentivise the infrastructure provider to develop and offer a menu of services to PSPs. The vision explains that this would allow PSPs to opt out of particular services, initiate a unilateral innovation with the infrastructure provider, or allow a subset of PSPs to agree to take forward a collective innovation (thus removing the scheme working practices that may currently restrict the opportunities in this area). In addition, VocaLink's vision proposes that the PSR reviews the role of the scheme companies, with the creation of a standard setting body that is set up to agree the technical standards for infrastructure providers and PSPs, including the operational rules for the industry.
4. **Managing the remaining network effects:** The vision recognises the importance of an industry interoperability code of conduct, as well as a body to coordinate on collective innovation. In this regard, the vision notes that the PSR has established the Payment Strategy Forum to perform this latter role.
5. **Changing the current VocaLink ownership model:** In order to further facilitate competition and to ensure that VocaLink is well placed to respond to the potential risks that may arise in the future payment markets, the vision proposes to expand ownership beyond the current user shareholders.
6. **Potential for competition and innovation:** The product of the evolution of technology and the specific reforms proposed by VocaLink should allow for the further development of competition—both competition *for* the market (i.e. an increase in competitors willing to bid for contracts) and competition *in* the market (i.e. multiple infrastructures directly competing at the same time). This is both consistent with European consolidation through SEPA and removes the barriers to the UK participating within the European market. Greater innovation would be a product of increased competition, as infrastructure providers innovate to compete.

Source: Oxera based VocaLink (2015), 'A vision for future competitive and innovative resilient payment systems', November.

### 1.4.2 Developments in Europe

Over the previous five years, PSPs elsewhere in Europe have experienced significant changes in how payment services are provided, with the introduction



of the Single Euro Payments Area (SEPA) in 2012.<sup>18</sup> The introduction of SEPA was driven by the development of the single currency, with SEPA allowing users to make fast and secure electronic payments between bank accounts anywhere in the euro area.<sup>19</sup> SEPA has therefore created a market with multiple infrastructure providers competing simultaneously to provide payment processing services to PSPs across different eurozone countries. Under the SEPA model, infrastructure providers use the same messaging standard (i.e. ISO20022) in order to exchange information and allow for 'interoperability' between providers.<sup>20</sup> Interoperability is maintained through agreements between PSPs and infrastructure providers, with the agreements ensuring that providers will be able to process SEPA payments and that all bank accounts are reachable.<sup>21</sup> SEPA therefore provides an example of a much larger competitive market for payment services, with interoperability agreements in place between infrastructure providers. It is understood that SEPA allows more than 500m citizens, and over 20m businesses and European public authorities, to make and receive payments in euros, regardless of their location.<sup>22</sup> We understand from VocaLink that some PSPs (e.g. the large UK banks) already process their euro payments in line with the requirements of SEPA, which means that they may already have some of the necessary interfaces with the SEPA systems.

## 1.5 Structure of the report

This report is structured as follows:

- section 2 sets out the current market structure and the economic characteristics of the underlying infrastructure of payment systems, as recognised in previous studies, and the possible effect on competition;
- section 3 examines the state of competition and innovation to date;
- section 4 sets out the prospects for innovation in the future and the incentives for innovation in the payment systems value chain;
- section 5 examines the prospects for competition and the incentives for innovation under VocaLink's vision for a future payment systems market;
- section 6 concludes.

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<sup>18</sup> European Commission (2015), 'Single Euro Payments Area (SEPA)', [http://ec.europa.eu/finance/payments/sepa/index\\_en.htm](http://ec.europa.eu/finance/payments/sepa/index_en.htm), last accessed 20 October 2015.

<sup>19</sup> European Commission (2015), 'Single Euro Payments Area (SEPA)', [http://ec.europa.eu/finance/payments/sepa/index\\_en.htm](http://ec.europa.eu/finance/payments/sepa/index_en.htm), last accessed 20 October 2015.

<sup>20</sup> Interoperability in this context means the processing of transactions across networks or systems. European Central Bank (2009), 'The Payment System: payments, securities and derivatives and the role of the eurosystème', p. 55. Information on EBA clearing is provided in EBA Clearing (2015), 'SEPA Credit Transfer (SCT) service overview', last accessed 3 November 2015.

<sup>21</sup> European Central Bank (2009), 'The Payment System: payments, securities and derivatives and the role of the eurosystème', p. 151.

<sup>22</sup> European Commission (2015), 'Single Euro Payments Area (SEPA)', [http://ec.europa.eu/finance/payments/sepa/index\\_en.htm](http://ec.europa.eu/finance/payments/sepa/index_en.htm), last accessed 20 October 2015

## 2 Current market structure and economics

This section provides an overview of the structure and economics of payment systems:

- the current market structure for payment systems in the UK;
- the economic characteristics of the underlying infrastructure;
- network effects in two-sided markets;
- the economics of standards;
- possible implications for competition and innovation.

### 2.1 Historical drivers of the current market structure

Commercial, regulatory and technological developments have all shaped the current market structure over time.

#### 2.1.1 Commercial and strategic developments

In the late 1960s, the Joint Stock Banks Clearing Committee established the InterBank Computer Bureau (ICB) as an outsourced 'back-office' function to process interbank payments and replace paper-based transactions.<sup>23,24</sup> In the 1980s, ICB was renamed Bankers Automated Clearing Services (Bacs) Ltd, with its membership extended to include building societies. In 2004, Bacs Ltd was rebranded as Voca Ltd (which would be responsible for owning and operating the Bacs infrastructure), following the creation of the Bacs Scheme company as a separate legal entity, as discussed below.

As regards LINK, in the 1980s building societies and other non-bank participants decided that there was value to be gained by creating a shared interbank network of automated teller machines (ATMs), rather than having separate ATM networks. In February 1985, LINK Ltd was established as a joint venture company involving Abbey National, Nationwide Building Society, National Giro, the Co-operative Bank, American Express and smaller building societies. LINK invested in the technology to provide a central switch for the ATM network. The LINK ATM network grew in size over time, as other ATM networks, building societies and banks joined (including Halifax in 1989, RBS and NatWest in 1997 and Barclays in 1998).<sup>25</sup>

More recently, in 2007, Voca Ltd merged with LINK Ltd to form VocaLink. This was in response to the commercial opportunity to deliver the FPS, given the knowledge and expertise of both organisations—as discussed in the box below.

<sup>23</sup> Facts Announcement, 'BACS Payments: 46 years of change at the cutting edge of financial transactions', <http://www.facts-announcement.co.uk/2014/05/03/bacs-payments-46-years-of-change-at-the-cutting-edge-of-financial-transactions/>, last accessed 15 September 2015.

<sup>24</sup> Bacs, 'History of Bacs 1968', [http://www.bacs.co.uk/Bacs/DocumentLibrary/History\\_of\\_Bacs.pdf](http://www.bacs.co.uk/Bacs/DocumentLibrary/History_of_Bacs.pdf), last accessed 13 August 2015.

<sup>25</sup> Batiz-Laso, B. (2009), 'Emergence and evolution of ATM Networks in the UK, 1967–2000', *Business History*, 51:1.

## Box 2.1 Faster Payments Service

Following the Cruickshank review, the OFT (in its 2003 report) raised concerns about consumers losing out on interest income as a result of the standing order 'float'—i.e. as regards Bacs standing orders, the OFT noted that float arises when the money reaches the receiving customer's account up to two working days after it is debited from the paying customer's account (see OFT (2003), p. 6).

To address these concerns, in its first progress report in 2005, the Payment Systems Task Force asked the payments industry to introduce a form of faster electronic clearing, including in relation to standing orders. The recommendation was based on a cost–benefit analysis (CBA), as discussed below.<sup>1</sup>

The Bacs Payment Scheme Limited (BPSL) innovation working group—a working group set up by the task force—considered the cost and demand for a faster payment service. BPSL estimated that the one-off IT development costs would be no more than £65m, although this did not include other supplementary one-off and ongoing costs or the costs for users of payments in amending their systems and procedures. Overall, taking the industry as a whole, the BPSL's CBA showed that:

It is clear that if banks were to impose no additional charges, there is no convincing narrow cost-recovery case. The wider business case, however, shows a significant notional value accruing to the United Kingdom economy, as well as broader benefits such as the reduction of settlement risk through shorter clearing cycles.<sup>2</sup>

The industry agreed to form an 'Implementation Group' to consider how the recommendation for faster electronic clearing could be put into practice. In December 2005, APACS (Associated for Payment Clearing Services) presented proposals to the Task Force confirming an implementation date of November 2007.<sup>3</sup> Following a competitive tendering process, the contract to provide the central infrastructure was awarded to Immediate Payments Limited (IPL), a joint venture company set up by Voca Ltd and LINK Interchange Limited, which later became VocaLink following the merger in 2007.

Note: The Payment Systems Task Force was set up following the Chancellor's pre-budget report of November 2003. It was chaired by the OFT and comprised representatives from the banking, retail, consumer and business sectors. The Treasury and Bank of England acted as observers.

<sup>1</sup> Cost–benefit analysis (CBA) is a systematic process for calculating and comparing the costs and benefits of a particular investment or regulatory policy intervention with the status quo.

<sup>2</sup> Office of Fair Trading (2005), 'First annual progress report of the Payment Systems Task Force', a report prepared for the Payment Systems Task Force by the Office of Fair Trading, May, executive summary and p. 8. <sup>3</sup> Office of Fair Trading (2007), 'Final report of the Payment System Task Force', a report prepared for the Payment Systems Task Force by the Office of Fair Trading, February, p. 2.

Source: Oxera based on Office of Fair Trading (2003), 'UK payment systems: An OFT market study of clearing systems and review of plastic card networks', May; Payment Systems Task Force, a report prepared for the Payment Systems Task Force by the Office of Fair Trading, May; Office of Fair Trading (2007), 'Final report of the Payment System Task Force', a report prepared for the Payment Systems Task Force by the Office of Fair Trading, February; Milne, A. and Tang, L. (2005), 'An economic analysis of the potential benefits and dis-benefits of faster payments clearing', May.

The most recent commercial development was the creation, in 2015, of the LINK scheme as a separate legal entity, distinct from VocaLink (the LINK management was previously part of VocaLink). VocaLink continues to provide the infrastructure services for LINK, which was recently retendered (as discussed in section 3). As such, VocaLink is the infrastructure provider for Bacs, FPS and LINK ATM.

The developments described above may have had an effect on the corporate culture inherent within VocaLink and the incentives that it faces. For example, VocaLink has roots as a shared infrastructure for the entities that are now its customers. This means that, as a commercial entity, it retains a focus on investment, security of supply and price reductions.<sup>26</sup>

<sup>26</sup> Oxera (2015), 'Governance and ownership of payment systems infrastructure', report prepared for VocaLink, November.

## 2.1.2 Regulatory developments

As discussed above, several government and industry reviews have examined the functioning of the market for electronic payment systems. Following the Cruickshank review in 2000,<sup>27</sup> the OFT and the industry set up an industry task force to address some of the concerns raised about competition in UK payment systems, as well as some other concerns regarding the standing order float (see Box 2.1).<sup>28</sup>

One of the early recommendations was for the legal separation of the rule-setting and the infrastructure-provision functions of payment systems. This led to the creation of separate legal entities: the scheme(s) responsible for setting the rules and procuring the processing functions, and the infrastructure provider(s) contracted to provide the relevant infrastructure and payment processing services. In 2003, this development led to the creation of Bacs Scheme Ltd as a separate legal entity from Bacs Ltd (later renamed Voca Ltd), which remained the owner of the underlying infrastructure.<sup>29</sup> Another recommendation to come out of the Payment Systems Task Force was the creation of the FPS, as discussed in Box 2.1 above.

The legal separation of scheme and infrastructure also meant that, in practice, decisions about new products and innovations (that would require access to the underlying infrastructure of payment systems or that would require a change to processing rules) would be taken mainly at the scheme level rather than the infrastructure provider level. A description of the scheme voting requirements and working practices is provided in the box below.

### Box 2.2 Scheme voting requirements and working practices

**Bacs**—the board of Bacs Payment Schemes Ltd consists of an independent directors (including the chair), an executive director and independent director and 13 non-executive directors. The 13 non-executive directors are appointed by their respective member organisation. Their votes depend on the member organisations' transaction volumes. Each non-executive director's share of votes is capped at 22.5%. In matters relating to the public interest, '75% of the eligible votes are required for a motion to be passed.'<sup>30</sup>

**FPS**—the board of Faster Payments Scheme Limited consists of an executive director, three independent non-executive directors (including the chair) and the 10 non-executive directors representing the 'direct members'. The 10 non-executive directors are appointed by their respective member organisation. Each director has one vote. At any general meeting, decisions require a 75% majority of direct members and that the '75% is not less than 50% of the total clearing volume of the payment system.'<sup>31</sup> At board meetings, decisions require a 75% majority of all directors (not only the directors appointed by the direct members) plus at least 50% of the total clearing volume of the payment system and the majority of independent non-executive directors.

**LINK**—the Network Members Council that governs LINK consists of an independent chairman, one LINK executive and 37 member representatives. The 37 member representatives are appointed by their respective member organisation. Voting rights are allocated based on the

<sup>27</sup> Cruickshank, D. (2000), 'Competition in UK banking: a report to the Chancellor of the Exchequer', March.

<sup>28</sup> The creation of the OFT Payment Systems Task Force was announced in the Chancellor's pre-budget report. HM Treasury (2003), 'Pre-budget report', December, p. 50. Office of Fair Trading (2005), 'First annual progress report of the Payment Systems Task Force', a report prepared for the Payment Systems Task Force by the Office of Fair Trading, May; and Office of Fair Trading (2007), 'Final report of the Payment Systems Task Force', February.

<sup>29</sup> Bacs, 'History of Bacs 1968', [http://www.bacs.co.uk/Bacs/DocumentLibrary/History\\_of\\_Bacs.pdf](http://www.bacs.co.uk/Bacs/DocumentLibrary/History_of_Bacs.pdf), last accessed 13 August 2015.

<sup>30</sup> Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems – An Accenture report commissioned by the Payment Systems Regulator', p. 41.

<sup>31</sup> Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems – An Accenture report commissioned by the Payment Systems Regulator', p. 47.

member organisations' transaction volumes while each member representative's share of votes is capped at 15%. 'Vote volumes are split 50/50 between issuers and acquirers with one transaction counting for both the issuer and acquirer.'<sup>32</sup> 'All decisions relating to operations typically require a 50-60% majority of votes for a motion to pass. Interchange issues require an 80% vote.'<sup>33</sup>

In relation to scheme working practices for Bacs and FPS, we understand from VocaLink that, under the current scheme working practices, innovations that require access to the underlying infrastructure of payment systems require the agreement of direct member PSPs at the scheme level.

Source: Oxera, based on Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems – An Accenture report commissioned by the Payment Systems Regulator'.

In terms of more recent regulatory developments, the European Commission has introduced a package of measures that have potentially wide-ranging implications for payment systems across the EU. The key aims of these measures, known collectively as the Payment Services Directive 2 (PSD2), are to level the playing field for different types of payment service providers and to ensure greater consistency of regulatory approaches across the EU.<sup>34</sup> PSD2 focuses on access to current accounts, with the introduction of access conditions to restrict the ability of payment systems to discriminate against service providers, with the aim of promoting a level playing field, competition and innovation in payment systems.

In summary, the legal separation of the rule-setting and infrastructure-provision function of payment systems was the industry's response to concerns raised about governance, competition and innovation in payment systems. Evidently, the reforms have not had their full intended effect, given that several concerns remain about the level of competition and the incentives for innovation in payment systems. In addition, recent developments in the EU (with PSD2, in particular) show that competition must be considered in the context of the wider EU developments.

### 2.1.3 Technological developments

Payment systems have evolved considerably as technology has developed—especially since before the 1960s when interbank payments were paper-based.

In the 1970s, for example, payment instructions were originally sent and received via magnetic tapes. However, the use of magnetic tapes gradually reduced as technology developed, with the introduction of the Bacstel service in 1983—i.e. a new telephone service for Bacs payments.<sup>35</sup>

From the early 2000s, the pace of change was associated with significant advances in technology (e.g. with payment systems becoming more Internet-based), and in particular with the creation of Bacstel-IP (i.e. 'new Bacs', a system that allows users to submit payments via the Internet) and FPS (see Box 2.1).<sup>36</sup>

<sup>32</sup> Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems – An Accenture report commissioned by the Payment Systems Regulator', p. 49.

<sup>33</sup> Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems – An Accenture report commissioned by the Payment Systems Regulator', p. 49.

<sup>34</sup> European Commission (2013), 'Proposal for a Directive of the European Parliament and of the Council on payment services in the internal market', proposal, 24 July.

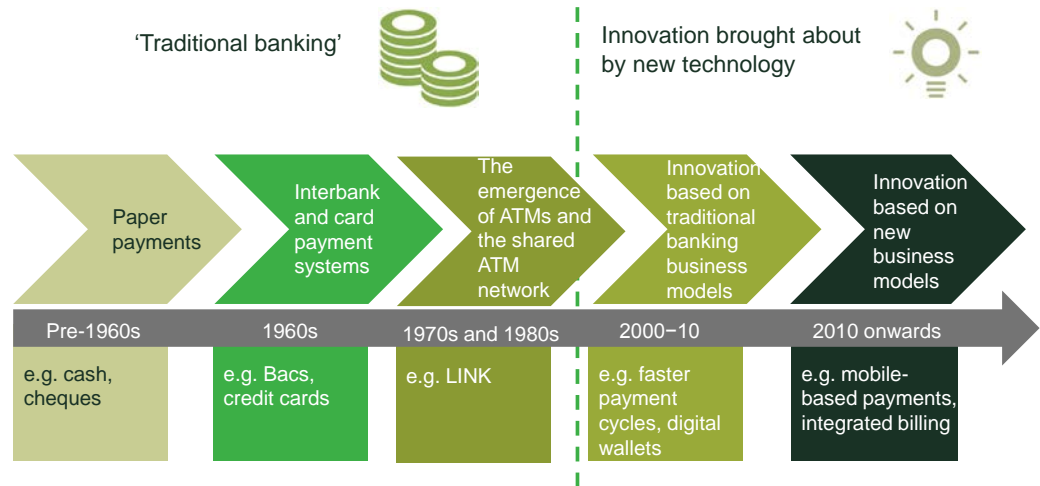
<sup>35</sup> See Bacs, 'History of Bacs 1968', [http://www.bacs.co.uk/Bacs/DocumentLibrary/History\\_of\\_Bacs.pdf](http://www.bacs.co.uk/Bacs/DocumentLibrary/History_of_Bacs.pdf), last accessed 13 August 2015; and KPMG (2014), 'UK Payments Infrastructure: Exploring Opportunities', August, p. 23.

<sup>36</sup> VocaLink (2013), 'Our history of innovation'. Bacstel-IP was introduced in 2002, as described in Bacs, 'Corporate Information', <http://www.bacs.co.uk/Bacs/Corporate/CorporateOverview/Pages/Overview.aspx>, last accessed 15 September 2015.

More recently, payment systems have continued to make significant technological advances with the emergence of mobile payments, for example.

Figure 2.1 provides a high-level overview of the evolution of payment systems.

**Figure 2.1 Evolution of electronic payments**



Note: The figure is purely illustrative, to show the emerging trends; therefore, it does not capture all payment innovations.

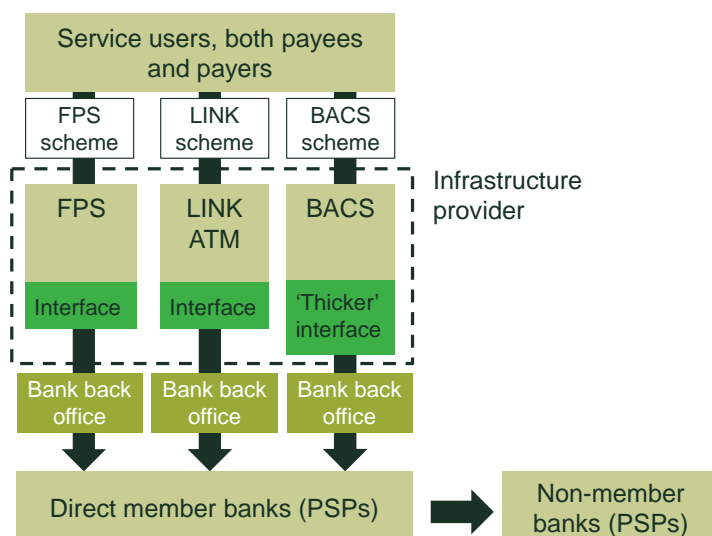
Source: Oxera.

Technological developments have changed the way that payment services are provided. However, while technology has changed, previous investment decisions have had implications for how competition has developed (the choice of messaging format, for example, as discussed below). Technology has continued to develop at a rapid pace with recent initiatives such as the introduction of virtual currencies (e.g. Bitcoin), based on block chain technology.

## 2.2 The current value chain

Figure 2.2 provides an overview of the current structure of payment systems for FPS, Bacs and LINK ATM services—the focus of this study.

**Figure 2.2 Overview of the payments value chain**



Source: Oxera.

It is worth highlighting some relevant considerations and characteristics.

As described above, FPS, LINK and Bacs have evolved very differently. This means that the PSPs' back-office systems are therefore bespoke for Bacs, FPS and LINK, with each payment system having its own unique process chain.

In relation to Bacs in particular, for example, its evolution has meant that the provision for infrastructure for Bacs has a 'thicker' core compared with other payment systems in the UK and elsewhere in Europe. In particular, the processing layer of the value chain includes some of the functions that would otherwise be undertaken by the PSPs, including the connectivity channels between corporates and the infrastructure provider—i.e. Bacstel-IP.<sup>37</sup> In addition, Bacs still uses the original standard (i.e. Standard 18), which was introduced in the 1980s—i.e. when Bacstel was introduced as a telephone service for sending and receiving payment instructions for Bacs, with Bacstel reducing the need for magnetic tapes.<sup>38</sup>

The role of the payment system scheme is another point worth highlighting. As discussed above, the schemes are responsible for setting the rules for the payment system and procuring the processing functions. This means that agreement among the direct member PSPs is required at the scheme company level—e.g. to agree working practices, contract with the infrastructure provider, confirm the rules for the payment system and approve investment in new technology.

The economic characteristics of payment systems have also had a bearing on how the current market structure has developed, as discussed below.

### **2.3 Economic characteristics of payment systems**

A regulator or competition authority may decide to intervene in a market in order to address market failures—that is, situations where the market, left to its own devices, may not provide the best outcome for consumers.<sup>39</sup> Market failures typically arise from the economic characteristics of the sector and so it is important to understand these characteristics for the payment systems value chain.

The economic characteristics of payment systems have been covered extensively in previous studies.<sup>40</sup> In relation to the scheme and infrastructure providers, these characteristics are considered to include:

- large fixed costs;
- economies of scale;
- network effects and two-sided markets;
- the economics of 'standards' and the PSP switching costs;
- ownership arrangements (i.e. the fact that VocaLink is owned by some of the PSPs that collectively own and control various scheme companies).

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<sup>37</sup> See KPMG (2014), 'UK Payments Infrastructure: Exploring Opportunities', August, p. 22.

<sup>38</sup> See Bacs, 'History of Bacs 1968', [http://www.bacs.co.uk/Bacs/DocumentLibrary/History\\_of\\_Bacs.pdf](http://www.bacs.co.uk/Bacs/DocumentLibrary/History_of_Bacs.pdf), last accessed 13 August 2015; and KPMG (2014), 'UK Payments Infrastructure: Exploring Opportunities', August, p. 23.

<sup>39</sup> In general, there are three broad categories of market failure: positive and negative externalities, market power, and asymmetric information.

<sup>40</sup> See, for example, Office of Fair Trading (2013), 'How regulation of UK payment systems could enhance competition and innovation', July, pp. 29–32; and Financial Conduct Authority (2014), 'Payment systems regulation: call for inputs', March.

In traditional infrastructure sectors, such as the water industry or energy networks, it is the presence of large fixed costs and economies of scale that mean that services may be provided most efficiently by the single provider—i.e. as a ‘natural monopoly’. However, the same may not (or may no longer) be true for the underlying infrastructure of the interbank payment systems (e.g. especially with the emergence of the SEPA model in Europe).

In 2013, the OFT (the predecessor body to the Competition and Markets Authority, CMA) observed that payment systems do not appear to have natural monopoly characteristics, and that the level of fixed costs and economies of scale might, in principle, seem to permit competition between rival payment systems. It also noted, however, that the combination of network effects and the ownership of payment systems might have had some effect on the development of competition in payment systems in practice.<sup>41,42</sup> This section therefore focuses on network effects in two-sided markets, and on another issue of relevance to payment systems: the economics of standards. While both of these features are most visible at the scheme level of the value chain, they also affect the development of competition at the infrastructure provider level of the value chain. This section also briefly refers to the possible effect of ownership arrangements on competition; however, this is the subject of a separate Oxera study on the governance and ownership of payment systems infrastructure.<sup>43</sup>

It is worth noting that although payment systems are unique in nature, they share some similarities with other sectors that have undergone major technological changes, including telecoms and the trading and post-trading of securities.<sup>44</sup> These sectors were once considered natural monopolies (as a result of the presence of network effects and large fixed costs); however, advances in technology have facilitated the introduction of competition for many services that were previously provided as a monopoly.

In addition, even in sectors subject to limited technological change, the experience of economic regulation over the previous 25 years is that regulators have typically sought to introduce as much competition as feasible, with competition introduced in the levels of the value chain that do not have natural monopoly characteristics. More recently, economic regulators have started to introduce competition for the market in those areas that remain subject to natural monopoly characteristics. A recent example relates to energy transmission, with Ofgem introducing competition for the market for the development of new offshore transmission generation assets (it is currently consulting on extending this regime to onshore transmission generation).<sup>45</sup> This is in recognition of the limitations of formal price control regulation, in particular in incentivising innovation.<sup>46</sup>

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<sup>41</sup> Office of Fair Trading (2013), ‘How regulation of UK payment systems could enhance competition and innovation’, July, p. 30.

<sup>42</sup> The OFT study notes, for example, that the largest banks, as owners of the infrastructure companies and the largest users of payment systems, have little incentive to switch away from the existing payment systems. The possible effect of user ownership on incentives and competition is examined in a separate Oxera report.

<sup>43</sup> Oxera (2015), ‘Governance and ownership of payment systems infrastructure’, report prepared for Vocalink, November.

<sup>44</sup> See, for example, Oxera (2011), ‘Securities trading and post-trading in the EU: what impact has competition had?’, *Agenda*, May, <http://www.oxera.com/Latest-Thinking/Agenda/2011/Securities-trading-and-post-trading-in-the-EU-wha.aspx>.

<sup>45</sup> Ofgem (2015), ‘Offshore transmission’, <https://www.ofgem.gov.uk/electricity/transmission-networks/offshore-transmission>, last accessed 20 October 2015.

<sup>46</sup> See UKRN (2015), ‘Innovation in regulated infrastructure sectors’, January.



It is therefore important to consider the specific features of payment systems, in order to understand market failures, their drivers and how technology will affect them before deciding on whether a remedy is necessary and, if so, what sort of remedy.

## 2.4 Network effects at the scheme level

Network effects arise in payment systems because the value of the network increases for all existing participants as each additional member joins (participants exert what is known as 'network externalities' on each other). Access to schemes typically exhibits network externalities, since the value of access to a user depends on the number of other users that have access.<sup>47</sup> For example, the value to a bank from joining a scheme that offers direct debits will be high only if there are a number of other banks in the scheme. Under the current industry structure, therefore, network effects are most visible at the scheme level of the value chain and are likely to be the key market failure at this level.<sup>48</sup>

Network effects have several implications for how competition may develop in payment systems. For example, once a scheme is in place, it may be difficult for an alternative scheme to enter by offering competing services, since, on entry, it will have very few connections and may find it hard to establish a critical mass of customers to support entry. Indeed, this was recognised by the OFT in 2013.<sup>49</sup>

To some extent, network effects also affect competition for the provision of infrastructure services, with the competitive arrangements set to maintain the positive network externalities. There are two broad forms of competition that allow the positive network effects to be maintained.

- **Competition for the rights to supply the market.** Competition for the market means that at any time there is only one supplier, with some form of competition to be that supplier—this means that the supplier could change frequently. Competition for the market may be promoted in order to maximise the size of the network and the value (or the economic 'utility') that market participants derive from that network. Indeed, several academic studies conclude that strong network effects imply that competition *for* the market takes precedence over competition *in* the market in order to preserve those positive network effects.<sup>50</sup>
- **Competition in the market.** Competition in the market relates to having multiple suppliers available in the market simultaneously. For example, in Europe, the trading and post-trading of securities involves central counterparties (CCPs) clearing equity trades, with competition from multiple clearing infrastructures.<sup>51</sup> With competition *in* the market, positive network

<sup>47</sup> In the case of credit card and similar schemes, there are two types of users: customers or purchasers (buyers), and merchants (sellers). The network externalities arise *between* these two groups. In other schemes, the network externalities may arise within the same type of user.

<sup>48</sup> Network effects or externalities may be considered a 'market failure'. Market failures are situations where market functioning, left to its own devices, may not lead to the best outcome for consumers. In general, there are three broad categories of market failure: positive and negative externalities, market power, and asymmetric information. For a description of market failures in financial services, see Oxera (2006), 'A framework for assessing the benefits of financial regulation', report prepared for Financial Services Authority, September.

<sup>49</sup> The OFT noted that 'the presence of network effects means that it is difficult for a potential new payment system to be created and grow, as for a new system to be considered valuable, it would need connections to a significant proportion of the existing banks and building societies'. See Office of Fair Trading (2013), 'How regulation of UK payment systems could enhance competition and innovation', July, p. 29.

<sup>50</sup> Economides, N. (2008), 'Public Policy in Network Industries', reproduced in Buccirosi P. (2008), *Handbook of Antitrust Economics*, MIT press, Chapter 13, p. 486.

<sup>51</sup> Oxera (2010), 'Counterparty clearing house user choice: an evolving European landscape', *Agenda*, March.

effects may be maintained through interoperability—i.e. having all participants conform to the same technical standards and operational rules, and agreeing to exchange information (as discussed in section 2.5).

Both forms of competition would require the agreement of standards and operational rules (e.g. the length of the payment cycle). This is discussed in the next section in the context of the economics of standards.

## 2.5 The economics of standards

As discussed above, a payment system involves multiple players of different types. PSPs need to ensure that they have the right interface, as defined by the scheme, to access the services provided by the scheme.

In practice, this means that PSPs that are a direct member of the scheme need to establish their own back-office infrastructure to provide the links between their customer accounts and the central processing infrastructure used by the scheme. Therefore, the back-office infrastructure needs to allow participants to communicate with each other, which is done via electronic message (i.e. with the electronic message allowing for the exchange of payment instructions from one PSP to another, through the infrastructure provider). In this regard, the back-office infrastructure can be considered to serve two broad functions:

- **understand the message**—the PSP needs to be able to understand the electronic message that comes from the other direct members (i.e. direct PSPs). To understand the message, all direct members of the scheme need to agree the format of the message at the scheme level.<sup>52</sup> The format of the message is known as the messaging standard, or ‘standard’ for short. PSPs may face significant upfront costs to configure their systems to the standard set by the scheme company;<sup>53</sup>
- **action the message**—once the message is received, the PSP must be able to action that message in order to complete the service. In this regard, direct bank members need to follow the same rules for processing the payment. Essentially, they have to agree when they will receive a payment instruction and the timeframe for processing that instruction—i.e. the payment cycle.

Both functions have two effects in relation to the provision of the underlying infrastructure of payment systems.

- **Effects on coordination**—coordination is required as scheme members need to agree and implement the same processing rules (see Box 2.2).
- **Effects on competition for the provision of infrastructure services**—the economics of standards affects the demand and supply side of the market.
  - **Supply side**—prospective new infrastructure providers may be unwilling to invest in ‘old’ legacy technologies and standards, if those technologies are, or will soon become, obsolete. This may be most prevalent for Bacs, which is based on Standard 18—i.e. a standard that is not used by other infrastructure providers—leading to a small market of potential infrastructure providers.

<sup>52</sup> Standards can refer to the standardisation of operational capability and rules.

<sup>53</sup> Economides (2008) provides an overview of the economics of standards in the context of ‘standard wars’. See Economides N. (2008), ‘Public Policy in Network Industries’, reproduced in Buccirosi P. (2008), ‘Handbook of Antitrust Economics’, MIT press, Chapter 13, p. 479.

- **Demand side**—there may be an unwillingness to switch infrastructure provider if the process of switching will require the users (i.e. the PSPs) to incur significant upfront investment in new technologies (e.g. upgrading their back-office systems), especially if the ‘old’ technologies and messaging standards are considered to work well.<sup>54</sup>
- In addition, the cost of switching to an individual bank may exceed the expected benefits to that bank—i.e. the investment may not pass a private cost–benefit analysis case (see section 4). This may make it difficult to reach agreement (at the scheme level) to switch infrastructure provider under the current scheme working practices, as discussed in Box 2.2 above.<sup>55</sup>

The existence of a standard can therefore reduce competition by increasing the hurdle for a new entrant, and increasing switching costs for users.

## 2.6 Ownership

Several reports have raised questions about the effect of ownership and governance of certain infrastructure providers on competition. In particular, does the fact that VocaLink is owned by some of the PSPs that are the main direct users of these systems have an impact on competition? Oxera has completed a separate study on the effect of ownership on competition and the incentives for innovation.<sup>56</sup>

Each of the features described above has implications for how competition might be expected to develop in payment systems, and the incentives for innovation.

## 2.7 Conclusion: what are the possible implications?

The current market structure can be explained by commercial, regulatory and technological developments, and the economic characteristics of payment systems. Given these developments, it is easy to understand how this has resulted in the structure of the interbank payment systems that we observe in the UK today—e.g. with payment systems owned by the major users of those systems, which creates a focus on resilience.

The economic characteristics of payment systems can give rise to network effects, which are one of the main ‘market failures’ in payment systems. These are most visible at the scheme level, but also affect competition across the payments value chain—for example:

- at the scheme level, competition from the creation of a new scheme is unlikely, as it would be very difficult for a new payment system to be created and to grow;
- at the infrastructure provider level, competition for the provision of infrastructure services is possible; however, it would require some form of industry solution in order to maintain the positive network effects (e.g. setting a common technical standard).

Other factors may also have had an effect on competition, including, for example, the economics of standards and the previous sunk investment in the

<sup>54</sup> See also, for example, Evans, D. and Schmalensee, R. (2009), ‘Innovation and evolution of the payments industry’, April, pp. 45–50.

<sup>55</sup> The rules for agreement at the scheme level are set out in Accenture (2014), ‘A Review of Governance and Ownership of UK Payment Systems’, report commissioned by the Payment Systems Regulator. Bacs, for example, requires 75% of the eligible votes for a motion to be passed (p. 41).

<sup>56</sup> Oxera (2015), ‘Governance and ownership of payment systems infrastructure’, report prepared for VocaLink, November.

back-office systems. This may reduce incentives to switch provider among some direct member PSPs, which may make it difficult to reach agreement to switch provider at the scheme level. This applies to switching infrastructure provider and the development and adoption of new innovations (see section 4).

Competition may not develop as far as it can on its own. With the presence of network externalities and the economics of standards, participants are unlikely to overcome these effects on their own. This may mean that one firm will become the established participant in the market, with new entrants unable to enter the market. In this context, a regulatory authority (such as the PSR) may need to take the lead in introducing the competitive architecture with relevant access arrangements, or establishing a process through which the technical standards are agreed. This was the case in other sectors, with the regulatory framework facilitating as much competition as possible.

The next section examines the current state of competition in practice.

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### 3 Competition to date

This section examines the current state of competition for the provision of infrastructure services for UK payment systems by examining the processes that led to the current contracts for Bacs, FPS and LINK ATM services. To complement this analysis, this section also examines some market outcomes, including:<sup>57</sup> prices over time; choice; service quality; innovation.<sup>58</sup>

This section also provides a brief overview of developments elsewhere in Europe (i.e. the eurozone), where a different model of competition has developed.

#### 3.1 Examining the contractual processes

The contractual process can be examined by considering the following questions:

- was there a competitive process for services—including at the time when the service was originally introduced and upon renewal of the contract?
- who were the competitors?
- what was the outcome?

In the UK and other countries, competition in the context of payment systems is generally through a competitive tendering process (i.e. competition for the market). We examine both of the following core services contracts:

- FPS;
- LINK ATM.

There was no competitive process for Bacs. This is largely a consequence of its history (as discussed in section 2, it was introduced in the late 1960s) and the fact that Bacs uses ‘old’ technology and a standard that is now obsolete. There may also have been no competitive process because no obvious competitors had emerged at the time. The renewal of the Bacs contract, however, was the subject of commercial negotiations between the Bacs scheme company and VocaLink.

As an additional reference point, the provision of infrastructure services for the cheque and credit clearing (C&CC) payment system was recently subject to a competitive process. The process was overseen by the Cheque and Credit Senior Sponsors Group (SSG) and the PSR, with HM Treasury as an adviser. VocaLink, CGI, NCR, and iPSL were invited to respond, with CGI winning the contract.

An assessment of the contractual processes for each of the core services is summarised below.

##### 3.1.1 FPS

The introduction of FPS was recommended by the Payment Systems Task Force (see Box 2.1 for an overview of the history of FPS).

The contract for the original build and operation of the infrastructure services for FPS was subject to competitive tender—i.e. competition for the market. The

<sup>57</sup> Note that this is not a full competition study.

<sup>58</sup> Innovation is the focus of section 4; therefore, it is only discussed briefly in this section.

Association for Payment Clearing Services (APACS) managed the procurement process and the invitation to tender was issued to all relevant contenders, with Voca and LINK (as a joint venture); Visa; European Banking Authority (EBA); SWIFT; and MasterCard invited to submit a detailed proposal.

The contract was awarded to Voca and LINK—it is understood that the contract was awarded to Voca and LINK based on cost and the quality of the response. The original contract was renewed in January 2014 following bilateral negotiations between the FPS scheme company and VocaLink, with VocaLink benchmarking returns against the returns earned by comparator companies. It is understood that the FPS contract comes up for renewal in 2015.

### 3.1.2 LINK

As discussed in section 2, LINK was first established in 1985 as a joint venture company to provide a central platform for the ATM network.<sup>59</sup> As of 2009, VocaLink has had a rolling contract with each individual bank, with each bank having the ‘right to withdraw’ from LINK by providing VocaLink with 21 months’ notice.

Earlier this year, the new LINK scheme company decided to engage Logica to oversee the tendering process for the renewal of the contract (see section 2 for discussion about the creation of the new scheme company). 2014 VocaLink was identified as the preferred bidder and is currently in exclusive negotiations with the LINK scheme. It is understood that VocaLink was awarded the contract because of the levels of service and price offered (e.g. VocaLink offered a significant discount on current prices).

### 3.1.3 Main observations

There were competitive processes, with several competitors, in relation to the original contracts for the provision of infrastructure services for FPS. The contract renewal was subject to bilateral negotiation, with VocaLink benchmarking returns against the returns earned by comparator companies. There was no competitive process for Bacs; although user ownership of the infrastructure provider may have placed a constraint on VocaLink as the only provider of infrastructure services for Bacs. In addition, the contract renewal for LINK was recently subject to a competitive process, with VocaLink competing against other infrastructure providers.

Overall, the tendering process and negotiation with the scheme companies appears to have led to price reductions. These outcomes are examined more closely in the next sub-section.

## 3.2 Prices over time

2014

## 3.3 Choice

There is choice at several levels of the value chain, including:

- the scheme has the choice of the infrastructure provider for processing payment instructions;

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<sup>59</sup> The emergence of LINK, for example, is documented in Batiz-Laso, B. (2009), ‘Emergence and evolution of ATM Networks in the UK, 1967–2000’, *Business History*, Volume 51, Issue 1.

- consumers have the choice between different payment methods, including interbank payments, payment cards and digital wallets, for example.

These are discussed in turn.

### 3.3.1 Choice at the scheme level

As shown above, the PSPs (i.e. the direct member banks), through the scheme, had a choice of alternative infrastructure providers. Figure 3.3 below shows the competitors for the original tenders for each of the core service contracts that were subject to competitive tender.

**Figure 3.1 Competitors for core services**

✂

### 3.3.2 Choice at the consumer level

There is significant downstream competition and choice within the payments sector. End-consumers can choose from a variety of different payment methods, which has increased with the onset of online payment methods. Key payment methods that end-customers may use include cash; credit transfers; direct debits and standing orders; payment cards (debit and credit); pre-paid cards; mobile payments (e.g. Zapp, or Pay by Bank app, and Paym); E-money (e.g. Bitcoin); and 'digital wallets' (e.g. PayPal).<sup>60</sup>

Consumers will choose their preferred payment methods depending on different functionalities and service offerings. In the context of interbank payment systems, payment cards offer similar services to those offered through the interbank payment systems. For example, payment cards offer the continuous payment authority, which authorises a retailer or organisation to claim regular payments from the consumer's credit or debit card. The continuous payment authority is similar to a direct debit; however, there are important differences (e.g. the latter is subject to the direct debit guarantee, which includes a refund guarantee).<sup>61</sup>

Looking ahead, the availability of choice is expected to increase further, with the emergence of new technology. Pay by Bank app, for example, will allow consumers to make payment via an interbank credit transfer at the physical point of sale (e.g. in store), thus further rivalling payment cards.<sup>62</sup>

Increasing choice for consumers places competitive constraints on different payment methods.

## 3.4 Service quality

There are various measures of service quality in payment systems, such as speed of payment processing and reliability.

A key measure of reliability is the 'service availability of the system'. VocaLink has a monthly target for this metric for each payment system, as set out in service-level agreements, which it has never failed to meet. Figure 3.4 shows the availability percentages averaged over each year.

<sup>60</sup> Financial Conduct Authority (2014), 'Competition and collaboration in UK payment systems'.

<sup>61</sup> UK Cards Association (2015), 'Making regular payments', <http://www.theukcardsassociation.org.uk/individual/making-regular-payments.asp>, last accessed 12 October 2015.

<sup>62</sup> *Financial Times* (2015), 'UK banks seek to Zapp Apple with digital payment services', <http://www.ft.com/cms/s/0/4bc7b682-23e0-11e5-9c4e-a775d2b173ca.html#axzz3oKhMJ62W>, 7 July 2015.

### Figure 3.2 Service availability for the core service contracts



As shown above, VocaLink has consistently delivered high levels of reliability.

### 3.5 Innovation

Several studies have sought to examine the current state of innovation in payment systems in the UK.<sup>63</sup> Two conclusions from these studies are worth highlighting and considering further:

- several aspects of the UK payments infrastructure are already considered to be world class;<sup>64</sup>
- innovations are mainly at the consumer-facing end of the value chain, utilising the existing payments infrastructure, and have not yet ‘disrupted’ the established payment systems.<sup>65</sup>

These observations are examined in turn below.

#### 3.5.1 Several aspects are already considered to be world class

Several studies have examined innovation at the infrastructure level of the payment systems value chain, and across the payment systems value chain.

KPMG noted that, based on industry feedback, several aspects of the UK payments infrastructure are considered to be ‘world class’, with the FPS, Bacstel-IP, Direct Corporate Access and the reachability of the LINK ATM network cited as examples.<sup>66</sup>

In addition, Accenture reviewed the international landscape of innovation in order to provide insights for UK payment systems.<sup>67</sup> Its study identified that improvements in infrastructure have tended to cover three broad areas:

- real-time payments processing—e.g. Bankgirot;
- vision for a cashless system—e.g. Nigeria cashlite;
- adoption of international standards—e.g. ISO20022.

It is worth noting that real-time payment processing is already available in the UK, with the introduction of FPS.<sup>68</sup>

These two recent studies would therefore appear to suggest that UK payment systems have already experienced considerable innovation to date.

<sup>63</sup> KPMG (2014), UK Payments Infrastructure: Exploring Opportunities', August; and Accenture (2015), 'Review of the International Landscape of Innovation in Payments and Insights for UK Payments'.

<sup>64</sup> For example, see KPMG (2014), UK Payments Infrastructure: Exploring Opportunities', August, p. 7.

<sup>65</sup> These observations were made in Payment Systems Regulator and Ofcom (2014), 'Innovation in UK consumer electronic payments: A collaborative study by Ofcom and the Payment Systems Regulator', November, pp. 5 and 6. See also World Economic Forum (2015), 'The future of financial services: how disruptive innovations are reshaping the way financial services are structured, provisioned and consumed', June, p. 51.

<sup>66</sup> For example, KPMG (2014) observes that industry feedback suggests that 'several aspects of the UK payments infrastructure are already considered to be world class.' KPMG (2014), UK Payments Infrastructure: Exploring Opportunities', August, p. 7.

<sup>67</sup> Accenture (2015), 'Review of the International Landscape of Innovation in Payments and Insights for UK Payments', p. 33.

<sup>68</sup> Although gross settlement happens at three intervals on weekdays—settlement in the relevant accounts occurs at daily cycles 07:15, 13:00 and 15:45. As discussed in KPMG, this is not transparent to the customer, who typically observes the transaction as complete almost instantaneously. See KPMG (2014), UK Payments Infrastructure: Exploring Opportunities', August, p. 26.



### 3.5.2 Innovation has arisen at the consumer-facing end of the value chain and have not yet 'disrupted' the established payment systems

The concept of disruption in payment systems is not straightforward. We consider two examples of what could be considered 'disruption', to understand why we may not yet have observed this disruption having an impact on the existing payment systems in the UK:

- mobile payment systems such as M-Pesa;
- Bitcoin (and similar virtual- or crypto-currencies).

These examples are discussed in further detail below.

#### Mobile payment systems such as M-Pesa

In 2007, Safari-com, a mobile network operator, introduced M-Pesa in Kenya. With M-Pesa, users establish an electronic account that is linked to their mobile telephone number. M-Pesa offers a deposit-taking function and a clearing and settlement function.

**Deposit function**—users deposit cash at any M-Pesa shop, which is loaded as e-money that can be used for transactions using Short Message Service (SMS) technology.

**Clearing and settlement function**—the payer can send funds to the payee through SMS, with the mobile carrier infrastructure serving as the payment infrastructure. Payees can then collect cash from any M-Pesa shop.

M-Pesa therefore operates as a person to person (P2P) money transfer service that can also be used to purchase goods and services.<sup>69</sup> As such, M-Pesa effectively provides an alternative payment infrastructure that could potentially compete with existing infrastructure. Box 3.1 provides an overview of why payment methods such as M-Pesa may not have been introduced in other countries, including the UK.

#### Box 3.1 Why has M-Pesa not been observed in other countries?

The question is why a mobile payment system (M-Pesa) has been developed so successfully in Kenya and not in the UK (or other European countries). There are three important factors that are likely to be involved.

- First, the traditional banking system was not as well developed in Kenya. Only a small proportion of the population had access to a personal current account, and this created an opportunity for non-banks and a demand for non-bank payment services.
- Second, regulators allowed mobile telephony companies to introduce a payment system and take deposits. It is unlikely that the regulatory framework in Europe would have allowed mobile telephony companies to offer such a system in Europe without the mobile companies becoming banks (and, therefore, being regulated by the financial regulators). In other words, a difference in the regulatory regime facilitated innovation in Kenya.
- Third, the network operator had high coverage across the mobile users in Kenya. Therefore, they were able to roll out M-Pesa without the requirement for coordination between potential competitors.

Source: Oxera.

<sup>69</sup> M-Pesa is discussed in Evans, D. and Schmalensee, R. (2009), 'Innovation and evolution of the payments industry', April, p. 63; World Economic Forum (2015), 'The future of financial services: how disruptive innovations are reshaping the way financial services are structured, provisioned and consumed', June, p. 46; FCA (2015), 'Call for Input: Regulatory barriers to innovation in digital and mobile solutions', June, p. 2.

### Bitcoin (and similar virtual- or crypto-currencies)

Bitcoin was launched in 2009 and is an example of a virtual currency, which has its own infrastructure. Users can complete transactions using the Bitcoin system without the use of traditional payments infrastructure.<sup>70</sup> The infrastructure of Bitcoin can be thought of as essentially a network of 'nodes' (computers running Bitcoin software) that verify and publish payments on a shared public ledger (a 'block chain').<sup>71</sup> The public ledger works on a unit of account called a 'bitcoin'. Users are able to buy bitcoins with national currencies using conventional payment methods (e.g. PayPal, debit cards).

Essentially, therefore, within the network in which it operates (that is, all the vendors and individuals who accept Bitcoin payment), Bitcoin completely replaces the need for any existing payment system infrastructure, as the system performs the roles ordinarily performed by traditional payments infrastructure:

- **deposit** functions are fulfilled by the fact that the public ledger stores the number of bitcoins on the block chain;
- **settlement and clearing.** The nodes verify payment and ensure that the transaction is published on the public ledger. This means that the Bitcoin infrastructure clears and settles payments in much the same way as traditional infrastructure does.

Bitcoin operates payment infrastructure that is distinct from traditional providers. The UK government is currently examining the potential benefits that digital currencies could bring to consumers, as well as the potential risks presented by the same.

However, currently only around 100,000 merchants worldwide accept the currency, and the total user base is estimated to be around 25m.<sup>72</sup> As a result, if users want to conduct transactions with non-Bitcoin users, they need to convert bitcoins into an alternate (traditional) currency. This service is usually provided by 'bitcoin exchanges', which effectively link the bitcoin ledger with traditional payment methods (which, in turn, rely on existing payment infrastructure). Therefore, short of achieving ubiquity or at least near ubiquity, Bitcoin is unlikely to completely replace existing infrastructure.

Furthermore, Bitcoin and other such virtual currencies are considered to pose some potential risks to users.<sup>73</sup> These issues may reduce the extent to which Bitcoin will be adopted by consumers and banks on a large scale in the future.

This example shows that although Bitcoin is widely regarded as a disruptive technology, it is likely to take a long time before any widespread disruptive effect is observed.

### 3.5.3 Overall consideration of disruption

The examples show that 'disruption' in payment systems is not straightforward and that there are several factors that can explain why 'disruption' may not have been observed on a large scale in payment systems.

<sup>70</sup> See, for example, World Economic Forum (2015), 'The future of financial services: how disruptive innovations are reshaping the way financial services are structured, provisioned and consumed', June; and Accenture (2014), 'Review of the International Landscape of Innovation in Payments and Insights for UK payments: summary findings', report commissioned by the Payment Systems Regulator.

<sup>71</sup> Kopstein, J. (2013), 'The Mission to Decentralize the Internet', *The New Yorker*, 12 December.

<sup>72</sup> Juniper Research (2015), 'The Future of Cryptocurrency'.

<sup>73</sup> HM Treasury (2015), 'Digital currencies: response to the call for information'.

On the other hand, where the current payment systems market has provided opportunities for competition, these seem to have been exploited. For example, over the past decade, competition has arisen from digital wallets such as PayPal. PayPal was originally introduced to allow consumers to avoid sharing payment details with third parties; however, it now also provides a payment infrastructure for internalised payments between two users that hold balances with PayPal.<sup>74</sup> Thus, PayPal provides an infrastructure that can compete with Bacs and FPS for payments where both parties have PayPal accounts.

Overall, therefore, the UK appears to be ahead of other countries as regards the level of innovation, and there are factors to explain why large-scale disruption has not been observed in the UK. However, innovation could grow further with the development of new technologies, and it is therefore important to ensure that incentives are aligned in order to fully exploit the opportunities for innovation (see section 4, which examines the scope for innovation in the future).

### **3.6 Competition elsewhere in Europe**

It is worth remembering that a different model of competition has developed elsewhere in Europe (i.e. in the eurozone), with competition in the market for infrastructure processing services (as discussed in section 1.4 above). In this regard, the experience of SEPA in the eurozone provides a relevant example of a competitive model for payment systems, with the overall gains expected from SEPA evaluated at several billion per year.<sup>75</sup> It may therefore be worth examining whether there are initiatives that would allow for closer integration between payment systems in the UK and the eurozone, in order to allow infrastructure providers and PSPs to operate on a larger scale and realise benefits from being able to access a larger payment systems market. Indeed, we note that some PSPs (e.g. the large UK banks) already process their euro payments in line with SEPA, which means that they may already have some of the necessary interfaces with the SEPA systems. This may therefore assist with closer integration between payment systems in the UK and the eurozone.

### **3.7 Conclusion: what is the current state of competition?**

The interbank payment systems have delivered desirable market outcomes for consumers. The current arrangements have delivered reliable and resilient payment systems.

A competitive process has been undertaken for each of the service contracts (with several competitors), with the exception of Bacs. Prices have fallen for the three service contracts. As explained, there may be some factors (such as switching costs) that may impose some limits on the degree of competition.

A different model of competition has emerged in the eurozone, with several infrastructure providers competing simultaneously to process payment instructions on behalf of PSPs. It may therefore be worth examining whether there are initiatives that would allow for closer integration between payment systems in the UK and the eurozone, in order to allow infrastructure providers and PSPs to operate on a larger scale, and realise benefits from operating in a larger European market.

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<sup>74</sup> Note that the PSR and Ofcom also recognise PayPal as an overlay payment system. See, for example, Payment Systems Regulator and Ofcom (2014), 'Innovation in UK consumer electronic payments: A collaborative study by Ofcom and the Payment Systems Regulator', November.

<sup>75</sup> European Commission, 'Single Euro Payments Area (SEPA)', [http://ec.europa.eu/finance/payments/sepa/index\\_en.htm](http://ec.europa.eu/finance/payments/sepa/index_en.htm), last accessed on 20 October 2015.

Innovation has occurred, with two recent studies suggesting that the UK is ahead of other countries in relation to payment systems innovation.<sup>76</sup> However, there are features of the UK payment system that mean that the relationship between competition and innovation is complicated, and that the technical ability to produce new innovations may not be fully exploited. These are examined in the next section.

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<sup>76</sup> For example, KPMG (2014) observes that industry feedback suggests that 'several aspects of the UK payments infrastructure are already considered to be world class.' KPMG (2014), UK Payments Infrastructure: Exploring Opportunities', August, p. 7.

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## 4 Innovation

The previous section demonstrates that there has been innovation to date. What is more crucial, however, is that the industry is well placed to take advantage of innovative opportunities in the future. This section therefore considers the incentives for innovation across the payments value chain. In particular, it covers the following areas:

- prospects for innovation in the future, with closer integration between payment systems in the UK and Europe;
- incentives for innovation across the payment systems value chain.

### 4.1 Prospects for innovation in the future payments market

With the emergence of innovations leveraging on new technology and innovations from non-bank players in recent years (e.g. mobile payments), there is an important question about whether this trend is expected to continue. This section therefore considers the demand- and supply-side influences faced by payment systems in order to understand what the future payments market might be expected to look like.

#### 4.1.1 Demand-side influences

As discussed in various studies, consumer expectations are rising—not only in relation to security and reliability, but also in relation to the immediacy of payments (e.g. fast) and convenience.<sup>77</sup> This suggests that customer demand for new payment innovations is likely to continue to grow.<sup>78</sup>

#### 4.1.2 Supply-side influences

Several studies have examined the future prospects for technological developments in payment systems.<sup>79</sup> In summary, the main conclusions of these studies are that:

- further developments in new technology will continue to drive the potential for further innovation in payment systems;
- non-bank players (e.g. 'FinTech' companies) are expected to present a greater challenge to the traditional bank players.<sup>80</sup> A recent article in the *Financial Times*, for example, noted that the banks face a struggle to defend their business model against digital disruption, with transaction and payments being one of the activities most likely to be disrupted by new technology.<sup>81</sup>

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<sup>77</sup> For example, Accenture recently noted that the widespread use of smartphones is opening up new territory for mobile payments over the coming years. Accenture (2014), 'Review of the international landscape of innovation in payments and insights for UK payments', report commissioned by the Payment Systems Regulator, p. 10.

<sup>78</sup> Payments UK (2015), 'World Class Payments in the UK Enhancing the payments experience', August, p. 6.

<sup>79</sup> See, in particular, the research project undertaken by the World Economic Forum (2015), 'The future of financial services: how disruptive innovations are reshaping the way financial services are structured, provisioned and consumed', June; Evans, D. and Schmalensee, R. (2009), 'Innovation and evolution of the payments industry', April, p. 53; Sullivan, R.J. and Wang, Z. (2007), 'Nonbanks in the Payments System: Innovation, competition and risk – a conference summary'; and Hall, B.H. (2007), 'Innovation in non-bank payment systems', May.

<sup>80</sup> Payments UK (2015), 'World Class Payments in the UK Enhancing the payments experience', August, p. 5.

<sup>81</sup> *Financial Times* (2015), 'McKinsey warns banks face wipeout in some financial services', 30 September, <http://www.ft.com/cms/s/0/a5cafe92-66bf-11e5-97d0-1456a776a4f5.html#axzz3oKhMJ62W>.

Indeed, several non-bank players already have a presence in payment systems, including PayPal and, more recently, Apple and Google.<sup>82,83</sup>

From the studies examined and recent developments, new technology is expected to create opportunities to bring new innovations to the market, with non-bank players expected to play an important role in this regard.

Thus, taking the demand- and supply-side influences into account, it is desirable to ensure that the incentives across the payments system value chain are fit for purpose and allow the industry to unlock prospective innovations in an environment that is expected to be rich in innovation.

## **4.2 Incentives for innovation in payment systems**

### **4.2.1 General theory**

Incentives to innovate will only be present if the innovator can enjoy sufficient benefits from that innovation, often in the form of increased profitability. Protection of intellectual property can make the creation and exploitation of ideas profitable (by preventing prospective competitors from copying that innovation and entering the market), thereby creating an incentive to innovate.<sup>84</sup> However, several studies note that protection of intellectual property alone often does not provide a sufficient incentive to innovate; therefore, firms frequently seek further benefits, including first-mover advantages, gaining knowledge and exploiting complementary capabilities.<sup>85</sup>

Some studies have sought to examine the relationship between competition and innovation. The most notable of these is Schumpeter (1942), which proposed the theory of 'creative destruction'.<sup>86</sup> Schumpeter considered that firms will continue to innovate in order to continue success as long as there is the threat of being overtaken by the new innovation. This is particularly important in a technological industry, where advancements in technology can make a firm's means of production obsolete. Building on Schumpeter's theory, other studies have considered that the degree of competition in the product market has an inverted-U relationship with innovation.<sup>87</sup> In other words, that there is an optimal level of competition (i.e. between a monopoly and perfect competition) that would maximise the incentives to innovate.

Despite the fact that VocaLink is a technology firm and has a natural incentive to innovate, the incentive alone may be insufficient to ensure technological

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<sup>82</sup> See, for example, Deutsche Bank (2012), 'The future of (mobile) payments: New (online) players competing with banks', December; and World Economic Forum (2015), 'The future of financial services: how disruptive innovations are reshaping the way financial services are structured, provisioned and consumed', June, p. 36.

<sup>83</sup> Accenture also observes that the incumbent position of traditional banks has been challenged in many economies by the emergence of alternative payment providers. Accenture (2014), "Review of the international landscape of innovation in payments and insights for UK payments", report commissioned by the Payment Systems Regulator, p. 13.

<sup>84</sup> See, for example, Kanwar, S. and Evenson, R. (2001), 'Does Intellectual Property Protection Spur Technological Change?'

<sup>85</sup> See, for example, Levin, R., Klevorick, A., Nelson, R. and Winter, S. (1987), 'Appropriating the Returns from Industrial Research and Development'; and Teece, D. (1986), 'Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy'.

<sup>86</sup> Schumpeter, J. (1942), 'Capitalism, Socialism and Democracy'.

<sup>87</sup> This is based on the theory that when the intensity of competition is low (e.g. with a natural monopoly), a firm may face a lower incentive to innovate as it does not face the threat of new entry; similarly, when the intensity of competition is high (e.g. perfect competition), a firm may face a lower incentive to innovate as they may be unable to secure such high profits from that innovation. See Aghion P., Bloom N., Blundell R., Griffith, R. and Howitt, P. (2005), 'Competition and Innovation: An Inverted-U Relationship'.

advancement.<sup>88</sup> In order to provide innovation a party must be not only willing to innovate, but also able. For example, not every firm has the means to fund innovation, however well placed and keen it is to innovate. This is one key reason why economies need well-functioning financial markets to fund such progress.<sup>89</sup>

There are two points to note from the academic literature:

- the relationship between competition and innovation is complicated, but in Schumpeter's view the incentive to innovate is driven by the competitive process (e.g. advancing technology);
- the natural incentive to innovate is a necessary, but not sufficient, condition to promote innovation; having the ability (in particular access to finance) to innovate is also important.

Therefore, VocaLink's natural incentive to innovate may not be sufficient to ensure that innovation develops further—and so it may be desirable to ensure that the structure of the payment systems industry supports any innovation.

#### **4.2.2 Incentives at the scheme level**

The incentives for innovation in payment systems have been documented in several studies.<sup>90</sup> These studies typically focus on the difficulties associated with adopting innovations brought to the market. One commonly cited reason is the coordination failure arising from the network effects that are inherent in payment systems, where it follows that a new innovation may require all PSPs, or, in some cases at least a 'critical mass' of PSPs, to agree to that innovation. Indeed, the scheme companies were created, in part, to fulfil this coordinating function, with schemes setting the working practices that govern how payment systems are used. As discussed in Box 2.2, we understand from VocaLink that innovations that require access to the underlying infrastructure of payment systems for Bacs and FPS in practice require the agreement of the direct member PSPs at the scheme level.

As a consequence of network effects, the pace of innovation is set by the slowest (or the least innovative) participant in the group. This has led to a distinction between two types of innovation: collective versus unilateral (as discussed in Box 4.1).

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<sup>88</sup> Wessel, M. (2012), 'Why big companies can't innovate', *Harvard Business Review*, <https://hbr.org/2012/09/why-big-companies-cant-innovate>.

<sup>89</sup> Hartmann, P., Heider, F., Papaioannou, E. and Lo Duca, M. (2007), 'The role of financial markets and innovation in productivity and growth in Europe', European Central Bank, September.

<sup>90</sup> Office of Fair Trading (2013), 'How regulation of UK payment systems could enhance competition and innovation', July.

## Box 4.1 Collective versus unilateral innovations

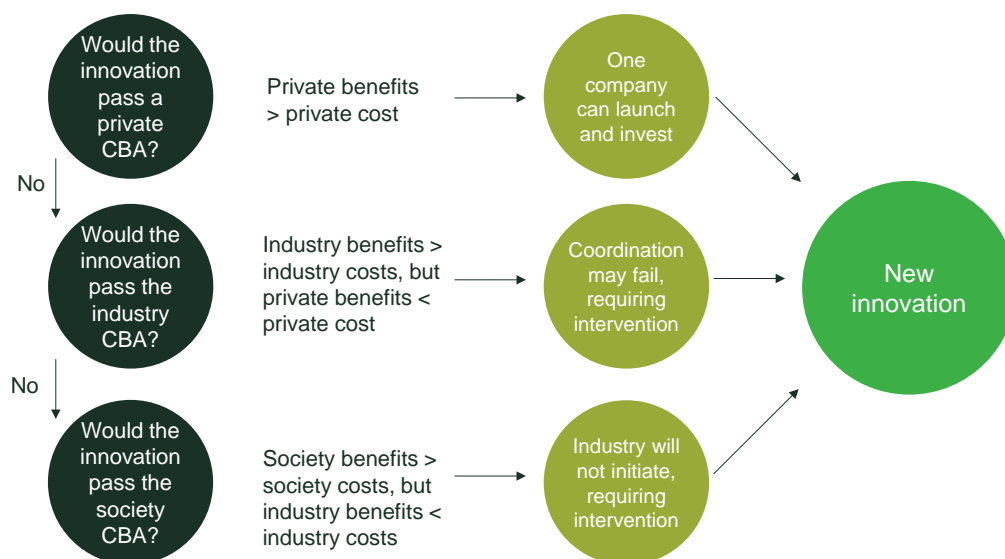
**Collective innovations**—as the name suggests, collective innovations require a significant degree of coordination and collaboration, as they necessitate a critical mass of participants to agree to adopt the innovation.<sup>91</sup> An obvious example is the establishment of a new payment system between an existing set of PSPs which already have a payment system between them, which will require several PSPs to invest in their back-office systems and all PSPs to follow a set of rules for how and when payments are processed. Innovations within an existing scheme, or the creation of a new scheme, tend to belong to this category of innovation.

**Unilateral innovations**—these innovations are at the other end of the spectrum, in that it is not essential to have all participants to agree to an innovation in order to proceed with that innovation. Unilateral innovation can be brought forward by a single company, which will bear the cost of adopting the innovation, as well as receive the benefits. An obvious example is the RBS emergency cash facility which allows current account holders to access money without a debit card, through entering a code at the ATM. Such innovations can be developed by one company on its own, without having to coordinate with other PSPs or the members of the payment scheme.

Source: Oxera.

The incentives underlying collective and unilateral innovations can, at least partially, be explained by considering the cost–benefit analysis case (or ‘CBA case’) for a particular innovation—and asking which organisation incurs the cost of an innovation, and which organisation receives the benefit.<sup>92</sup> Figure 4.1 shows three CBA cases: the private CBA, industry CBA and society CBA.

**Figure 4.1 Private, industry and social CBAs**



Note: CBA, cost–benefit analysis. The private CBA involves the costs borne by, and benefits to, the participant making the investment. An industry CBA includes the private cost and benefits plus any industry-wide externalities. The social CBA includes the industry costs plus any consumer and society-wide externalities.

Source: Oxera.

For most unilateral innovations, it would be expected for the costs to be incurred by one party and that the same party would receive (at least most of) the

<sup>91</sup> The concept of collective innovations was first recognised in Cruickshank, D. (2000), ‘Competition in UK banking: a report to the Chancellor of the Exchequer’, March, p. 66.

<sup>92</sup> The distinction between private and social costs and benefits is discussed in several studies, including Lybecker, K. (2014), ‘Promoting Innovation: the economics of incentives’, July, <http://www.ipwatchdog.com/2014/07/21/promoting-innovation-the-economics-of-incentives/id=50428/>, last accessed on 14 August 2015.



benefits. That party would be expected to consider proceeding with the investment if it passed the private CBA case—i.e. if the private benefits exceeded the private cost.

Collective innovations, however, are inherently more complicated. Left to the freedom of the competitive market, the industry would only consider proceeding with the innovation if it passed the private CBA case for each individual bank (even if the innovation were to pass the industry or society CBA case). However, there are several reasons why a collective innovation that is desirable from an industry perspective may not pass the private CBA case for each PSP and would not be taken forward. Three such reasons are provided below for illustration (note that these are not mutually exclusive).

**Some collective innovations may provide no competitive advantage.** There may be collective innovations that if all or most PSPs are investing in the project (and therefore utilising the innovation) then each individual PSP will gain no competitive advantage. This would therefore limit the private benefits that would be expected to arise from the innovation (e.g. from gaining a competitive advantage and increasing market share). In this regard, the private benefits are small and the collective innovation may not pass the private CBA case.

**Some collective innovations may not take account of previous investment decisions in PSPs' back-office infrastructure.** PSPs are at different stages of their investment cycle, with some PSPs having invested in legacy systems that utilise the 'old' technology. For those PSPs, the cost of the previous investment is 'sunk' and they may be able to minimise their own costs (and therefore maximise their own profits) from continuing to use the legacy systems (as they would avoid further upfront investment costs related to the new innovation). In this regard, the NPV of utilising the 'old' technology may exceed the NPV of investing in the 'new' technology, which may mean that the collective innovation would not pass the private CBA case for those PSPs.<sup>93</sup>

**Some collective innovations may rival a unilateral development of the PSP.** Consider a scenario that involves PSPs collaborating on a collective innovation at the same time that an individual PSP is privately developing its own unilateral innovation.<sup>94</sup> From the perspective of the individual PSP, the private benefits from the unilateral innovation may be contingent on the success of the collective innovation. For example, the individual PSP may be able to maximise the expected returns from the unilateral innovation if it can bring the innovation to the market before the collective effort and capture most of the market for itself. In this case, the individual PSP may have the incentive to 'stall' the collective effort in order to maximise the expected benefits from its unilateral innovation (i.e. the NPV of the unilateral innovation would exceed the NPV of the collective innovation). In turn, this would mean that the collective innovation would not pass the private CBA case. In each of these cases, industry or socially beneficial innovations may not be taken forward, which may act as a source of market failure. However, these market failures can be dealt with in different ways.

In the past, for example, some industry or socially beneficial innovations that provide no competitive advantage have been initiated by government (or government agencies). The most obvious example is the introduction of FPS, which necessitated a government intervention (i.e. through the OFT's Payment Systems Task Force). As discussed in Box 2.1, the positive investment case for

<sup>93</sup> The NPV is defined as the present value of cash flows generated less initial investment.

<sup>94</sup> This could be the case for an innovation that is unilateral but where there are efforts in the industry to coordinate and develop the innovation jointly (e.g. for a new cross-PSP mobile payment).

a faster payment service was made based on the society CBA—i.e. once the value to the UK economy was included.<sup>95</sup> This demonstrates the point that FPS did not pass the private CBA for each individual bank, or potentially even the industry CBA for the banks collectively, which may explain why the banks had little incentive to introduce FPS on their own.

In recognition of this issue, the PSR has decided that the Payment Strategy Forum will assist with performing this coordinating role going forward.

The latter two areas—i.e. some collective innovations may not take account of previous investment decisions in back-office infrastructure and some collective innovations may rival a unilateral development of the PSP—may be dealt with through measures that allow a subset of PSPs to adopt an innovation on the underlying infrastructure (see Box 2.2 for an overview of voting rules and working practices, which Oxera understands may currently prevent a subset of PSPs adopting an innovation).

For certain types of innovation, having just a few PSPs participating may be sufficient. Allowing a subset of PSPs to adopt an innovation would have two effects.

First, it would remove the ‘all or nothing’ approach to collective innovation—i.e. that either all PSPs adopt the collective innovation, or no-one adopts the collective innovation. Collective innovations that pass the private CBA case for some PSPs (but not most PSPs) could be taken forward by those PSPs. For example, certain collective innovations may pass the private CBA case for some PSPs because they have not already committed substantial sunk investment and/or because they operate at a small scale and an equivalent unilateral innovation would not be commercially viable (e.g. new entrant PSPs).

Second, at least in theory, it would reduce the ability of one PSP (or a small number of PSPs) to ‘stall’ an innovation for its own commercial gain (e.g. if it is developing its own unilateral innovation).

Examining LINK ATM, where Oxera understands that the scheme working practices allow a subset of PSPs to adopt a collective innovation, can provide useful evidence to support similar arrangements for Bacs and FPS, for example. The introduction of mobile top-up on LINK ATM in particular is an example of an innovation that involved a subset of the banks (and may be considered partly collective), which was developed outside of the LINK scheme. Box 4.2 provides an overview of some of the innovations developed outside of the LINK scheme.

#### **Box 4.2      Innovations developed outside of the LINK scheme**

**LINK mobile top-up.** In 2002, mobile top-up was introduced on the LINK ATM infrastructure following commercial negotiations among VocaLink, mobile network operators and banks (i.e. card issuers and acquirers). Each mobile network operator has a multi-party contract with VocaLink and the banks, with the contract setting out the commission payable to VocaLink and the banks. This is an example of an innovation agreed with a subset of member banks based on multi-party contracts agreed outside the LINK scheme.

**LINK PIN change.** LINK PIN change allows users to change the card’s personal identification number (PIN) at almost all LINK ATM machines. PIN change is another example of an infrastructure-level innovation that was developed outside of the LINK scheme.

**RBS emergency cash.** In 2007, Royal Bank of Scotland (RBS) introduced the emergency cash facility at RBS affiliated ATMs (e.g. including NatWest). Emergency cash allows current account

<sup>95</sup> See also Office of Fair Trading (2005), ‘BPSL Innovation Working Group report’, report prepared for the Payment Systems Task Force by the Office of Fair Trading, May, p. 308.

holders to access money without a debit card, through entering a code at the ATM. RBS subsequently developed 'GetCash', which builds on this concept by allowing customers to choose the amount of cash they would like to withdraw using a mobile app. The customer is then provided with a cash code that is valid for three hours and can be used to withdraw cash from any RBS affiliate ATM. The mobile app also allows customers to send the code to someone else, which they can use to withdraw cash. This is an example of an innovation that operates on a closed-loop system (at RBS affiliate ATMs), developed outside the LINK scheme.

Source: Oxera, based on interviews with VocaLink; and Office of Fair Trading (2006), 'LINK Access and Governance Working Group report', April, p. 8; and LINK (2015), 'PIN change', <http://www.link.co.uk/Cardholders/Pages/PINchange.aspx>, last accessed on 24 August 2015; RBS (2015), 'Emergency Cash', <http://personal.rbs.co.uk/personal/current-accounts/shared-edb-shelf/shared-emergencycash.html>, last accessed 24 August 2015; RBS (2015), 'How do I use Get Cash', [https://www.supportcentre-rbs.co.uk/app/answers/detail/a\\_id/2151/~how-do-i-use-get-cash%3F](https://www.supportcentre-rbs.co.uk/app/answers/detail/a_id/2151/~how-do-i-use-get-cash%3F), last accessed 24 August 2015; *The Guardian* (2007), 'Partygoers offered emergency cash', December, <http://www.theguardian.com/money/2007/dec/17/currentaccounts.consumeraffairs>, last accessed 24 August 2015.

Another relevant consideration for LINK is that its fees are earned based on processing volumes. Arguably, this provides PSPs and the infrastructure provider with further incentives to develop innovations that increase processing volumes (e.g. LINK mobile top-up). The next subsections consider the incentives for innovation at the other levels of the value chain.

#### **4.2.3 Incentives at the infrastructure provider and PSP levels**

There may be a number of ways of further incentivising innovation at the infrastructure and PSP level.

- Facilitating the adoption of innovation by a subset of PSPs.
- Innovations that focus on meeting the needs of a wider set of users may be further incentivised with a widening of the current ownership arrangements.

These are discussed in turn.

First, the infrastructure provider is well placed to develop services that meet the needs of different sets of users. In particular, it could offer a base level of service (e.g. basic processing) and a 'menu' of other services, which users could choose to opt into. However, we understand that this is not possible under the current scheme working practices (e.g. with the 'all or nothing' approach to innovation). As the infrastructure provider does not have the ability to push valuable innovations to different users (despite being well placed to), valuable innovations are not incentivised sufficiently at the infrastructure provider level.

In addition, and in the case of VocaLink in particular, by widening the ownership beyond the banks and building societies that compete with each other in the downstream market for retail banking services, innovations that focus on meeting the needs of a wider set of users may be further incentivised.

These issues are discussed in the Oxera report on the ownership of VocaLink.<sup>96</sup>

Furthermore, initiatives that further enhance competition would be expected to promote innovation. In an environment with multiple payment infrastructures competing to process payment instructions on behalf of users (under a competition for the market, or a competition in the market model), those competing infrastructure providers would be expected to promote different and

<sup>96</sup> Oxera (2015), 'Governance and ownership of payment systems infrastructure', report prepared for VocaLink, November.

innovative service offerings in order to seek to 'beat the competition' and increase market share.

Changes in respect of each of these areas would therefore be expected to promote further innovation.

In relation to the incentives for PSPs that use the payments infrastructure, it is worth noting that the incentives can be quite different for innovations that build on the existing infrastructure. If access to the underlying infrastructure is made available, then competition would be expected to facilitate innovation (e.g. with the development of new VAPs as has been observed with the emergence of E-wallets, including PayPal).

#### **4.3 Conclusion: what are the prospects for innovation?**

With technological developments, it is apparent that VocaLink has a natural incentive to innovate, given the risks to its business from competitors gaining a technical advantage. It is also important that all market participants have the incentive to realise the benefits of those innovations.

The current incentives across the payments value chain, however, may restrict the scope to invest in new innovations in the following two areas.

First, PSPs inevitably face different incentives to invest in new innovations, with the costs outweighing the expected benefits for some of the PSPs. Such an outcome could arise if, for example:

- the collective innovation provides no competitive advantage;
- the PSP has already committed substantial sunk investment in previous technologies;
- the collective innovation rivals a unilateral development of the PSP.

We understand from VocaLink that, under the current scheme working rules, collective innovations on the Bacs and FPS infrastructure require the agreement of PSPs at the scheme level (see Box 2.2). Thus, if the innovation is not commercially viable for most of the PSPs (i.e. it does not pass the private CBA for the bank concerned), the innovation would not be taken forward. This could mean that potentially valuable industry or social innovations would not be taken forward.

This could be dealt with, at least partially, through a function that coordinates on such innovations (previously, the government performed such a role). The PSR has decided that the Payment Strategy Forum will have this coordinating role.

In addition, this could be dealt with through changes to the scheme working rules to allow the adoption of innovations among a subset of PSPs. The innovations using LINK ATM, which were developed outside of the LINK scheme, provide useful evidence for the types of innovation that may be possible.

Changes to initiatives in these areas would be expected to enhance the potential for innovation going forward and allow the infrastructure provider to pursue the opportunities that are available in an environment with new entrants (i.e. non-bank players) playing an increasing role.

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## 5 Assessment of VocaLink's vision

The previous sections provided an overview of the structural features of payment systems that would be expected to restrict the development of competition and the incentives for innovation.

- One such feature is bank switching costs and the cost of entry for European infrastructure providers (e.g. Equens), which may have to invest in legacy systems to provide processing services.
- We understand that the scheme working practices act to limit the incentives for innovation.

Furthermore, expanding the current ownership may increase the incentives facing VocaLink to push innovations to a wider set of users.

This section provides an assessment of the proposed changes to payment systems regulation in VocaLink's vision, and the extent to which these changes address each of the structural features identified above. The section therefore covers the following areas:

- the economic features of VocaLink's vision;
- the possible effect on competition;
- the possible effect on the incentives for innovation.

### 5.1 Economic features of VocaLink's vision

The box below describes the main economic features of VocaLink's vision.

#### Box 5.1 Economic features of VocaLink's vision

- 1. Making access easier to payment systems:** The vision involves VocaLink developing an indirect access portal called the 'single front door'. We understand that the single front door would allow PSPs to connect directly to the infrastructure (providing an alternative to the current model of indirect access). It would therefore be expected to address concerns raised about indirect access to payment systems. In addition, we understand that the single front door would provide a single point of access to the three main service contracts (Bacs, FPS and LINK ATM services) by providing switching and formatting functionality for PSPs. We understand that this builds on new innovations in access, with aggregator services for FPS for example.
- 2. Reducing the barriers to entry and switching for infrastructure providers:** We understand that, in addition to providing indirect access, the 'single front door' would be able to perform a translation function, which would translate a payment instruction that originates on a legacy standard (e.g. standard 18 for Bacs) onto the standard used for processing (which could be ISO20022, for example). In theory, this would be expected to avoid the PSPs incurring upfront investment associated with renewing new back office systems (e.g. in order to move to a new standard for the payment system), which may currently act as a barrier to switching away from the legacy standard, for example. VocaLink's vision also proposes that the PSR examines the scheme company rules and working practices, in order to ensure that they allow for entry from new entrants that use the SEPA standard.
- 3. Reforming the scheme arrangements:** The vision proposes to introduce bilateral contracting between the PSPs and the infrastructure provider(s), in order to incentivise the infrastructure provider to develop and offer a menu of services to PSPs. The vision explains that this would allow PSPs to opt out of particular services, initiate a unilateral innovation with the infrastructure provider, or allow a subset of PSPs to agree to take forward a collective innovation (thus, removing the scheme working practices that may currently restrict the opportunities in this area). In addition, VocaLink's vision proposes that the PSR reviews the role of the scheme companies, with the creation of a standard setting body that

is set up to agree the technical standards for infrastructure providers and PSPs, including the operational rules for the industry.

4. **Managing the remaining network effects:** The vision recognises the importance of an industry interoperability code of conduct, as well as a body to coordinate on collective innovation. In this regard, the vision notes that the PSR has established the Payment Strategy Forum to perform this latter role.
5. **Changing the current VocaLink ownership model:** In order to further facilitate competition and to ensure that VocaLink is well placed to respond to the potential risks that may arise in the future payment markets, the vision proposes to expand ownership beyond the current user shareholders.
6. **Potential for competition and innovation:** The product of the evolution of technology and the specific reforms proposed by VocaLink should allow for the further development of competition—both competition *for* the market (i.e. an increase in competitors willing to bid for contracts) and competition *in* the market (i.e. multiple infrastructures directly competing at the same time). This is both consistent with European consolidation through SEPA and removes the barriers to the UK participating within the European market. Greater innovation would be a product of increased competition, as infrastructure providers innovate to compete.

Source: Oxera based on VocaLink (2015), 'A vision for future competitive and innovative resilient payment systems', November.

It is apparent that VocaLink's vision for the development of competition in payment systems would at least partially rely on the success of the 'single front door' access portal (which provides access to the underlying infrastructure of payment systems). It is therefore worth spending time examining the economic features of the single front door access portal in particular.

#### 5.1.1 The single front door access product

VocaLink would provide the single front door access solution, which we understand would work by translating a payment instruction on a legacy message format (e.g. Standard 18) into a payment instruction on a new format (e.g. ISO20022). The proposal would mean that PSPs would no longer have to use the same message format as that used to clear the payment instruction at the infrastructure processing level of the value chain. In other words, a PSP could raise payment instruction based on the legacy messaging format and this would be translated into the new messaging format for payment processing at the infrastructure level of the value chain and then translated back to the legacy messaging format for the receiving PSP to action.

The clear advantage of such an approach is that it would allow other European infrastructure providers to enter the market (e.g. those that process payments on the ISO20022 standard). This would therefore enhance competition for the market for the three main service contracts.

We understand that the single front door would be similar in functionality to new innovations in access to payment systems, with the recent development of aggregator services. Aggregator services allow a PSP to connect to a technical aggregator that combines demand from several PSPs, allowing that PSP to benefit from economies of scale. This would therefore allow a PSP to access the underlying infrastructure of payment systems at a lower unit cost than it would be able to achieve if it was a direct member of the scheme.

Indeed, it is noted that various initiatives are already underway in this area, with a competitive market developing for aggregator access solutions. Indeed, the Faster Payments Scheme Limited company recently published a study that

noted that there is market space for multiple aggregators, under conservative assumptions, and that a competitive market for access is sustainable.<sup>97</sup>

There are two important distinctions to draw from the general aggregator services, in relation to the single front door.

- The single front door would provide aggregation services for all schemes (including CHAPS), as well as SEPA and SWIFT payments, rather than an individual scheme (which appears to be the current model).
- The single front door also provides a translation function, translating a legacy messaging standard to a new messaging standard for payment processing. It is this function that will increase the scope for competition for infrastructure provider services.

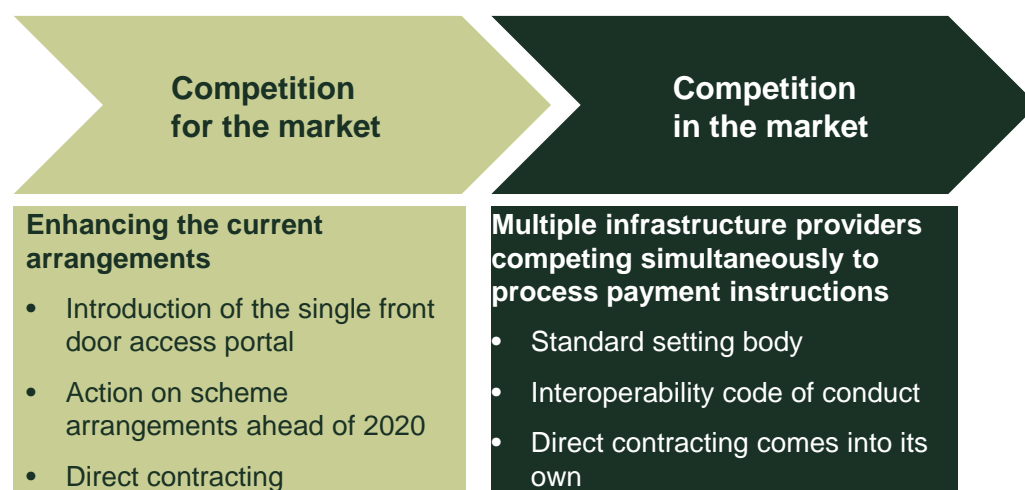
There may also be a further question about how liquidity and credit risk would be dealt with under the single front door (i.e. this relates to the risks that arise when payments are credited to recipient accounts before interbank settlement has taken place at the Bank of England). In particular, there is a question about whether a new entrant PSP would be required to pre-fund its payments with cash held at the Bank of England.<sup>98</sup> We note that such decisions are outside of the control of VocaLink; as such, we understand that the current scheme arrangements for pre-funding would continue to apply.

The next subsection examines the possible effects on competition.

## 5.2 Possible effects on competition

At a high level, the changes to payment systems regulation proposed in VocaLink's vision could be considered as promoting two models of competition, as set out in the figure below.

**Figure 5.1 Economic features of VocaLink's vision**



Source: Oxera based on VocaLink (2015), 'A vision for future competitive and innovative resilient payment systems', November.

<sup>97</sup> See, for example, Accenture (2015), 'Faster Payments New Access Model: creating a competitive market in access services for real-time, 24/7 payments', report on the UK economics of 24/7 aggregation services for real-time payments, commissioned by Faster Payments Scheme Limited, p. 3.

<sup>98</sup> Liquidity and credit risk are discussed in Bank of England (2015), 'The Bank of England's supervision of financial market infrastructures – annual report', March.



### 5.2.1 Competition for the market

The most immediate reforms are intended to enable competition for the market, when the contracts for the three core services are due for renewal. There are three important economic features that could enhance the level of competition during the contract renewal process, as follows.

#### 1. The access solution (or the 'single front door'), as described above.

VocaLink is developing the single front door access solution, which would be expected to enhance competition in the following ways:

- It removes any barriers to entry to switching to the new standard that may arise at the PSP level of the value chain. As previous investment in PSP back-office systems may mean that investing in a new standard may not pass the private CBA case for all direct member PSPs (as discussed in section 4). Without such a solution, all PSPs would need to migrate to a new standard at the same time. This solution introduces choice for PSPs: it could allow some direct member PSPs to choose to upgrade their back-office systems (e.g. to align with investment cycles) and connect directly to a new provider's infrastructure, while other PSPs could choose to route payment instructions through the 'single front door' access solution for payment processing.
  - It removes any barriers to entry for prospective new entrant infrastructure providers seeking to compete for the core service contracts. As discussed in section 2, in the current situation, prospective new entrant infrastructure providers may have to invest in obsolete systems in order to compete for the core service contracts—e.g. Bacs, which uses Standard 18. The access solution would remove such a barrier to entry, by enabling new entrant infrastructure providers to use their existing systems (e.g. European players such as Equens).
- 2. Changing bank ownership.** As discussed in the Oxera report on VocaLink's governance and ownership, by introducing accountability to unconnected outside investors, there would be a strengthening of the incentive to operate as a normal commercial entity.<sup>99</sup> This may further assist the development of more competition in the market for the provision of payments systems infrastructure, to the benefit of potential new infrastructure providers and their customers.
- 3. Direct contracting and the creation of a new industry interoperability code of conduct and a standards body.** PSPs would be able to contract individually with the infrastructure provider, with a menu of services that they could choose to contract from the provider. This can further facilitate innovation (as explained in section 5.3). Under a direct contracting model, direct member PSPs would still need to agree on the message format and follow the same processing rules, as discussed in section 2. This is to ensure that they can *understand* the message and *action* the message. This requires PSPs to coordinate, which could be achieved through a new industry interoperability code of conduct, as well as through a new standards body.<sup>100</sup>

<sup>99</sup> Oxera (2015), 'Governance and ownership of payment systems infrastructure', report prepared for VocaLink, November.

<sup>100</sup> Note that the European Commission has provided guidance on the use of technology pools in technology sectors. While this is not directly comparable to a standard setting body, it provides some useful principles that a standard setting body could follow, including open participation, safeguards against the exchange of sensitive information, the principles of safe harbour against Article 101 infringement, for example. European Commission (2014), 'Guidelines on the application of Article 101 of the Treaty of the Functioning of the



Taken together, the changes to payment systems regulation proposed in VocaLink's vision would be expected to enhance the current model of competition for the market for FPS and LINK, and allow for competition for the market for the provision of infrastructure services for Bacs, for the first time.

Indeed, one of the main advantages of the immediate reforms proposed by VocaLink for the contract renewal is that, if successful, it would enhance competition in an incremental and low-risk way—e.g. without mandating that banks upgrade their back-office infrastructure at the same time. In addition, it would provide the PSR with a platform from which it could reassess whether further competition reforms are necessary, in order to remove any remaining barriers to entry, for example.

However, two additional points are relevant.

First, the PSR or another third party may need to design (or at least be comfortable with) the competitive framework for the competitive tendering process for the three core service contracts in 2020. Indeed, as discussed in section 3, the PSR was involved in the recent C&CC contract renewal (with the PSR involved and HM Treasury as an adviser) and the recent LINK contract renewal (with Logica overseeing the competitive tendering process). This would provide new entrant infrastructure providers with additional assurances that the competitive process would be conducted on a level playing field.

Second, there is a question about whether prospective competitors to the single front door would require access to information on standards (e.g. guidance on the format of the messaging standard) or intellectual property to provide the interface with the PSPs and corporates (e.g. in relation to the underlying code). In relation to standards, we understand that the scheme company owns this information and would be responsible for providing such information to new entrants. As regards intellectual property held at the infrastructure level, we understand that VocaLink is not obligated to share intellectual property, as such information could be replicated from information held by the scheme. Access to this information would therefore be subject to commercial negotiations.

### **5.2.2 Competition in the market**

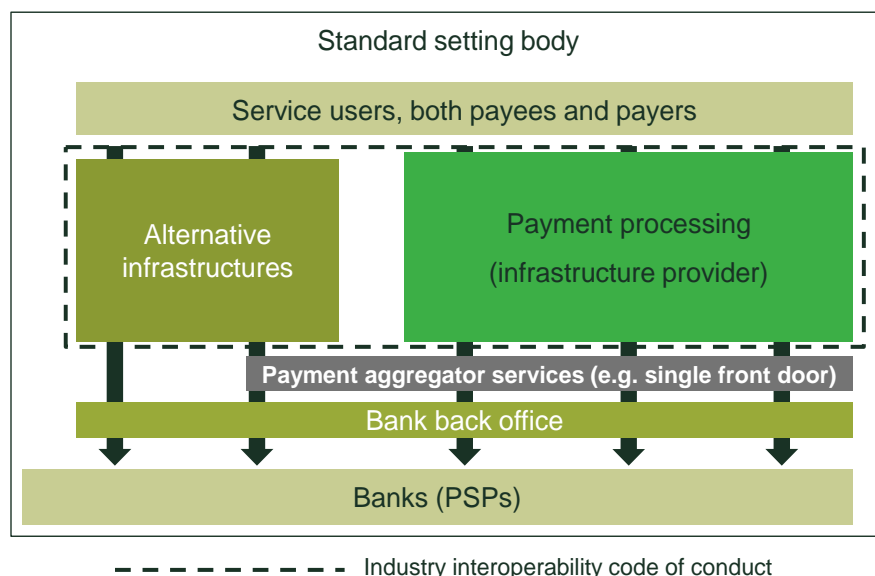
The reforms proposed for competition for the market would provide a platform and further evidence base from which further competition reforms could be introduced—i.e. taking account of the evidence gathered from the competition for the market and a cost–benefit analysis.

To this end, VocaLink's vision provides two additional proposals, which would allow for competition in the market:

- an interoperability code of conduct among competing infrastructure providers. Note that the precedent from telecoms is that telecoms providers are mandated to provide interoperability of networks;
- in addition, the standard setting body introduced in 2020 would continue to play an important role in ensuring that infrastructure providers and PSPs continue to coordinate—e.g. so that PSPs continue to action messages in the same way.

Figure 5.2 below provides an overview of VocaLink's proposals in this area.

**Figure 5.2 VocaLink’s vision for a future operational model with competition in the market**



Source: Oxera based on VocaLink (2015), 'A vision for future competitive and innovative resilient payment systems', November.

VocaLink’s vision would allow for closer integration with the European SEPA market, which is based on a similar model of competition in the market, with multiple infrastructure providers competing simultaneously to process payments on behalf of PSPs. Indeed, we understand from the VocaLink vision that some PSPs (e.g. large UK banks) already use the SEPA systems in order to process their euro payments, and may therefore have some of the interfaces with the SEPA systems. This may therefore assist with integration with the competitive model in place elsewhere in Europe. In addition, the introduction of a mechanism that allows for interoperability between the UK and the European messaging standard (e.g. for the smaller PSPs with no SEPA interface) would be expected to further assist with moving towards such a model, as recognised above.

An additional point to note is that, over time, the single front door would be expected to reduce the distinction between the separate scheme services, with PSPs instead presented with the choice of payment processing cycle—e.g. same-day versus three-day payment processing, rather than FPS versus Bacs.

### 5.3 Possible effect on incentives for innovation

The PSR has already established a Payment Strategy Forum, in order to address the market failures associated with network effects. This would be expected to provide the mechanism through which innovations that pass the industry or society CBA case (but not the private CBA) would be delivered and would be expected to enhance innovation. In addition to the Payment Strategy Forum, VocaLink’s vision contains four proposals that would be expected to further enhance innovation in payment systems.

**Changes to scheme working practices.** As we understand from VocaLink (and discussed in VocaLink’s vision), under the current scheme arrangements, a new innovation (e.g. a collective innovation, or a non-core product) that would require access to the underlying infrastructure of the payment system would

necessitate the agreement of the direct member PSPs.<sup>101</sup> As established in section 4, this means that these types of innovation would only be pursued and implemented if the innovation passed the private CBA case for most of the direct member PSPs. As a result, some valuable innovations may not be implemented.

Reforming this aspect of the scheme arrangements would be expected to make it easier for a subset of direct member PSPs (i.e. the PSPs for which the innovation has passed the private CBA case) to proceed with a new collective innovation, thus removing the potential barrier to certain types of collective innovations or the development of non-core innovations that may have existed in the past. An example is some of the innovations that have been developed on the LINK infrastructure by a number of PSPs outside of the LINK scheme (see section 4).<sup>102</sup> In addition, the proposed change would be expected to remove the ability that some PSPs may currently have to stall an innovation for their other benefit—e.g. if they are pursuing their own initiative in broadly the same area.

**Introduction of a standards body, an industry interoperability code of conduct and direct contracting.** Similarly, building on the changes to scheme working practices, moving towards a direct contracting model (where infrastructure providers contract directly with PSPs individually, rather than through the scheme company) would enable PSPs to opt in or out of particular non-core services, for example. Again, this would be expected to enhance innovation.

**Access and competition for/in the market.** Increasing competition for the market for the three core contracts would be expected to enhance innovation. This is because VocaLink and potential new entrants would be required to bid for contracts, based on the service offered and the price, and would thus have the incentive to develop new innovative propositions in order to win the contract (in order to improve service to users or reduce costs of operating the infrastructure).

The changes proposed in VocaLink's vision would also allow for the introduction of a model of competition in the market (should this be assessed to deliver better market outcomes). Having infrastructure providers competing simultaneously in the market would be expected to push innovation, as infrastructure providers seek to innovate to attract and retain customers.

**Divestment of ownership.** The effect of divestment on the incentives to innovate is twofold.

First, by widening the ownership beyond the banks and building societies that compete with each other in the downstream market for retail banking services, innovations that focus on meeting the needs of a wider set of users may be further incentivised. Divestment of ownership, for example, may enhance the incentive to push innovations that are suited to different business models, especially in a future payments market where new entrant PSPs (e.g. from the

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<sup>101</sup> The rules for agreement at the scheme level are set out in Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems', report commissioned by the Payment Systems Regulator. Bacs, for example, requires 75% of the eligible votes for a motion to be passed (p. 41). For FPS, the rules are as follows. 'Decisions from any general meeting will be determined by a 75% majority of direct members i.e. members of the company and where that 75% is not less than 50% of the total clearing volume of the payment system. Decisions at board meetings require at least 75% of directors to approve, plus votes from member appointed directors covering at least 50% of clearing volume, plus the majority of independent non-executive directors to approve.' Accenture (2014), 'A Review of Governance and Ownership of UK Payment Systems', report commissioned by the Payment Systems Regulator, p. 47.

<sup>102</sup> Several innovations have been developed outside the LINK scheme through multi-party contracts with the direct member banks. The most notable example is LINK mobile top-up. It is understood that this involves a multi-party contract for each mobile network operator, VocaLink, and issuers and acquirers.

‘FinTech’ companies) are expected to present a greater challenge to the established retail banks, as discussed in section 4.

Second, the introduction of external equity capital will provide financial resources for innovation.

These effects are discussed in the Oxera report on governance and ownership of the payment systems infrastructure.

#### **5.4 Conclusion: overall assessment of VocaLink’s vision**

The changes to payment systems regulation proposed in VocaLink’s vision address the structural features of the payment systems that have the potential to restrict the development of competition and the promotion of innovation, including:

- the single front door, as described in the vision, which has the potential to reduce bank switching costs and the cost of entry for European infrastructure providers (e.g. Equens). This would be expected to enhance competition for the existing contracts for the provision of infrastructure services for Bacs, FPS and LINK ATM;
- divestment of ownership, which grows VocaLink’s incentive to compete and to meet the demand of a wider set of interests;
- removing some of the constraints that may act to limit the incentives for innovation, thus enhancing the incentives for innovation across the payments value chain.

In relation to this latter area in particular, the vision would be expected to:

- make coordination easier to achieve—e.g. innovations that were once considered collective innovation (in that direct member PSPs would have to agree) could be introduced by a subset of PSPs, underpinned by a competition platform maintained by a new Standards Body and an industry interoperability code of conduct. Similarly, the Payment Strategy Forum provides a mechanism through which innovations that benefit industry and society are taken forward;
- provide the infrastructure providers with the incentive to push unilateral innovations—e.g. through access and competition for the market;
- provide PSPs with the incentive to develop their own innovations in order to gain competitive advantage against other PSPs—e.g. a subset of PSPs could agree to an innovation.

In addition, the VocaLink vision proposes to move towards a competitive model that aligns with SEPA, with multiple payment processors competing simultaneously to process payments on behalf of PSPs. We note from the VocaLink vision that some large PSPs in the UK may already have some interfaces with the SEPA model in Europe, in order to process their euro payments. This may therefore assist with moving towards the competitive model in place in the eurozone. In addition, having a mechanism in place to allow for interoperability between the UK and the SEPA messaging standard (e.g. for the smaller PSPs with no SEPA interface), as proposed under VocaLink’s vision with the creation of the single front door, would be expected to further assist with moving towards such a competitive model. Such a move would be expected to create benefits to service users from infrastructure providers being able to operate on a larger scale in a larger European market.

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VocaLink's vision would therefore be expected to increase competition and enhance the incentives for innovation across the value chain.

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