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CHAPTER 3: CONVERGENCE BETWEEN E-PAYMENT AND COMMUNICATIONS SECTORS

by Malte Krueger

1 INTRODUCTION

Deregulation, convergence, the rise of the internet and the emergence of mobile telephony have forced telecommunications operators (TOs) to re-think their business models. Their traditional activity of transporting information has become a commodity business threatened by new entrants. Faced with eroding margins on their core business, and a falling market share at home, they are seeking new markets providing better margins in order to maintain revenue growth. Equally, mobile operators face falling margins on mobile calls and rising financing costs for the installation of the new 3G networks. Of the several possibilities, the financial services sector offers TOs the opportunity to exploit synergies in their existing customer services and billing, payment and settlement capabilities.

Increasing liberalisation of the banking sector enables new entrants to offer innovative services to consumers. Increased competition for banks may increase deregulatory pressure on the banking world, with different services (payments, securities, insurance, etc.) requiring different regulatory regimes. Already, the proposed Electronic Money Directive limits to a minimum the burden placed on new entrants specialising in retail payment systems by applying only the relevant parts of general banking regulation to them. The participation of TOs is likely to increase competition and reduce bottlenecks. Customers will become less dependent on bank branches, automatic teller machines and traditional bank-based payment systems. Indeed, TOs may be able to compete more efficiently than incumbents in areas such as cross-border credit transfers.

The issue of standardisation of retail payment systems is a complex one. On the one hand, universality of use favours consumers and some suppliers, whereas on the other, innovative solutions are frequently the result of exploiting proprietary technologies. The dilemma is even greater in a networked environment where the first-mover advantage may be unassailable. In practice, initial market fragmentation rather than initial dominance would favour an equitable outcome, and this could be the case if mobile operators represented the main body of new entrants.

In addition, a stronger involvement of these operators in payment systems would argue for a greater degree of standardisation for recording and transferring billing information. Roaming might require co-operative solutions (including a clearing-house) or the use of intermediaries. Co-operative or centralised solutions raise the question of how inter-carrier fees (which have a lot in common with interchange fees used by banks or credit card companies) should be determined. Thus, new issues will arise that may have an impact on regulatory and competition policy.

The study will pursue the two aspects of market entry and standardisation discussed above, in order to identify potential bottlenecks in the provision and usage of services. The work will consist of:

- a comparison of liberalisation policies in telecommunications and banking sectors, in the light of the partial convergence between the two, with a view to exposing entry barriers and bottlenecks in the effective development of services in payment systems markets;
- an assessment of the role of standardisation in retail and wholesale payment operations, and a discussion of the relevant policy options in the light of future use scenarios.

2 COMMON ELEMENTS OF TELECOMMUNICATIONS AND PAYMENTS

Telecommunications and payment networks have a lot in common (see Table of Figure 1) Both types of networks are basically communication networks that allow the transmission of certain types of data. In both cases there have been large established networks that enable people to transfer information or value. In the case of telecommunications there is (or was) often one large network provider with a dominant network (infrastructure), for instance AT&T in the US and Deutsche Telekom in Germany. In the case of money nowadays, the dominant payments network is jointly run by the central bank and the commercial banks. All these networks are based on certain standards that allow the transmission, receipt and interpretation of signals sent through the network. Finally, in both cases there are subsidiary networks, such as cellular phone networks or credit card and e-money networks, that compete with the dominant network.

Figure 1: Payment and Telecommunications Networks

Principle Components
Established infrastructure Technical standards Subsidiary networks/ Value added systems
Elements of Open Access
Use the same technical standard/Compatibility (technical aspect) The right to access the dominant network (legal aspect) Access prices are not prohibitive (economic aspect)

Both, telecommunications and payment networks are characterised by network effects (see Box 1). That means that the utility of using a certain network is a function of the number of users. A telephone network that can connect its user only to very few other people is of little use just like a payment system that allows you to make payments only to a handful of people or institutions. Thus, the size of the network matters and this gives the old incumbent networks a very strong market position.

If the customer of a new payment service provider cannot transfer money to other people’s accounts or if this involves high fees, there is an incentive to switch to the payment network with the largest number of users. Thus, unless a new provider can connect to the established payment system it will be hard to compete.

In the case of telecommunications, it may seem that new mobile competitors rely on their own independent network. However, if they can not connect their networks with the existing network they are unable to compete with the firm that runs the existing network because customers would only communicate within the new network. It is the chance of reaching all customers of the established network that gives new competitors the possibility to compete in the market. If the two networks can be linked, from the point of view of the customer there is just one big network that can be accessed via different providers.

Thus, the crucial property that makes network competition possible is open access. Open access has three elements:

- New entrants must have the right to access the network (legal aspect).¹
- They must be technically capable to do so (technical aspect).
- Since the institution running the network provides a service to the other providers it can charge a fee for its services. Therefore, open access also requires that access fees are not prohibitive (economic aspect).

Text Box 1: Economics of Network Effects

Whenever the utility that a single user derives from using/consuming a particular good depends on the size of the network we call this good a “network good”. An example of a network good is the fax machine. If there is only one user in the world who owns a fax machine this machine is completely useless. As the number of users increases the fax machine becomes more and more useful for each user. Similarly, standards can be interpreted as network goods because their usefulness equally increases with the number of people who use these standards. Operating software such as Microsoft Windows provides a good example.

Network size can be interpreted in different ways. Often, the “size of the network” is approximated by the number of users (as in the fax example). For instance, the usefulness of a telephone network or cash payment network is positively related to the total number of users since the telephone system is a two-way network. Thus, the externality of any new user is a direct network externality. In other cases “size of the network” may mean different things for different users. For instance, for households using debit cards the relevant size of the network is the number of firms that accept debit cards for payments. Similarly, for firms, the relevant size of the network is the number of households that own a debit card and would like to use it in payments. This is the case of indirect network externalities in one-way networks.

An increase of the size of the network does not only make the network good more useful (this is sometimes called “demand side economies of scale”). It is also likely to make it cheaper because of economies of scale on the supply side. Building a network, developing suitable hardware and software etc. involves fixed costs. As the number of users grows these costs can be spread over a larger number of customers and the price of equipment and usage comes down.

The existence of network effects does not imply that competition is impossible. Indeed, both sectors, payments and telecommunication, can be used as example to prove this point. In the case of money and payments, there was competition between issuers of bank notes in the past. Nowadays bank notes compete with privately created deposits and – albeit to a very limited extent – with e-money. Central banks accept the fact that commercial banks offer deposits denominated in units of central bank money. Indeed, instead of trying to compete with commercial banks, they provide services that make these deposits more attractive. Central banks are usually involved in the settlement process and they provide short-term liquidity. Similarly, banks compete with each other and with non-banks in the market for payment

¹ In many European countries, it was pressure from the EC commission that finally forced national governments to create a legal basis for competition in telecommunications.

services. In telecommunication different service providers compete with each other. This has not always been the case but de-regulation, new regulation and the emergence of new mobile communications providers have made this possible.

While competition is possible, it also requires co-operation. In order to achieve interoperability, firms have to agree on standards and on fees. It must be technically possible for customers of TO A to reach customers of TO B and both TOs must have commercial agreements on how to handle the billing. The same argument applies to payments. If there is already a dominant network, there is little incentive for the dominant provider to make interconnection possible. Thus, the incumbent fixed-line TOs have to be forced by regulation to let new competitors interconnect.

Text Box 2: Why do network effects matter?

Network effects are important for a number of reasons. In general, network effects may reduce competition. If network effects are strong there may be a tendency towards a monopoly. The larger is a particular network the more useful it is for its users. Customers of smaller networks will switch to the larger network and a self-reinforcing process begins which ends when one network has captured (almost) the whole market. MS Windows or the rise of AT&T in the early days of telephony provide good examples of this effect. Network effects need not always create a monopoly for one player. Networks may also be run by a group of providers. If the different providers can achieve interoperability, the different sub-networks can be joined to one unified network run by many providers. Examples for such a situation are today's telephone networks and the bank-run payment system. While there may be competition between the different providers it is also possible that they use their co-operation to reduce competition. In particular, there is a danger that providers restrict network access to outsiders. Think of a new bank that could not link its ATM network with the established network of the other banks. This bank would find it hard to compete because its customers will have much less access to ATMS than customers of other banks. Finally, network externalities imply "excess inertia". That means that users will not necessarily switch from an old network to a new network even if the new network is more efficient. The reason is that the benefits for a single user depend on the number of users. Thus, a single user will only switch to the new network when he/she expects the other users to switch as well. When there are many users this creates a coordination problem. As a result, it is difficult to replace old networks. Excess inertia implies that it is not enough that a new standard is simply better than the old, established standard. In order to induce people to switch it is necessary to reach a "critical mass."

3 TOs AND PAYMENTS: THE PRESENT STATE

For the purposes of this study, the entry of TOs into the payment market is discussed particularly with respect to mobile operators. It should not be forgotten, however, that fixed-line operators have been providing third-party payment services for a long time.

For mobile operators, payments may be a key-sector and not just one of many possible value-added services they can target. The existence of convenient and cheap means of paying for "mobile goods" is a pre-condition for the take-off of m-commerce. The lack of a convenient means of payment would hit mobile TOs in two ways: it would depress the volume of traffic in their networks and it would reduce revenues from the sale of value-added services. Thus, they strongly depend on convenient mobile payment instruments.

Mobile TOs are natural candidates for providing payment services since they will be involved in billing for voice and data transport services anyway. However, compared with current billing activities future payment activities will be more difficult to manage. Increased roaming and "Quality of Service" (QoS) make billing much more complex. Thus, even if a telco restricts itself to "billing" it has to perform a whole range of tasks in an efficient manner:

- rating by volume or content,
- charging (incl. real-time transaction info and conventional billing),
- paying by all kinds of means,

– revenue distribution.

Currently, TOs are engaging in the following payment activities:

- ***TOs are billing own customers for voice services.*** For a long time the standard model has been billing on a monthly basis. At the end of the month TOs send bills to their customers and customers have to pay within a certain period. Payment can be by cheque, direct debit, etc. This method involves the extension of credit to customers over the period of one month. However, in a fixed line world TOs necessarily know where their customers live. In addition, if a telephone contract is conditional on the existence of a bank account this serves as a rudimentary credit check. In the mobile world, TOs have felt less secure and in some countries credit checks have been used. As a consequence, many people could not get a contract. For instance, in Australia up to 40% of applications have been rejected.
- ***TOs are offering prepaid cards/accounts.*** To get around the credit problem and to make mobiles more attractive for customers that do not wish to get tied in by a contract, TOs have offered pre-paid cards. Pre-paid cards eliminate the credit-problem for TOs. As sellers of pre-paid cards they are the ones who now receive an interest-free loan from their customers. However, pre-paid schemes are expensive to manage and they have introduced their own problems. Fraud has been one of them, fitting pre-paid schemes into the roaming architecture another.
- ***TOs are billing customers for voice services of other TOs.*** In some cases TOs are billing their customers for voice services delivered by other TOs. One example is the incumbent that has to do the billing for competitors who offer special numbers to enter the network. Another example is roaming. If a customer of TO A roams in the network of TO B, TO A will bill its customer accordingly and reimburse B for the fraction of the call carried over TO B's network.
- ***TOs provide billing services for third parties.*** To some extent, lack of suitable payments mechanisms has hampered e-commerce and provided a business opportunity for TOs. TOs have made it possible for merchants to provide content over the Internet (or proprietary networks such as Btx in Germany or Minitel in France). Such systems have allowed customers to rely on a trusted billing-relationship with a TO and made it unnecessary to provide private information to a merchant. For merchants, the benefit is that billing is also a viable solution for low-value market segments. However, little is known about the absolute volume of these transactions and the profitability from the point of view of TOs. According to press reports, Deutsche Telekom had to deal with many charge backs and customer complaints. Billing activities for third parties have also been extended to the mobile world. The best-known example is NTT DoCoMo's i-mode in Japan. DoCoMo offers to bill customers that purchase content from one of the 600 (in mid-2000) official content partner sites.
- ***Mobile operators are starting to offer m-payments.*** Mobile operators have already started to offer m-payments. Most of these schemes are still pilots or roll-outs at a very early stage. However, it is interesting to note that some operators team up with banks while others prefer to manage m-payments on their own. But not all m-payment schemes involve mobile operators. Banks and retailers also have entered the field.
- ***Settlement with other TOs.*** Many of the billing activities described above involve revenue sharing, i.e. TOs pass some of their revenue on to other TOs. This is usually the case whenever the customer of one network communicates with the customer of another network or when customers roam. Revenue sharing creates financial flows between TOs

and makes periodic clearing and settlement necessary. This is the “wholesale” side of the TO’s payment related activities.

Figure 2: Mobile payment systems²

Supplier	Type of Transaction
Bibit (Holland, international)	M-commerce (WAP-enabled)
CaixaMóvil (Spain)	Real and virtual POS
GiSMo (USA, international)	Virtual POS
Metax (Denmark)	Real POS (gas stations)
Mint (Sweden)	Real POS
Mobilix Open Mobile Payment (Denmark)	Purchase of mobile air time
NTT DoCoMo (Japan)	M-commerce (subscription)
Paiement CB sur mobile (France)	Mail order and virtual POS
Paybox (Germany, international)	Real and virtual POS
PayDirect (USA)	E/M-commerce, P2P
Payitmobile (Germany)	Virtual POS
Payline (France)	Virtual POS
PayPal (USA)	E/M-commerce, P2P
Phonepaid (UK)	Virtual POS, P2P
Sonera Mobile Pay (Finland, Sweden)	Real POS (including vending machines)
StreetCash (Germany)	Real and virtual POS
Telenor Mobil (Norway)	Tickets
Telia Payit (Sweden)	Virtual POS

Ventures in which mobile operators are participating are shown in **bold**³

4 TOs AND PAYMENTS: CHALLENGES AHEAD

Although TOs have already been active in providing payment services, moving into m-payments poses great challenges for them. In spite of all the similarities between payments and telecommunications companies (discussed in above) TOs will have to adapt their business procedures considerably if they want to provide payment services on a large scale. This is true for both sides of the payment business, the retail and on the wholesale (TO-to-TO) side.

4.1 PAYMENTS: THE RETAIL SIDE (PERSON-TO-BUSINESS OR PERSON-TO-PERSON)

Once TOs no longer just sell voice minutes or volumes of data (basically commodities) but specialised and often personalised services, Customer Relations Management (CRM) and Quality of Service (QoS) are of major importance. QoS implies that TOs will have to be able to deliver pre-defined levels of quality, they will have to monitor them, they will have to

² A more detailed description of these schemes can be found in the ePSO inventory.

³ Mobile operators are also involved in a number of schemes that still have not been rolled out; for instance Telefonica, Airtel and Armena in Movilpoagos and Pagomovil (the two schemes are now merged) and Telecom Italia Mobile in Easybuy.

document fulfilment, they will have to integrate QoS into their billing systems and they will have to translate shortcomings of quality into lower charges.

This is no simple task. It will be further complicated by the fact that customers will demand ubiquity of service. Thus, once the customer leaves the reach of his network, another network provider will have to take over. As long as the only service is voice, this is relatively simple. With a wide range of services and QoS, however, the whole problem becomes highly complex. Basically what happens is that “voice roaming” is supplemented by “data roaming”, “service roaming” and “payment roaming”.

Involvement in payment activities always involves risks, as can be demonstrated by the traditional phone bill. Since the customer has to pay only at the end of the month, he is basically granted an interest free credit by the telephone company. In the case of voice services this risk is limited. A customer who makes 500\$ worth of calls and then does not pay up, does not create costs of 500\$ for the TO. Indeed, with marginal costs close to zero, this customer hardly creates any additional costs at all. Even, if the customer makes a lot of foreign calls this probably will not hurt the TO because international calls are not cleared on a call-by-call basis.

However, better billing systems and third party billing have changed this. A customer who terminates a call in a different network or who originates and terminates a call in a different network (“roaming”) will create additional costs for the TO. The same is true if a customer lets an e-merchant debit a purchase to his phone bill (if the TOs guarantee payment) or if pre-paid balances can be used for third party payment. Since both activities are likely to become more important, the risks involved will increase. Consequently, billing is not just a technical challenge. TOs also have to change their risk-management procedures accordingly. In particular, they will have to

- monitor customers
- monitor merchants
- install safe and reliable procedures for recording, storing and transferring information (including the necessary back-up facilities)

Thus, TOs will have to perform typical banking tasks.

If TOs increase their payment related services – possibly offering financial services in general – they will look increasingly like banks. In particular there will be many similarities to electronic banking. In October 2000 the BIS published guidelines for the conduct of electronic banks (BIS 2000b). These guidelines also offer reasonable advice for TOs that are more active in payments.

The BIS notes that the current technological development offers great opportunities but also makes banking and payments more risky. Use of communication channels like the Internet extends the reach of service providers beyond their physical presence. It follows that service providers may do business with customers situated in locations with different jurisdictions, supervision rules, anti-money laundering rules, consumer protection laws, etc. Outsourcing of certain parts of the business is seen as another important challenge. If vital functions are outsourced there must be an efficient management of the relationship with partner companies in place. Privacy issues are also becoming increasingly important as service providers store more and more data about their customers. Service providers should protect this data thoroughly and think carefully about how to use it. In case of miss-use legal and reputational risk may be considerable.

To deal with these risks four basic elements have to be in place:

- *Assessing risks* The sources of risk and the potential size of risk have to be determined
- *Controlling risks* Proper procedures have to be in place to deal with risks.
- *Monitoring risks* Well functioning information systems have to be installed that can inform about the current level of risk and potential breaches of correct procedures.
- *Proper reaction mechanisms* If there is a problem (system break down, fraud, etc.) there need to be well-designed procedures on how to react in such a case in order to contain the damage.

4.2 THE WHOLESALE (TO-TO-TO) SIDE: GROWING INTERDEPENDENCE

Provision of third party payment services will lead to growing financial interdependence between TOs. In the days of geographical monopolies, clearing and settlement was largely confined to international traffic. All local or national calls were within the same network and only international calls made any kind of revenue sharing necessary. Given the fairly high relative costs of international calls, the share of shared revenues was not very high.

However, deregulation and the rise of mobile telephony have changed the telecommunication landscape fundamentally. Inter-relationships between different TOs have become much more important. The costs of international calls have come down and there is competition within regions. Thus, even a local call may involve two networks. Unless a “biller keeps all” rule applies, this increases the fraction of revenues that go into “sharing”. Due to roaming the share of revenue sharing is also likely to increase. Both the increasing mobility of the population, as well as the large number of TOs, make roaming and revenue sharing much more important. As will be argued below, the provision of specialised payment activities is likely to further increase the significance of sharing.

In all likelihood, there will be structural credit and debit positions of particular TOs. To see why this is the case, one has to look at the difference between voice services and payment services. On a conceptual level, many services, including most payment services, differ from voice traffic. A pure voice network can be described as a two-way network. A can call B and B can call A. Many forms of payments and many other services differ from communication because they usually create one-way networks.⁴ One kind of participant, i.e. a merchant receives payments and a different kind of participant, i.e. a customer makes payments. This difference becomes obvious in the different functions of acquirers and issuers in credit card systems. Acquirers make contracts with merchants and issuers make contracts with customers. While most banks are active on both sides of the market, there often is a clear specialisation. Some banks are more active on the acquiring side, others on the issuing side. A similar division of labour is also likely for TOs. Some TOs will be more active on the acquiring side, others on the issuing side. For instance, a TO that has created a highly popular portal will also find it easier to sell payment services to the merchants in this portal. This causes certain asymmetries. TOs with a large merchant base will receive net payments in the settlement process whereas TOs with a small merchant base will be net payers.

The growth of revenue sharing and the possibility of structural credit and debit positions in the inter-carrier settlement process will require more bank-like approaches to risk management with respect to TO-to-TO payments. In particular, if a rising share of revenues goes into risk sharing TOs will also have to consider clearing and settlements more carefully. TOs will have to be more prudent with respect to counter-parties. The settlement systems used

⁴ The classic examples being television and radio.

should be efficient in terms of cost and designed in a way to minimise risks for the participants. Possible models of clearing and settlement are:

- bilateral
- multilateral (joint clearinghouse)
- using intermediaries

Given the large number of mobile operators, bilateral agreements seem to be impractical. That leaves the use of a joint clearing house or intermediaries (brokers or large operators). The clearing house or intermediary would perform functions like the inter-bank clearing and settlement system. For such clearing and settlement systems the BIS has developed guidelines of prudent behaviour (BIS 2000a).

The BIS rules have been explicitly formulated as guidelines for banks. Their aim is to reduce systemic risk in order to safeguard macroeconomic stability and the effectiveness of monetary policy instruments.⁵ However, the BIS rules can also be read as a guide for prudent behaviour for every institution that participates in large value clearing and settlement systems.

The BIS stresses that such systems require strong legal foundations. Given that it will be used by players from many countries, the system should have a well-founded legal basis under all relevant jurisdictions and the system's rules and procedures must be clear and transparent. The settlement period is also an important issue. Banks are encouraged to settle every day (or even more often). TOs have traditionally settled less frequently, usually once a month. But once payments become an important part of their business they may have to consider settling more often. Finally, in addition to issues such as operational reliability and the choice of settlement media the BIS addresses an important competition policy issue. The system should permit fair and open access. Otherwise it could be easily used to protect the established providers against competition from newcomers.

5 BOTTLENECKS AND POLICY ISSUES

The effect of m-payments on competition in retail payments largely depends on the strategy of those non-banks (in particular TOs) that wish to enter the market. The basic options are to co-operate with banks or to set up an alternative payment network. Finally, there is the possibility that mobile phones will become just another access device to the customers' bank account.

5.1 THE BANK-DOMINATED MODEL

One possible scenario is that mobile phones or PDAs simply become additional access devices that allow users to access their bank accounts. Such a solution would require banks to integrate access via mobile phones with voice and Internet access. In this case, payments would be firmly bank-based and TOs would simply perform the task of data transport.

Smart cards are not essential. It would also be possible to use pass codes and PIN authorisation as in e-banking. However, a smart card based solution would enhance security of data storage and transmission and allow for strong identification. For the consumer it would be more convenient because he would not have to type in pass codes and account information each time he wanted to make a purchase.

As far as mobile devices are concerned, there are various technical possibilities to implement a smart card based solution. The phone could be a dual-slot phone like in the French system "Païement CB sur mobile", it could involve a separate payment chip embedded in the mobile

⁵ Other public policy objectives are crime prevention, competition policy and consumer protection.

phone, a multi-application chip with embedded payment function or a separate card that communicates with the phone via Bluetooth.

As long as banks are the issuers of the chips that enable the payment function they control the whole payment process and they “own” the customer. From the point of view of Customer Relations Management this is essential. Banks have privileged access to customers.

Consumers would benefit from more convenient access possibilities. Since consumers trust banks most they would also welcome the fact that banks continue to be the main payment service providers. However, a bank-dominated set-up would leave the competitive situation in the payment system more or less as it is. Since recent investigations into the payment system found evidence of non-competitive practices⁶, this would be a clear drawback. In addition, it has to be remembered that banks have been slow, so far, to come up with efficient solutions for cross-border retail payments and it is not clear that a further engagement in m-payments would change this.

5.2 THE EMERGENCE OF NEW PAYMENT SERVICE PROVIDERS

The bank-dominated model is just one possibility. It is also conceivable that a different scenario will become reality. Just like credit card companies, TOs or other non-banks may offer payment services and use the Internet, the mobile phone or the PDA as access device. As with credit cards, ultimate payment would be via bank transfer. However, banks would no longer be involved in the consumer-to-merchant or consumer-to-consumer side of the payment. Customer contact would move to a large extent to the intermediary. In principle, such intermediaries can offer a wide array of payments: pre-paid accounts, pre-paid cards, billing (“post-paid accounts”) as well as traditional payments such as credit card payments or bank transfers (the German m-payment scheme PayBox would be an example of the latter).

The second scenario is much more likely to raise competition in the retail payment system. Even if new players may eventually have to become banks, new entry would be beneficial. Furthermore, new intermediaries may be less reluctant to offer services across borders. For instance, TOs that operate internationally may also find it easier to offer international payment systems.

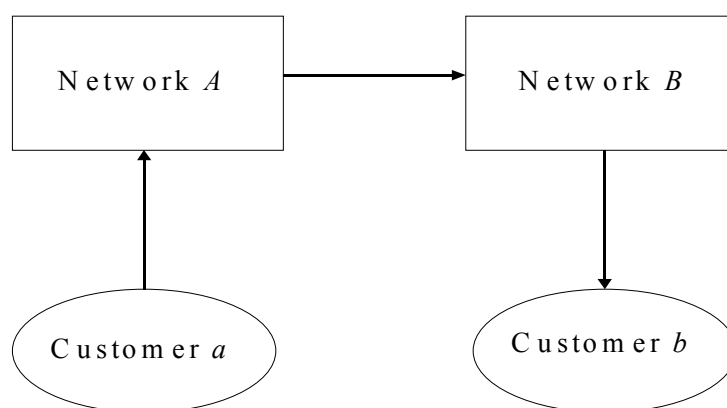
While some of these opportunities are open to non-banks, other might require them to acquire an EMI (Electronic Money Institute) licence or even a banking licence. Alternatively, these non-banks could co-operate with a bank. For TOs co-operation would have the advantage that they would not have to be concerned about payment regulation. Furthermore, they would lock-in a trusted brand and risk-management know-how of banks. Banks have two incentives to co-operate with TOs. It is in the interests of the banking sector as a whole to co-operate in order to prevent TOs from entering the market on their own. Individually, banks may see co-operation as beneficial because it helps them to gain customers and keep costs down. Most mobile operators subsidise the price of mobile handsets. If banks want consumers to use a handset that is suitable for their m-payment schemes (for instance a dual slot phone) they would either also have to subsidise handsets themselves or co-operate with TOs.

⁶ See Reserve Bank of Australia and Australian Competition and Consumer Commission (2000) and Cruickshank (2000).

5.3 THE ROLE OF NETWORK EFFECTS

In the long term, competition problems may arise because of network effects. There is little scope in the market for payment services for a large number of m-payment solutions. The usefulness of a payment system increases with the number of users. Therefore, users have a high preference for ubiquity. Ubiquity has two dimensions: first, any user wants the ability to send (receive) money to (from) any other user;⁷ second, a user wants to be able to use the payment function wherever he is (i.e. even outside of the reach of his service provider). The demand for ubiquity favours large providers and ultimately interoperability. (The longer it takes to achieve interoperability the higher the concentration rate in the market.) Interoperability, in turn, requires a certain amount of standardisation.

Figure 3: Joint production of network services



There will be strong pressures from users for co-operative solutions. If users want to make payments to customers of other networks or if they wish to make payments while travelling outside of the reach of their own network, there will be a demand for “payment roaming”. In principle, ubiquity of service can be achieved by a centralised solution (one big provider or one intermediary) or by co-operation. Co-operative solutions would require a certain amount of standardisation and might involve a joint clearing house or the use of intermediaries/brokers (at the wholesale level). At the moment there is no dominant supplier and there is also little co-operation between m-payment providers. There are many different schemes, each of which is trying to reach critical mass on its own. If the experience with e-purses and software-based e-money schemes is anything to go by such attempts are bound to fail.

There are concerns that a non co-operative approach may restrict the adoption of m-payments and create an impediment for the future development of m-commerce. Thus, public action might be called for in order to foster standardisation and the creation of interoperable systems. However, it should be taken into account that most of the m-payment schemes were implemented only a few months ago. Indeed, m-payments became a topic of public debate only last year. So far, little is known about the pros and cons of each of the different systems. Therefore, it would be premature to support a particular solution in order to facilitate standardisation.

Centralised as well as co-operative solutions may lead to reduced competition. The co-operative solution provides opportunities for anti-competitive price setting. In particular, a co-operative solution raises the question of how inter-carrier fees are determined. This problem

⁷ Alternatively, in a one-way system, any consumer wants to be able to send money to any merchant.

has a lot in common with the setting of an interchange fee in credit card networks. It arises in all schemes where different network operators provide one network good.

Such a case is illustrated in Figure 3. Customer a can be thought of as an agent who wishes to transact with customer b who has a contractual relationship with a different provider. The transaction can be a bank transfer, a phone call or a credit card payment. In each case, customer a relies on network B in order to complete the transaction. But since network operator B does not have a contractual relationship with customer a he cannot charge a for the services. So, either B has to charge customer b or B has to charge network A (which in turn can charge a). The amount that B charges A may have been bi-laterally negotiated or multi-laterally with other providers (and possibly intermediaries). None of these solutions is without problems.

Text Box 3: Case Study Movilpago

Although m-payments are a fairly new field they have already received the attention of the competition authorities. In Spain, Movilpago - a joint venture by Banco Bilbao Vizcaya Argentaria S.A. (BBVA) and Telefónica Mviles S.A. - was scrutinised by the Spanish competition authorities. This joint venture required the approval of the competition authorities (Servicio de Defensa de la Competencia "SDC"). When considering approval of the joint venture the authorities made the following assumptions: as an m-payment venture Movilpago affects the market for e-payments as well as the market for mobile telephony; whereas there are no important barriers to entry in the market for e-payments barriers to entry are important in the market for mobile telephony; barriers to entry in the mobile telephony market may be due to the lack of open standards, patent ownership, a large client base, financial strength, and a large distribution network; m-payments may become the most important payment form in e-commerce; a unified and widely used m-payment system is in the interest of the consumer, BBVA has already a strong position in the e-payment market. Based on these assumptions the SDC approved of the joint venture under the following conditions: other mobile operators must be allowed to participate and adapt their technical systems; it must be possible to use the system with any mobile operator and any financial institution; contracts with Movilpago may not limit customers in their freedom to choose services of other operators or financial institutions; interchange fees between the involved financial institutions are subject to approval of the SDC.

The decision of the SDC has prompted negotiations between the different mobile operators and a number of banks. these market participants now have to agree on a common platform. This implies that Spain might get an m-payment scheme that is supported by all major banks and mobile operators. The price to be paid, however, is that the roll-out has to be delayed further - possibly until 2002.

Reference: Barrón (2001) and Tribunal de Defensa de la Competencia (2000).

It is no co-incidence that the European Commission and the European Parliament are conducting parallel investigations into roaming charges, charges for cross-border bank transfers and multi-lateral interchange fees.⁸ All of these examples involve prices for network services. Particularly interesting is the fact that pricing principles vary considerably in these cases. For credit cards there is a collectively agreed interchange fee (for a particular brand), in the case of roaming there are collectively agreed guidelines on how to set prices and in the case of international bank transfers, the two banks involved usually charge their respective customers. The fact that overcharging may be an issue in a system without a collectively agreed interchange suggests that, in the case of network goods, the absence of co-operative price setting does not necessarily benefit consumers. This raises the question of whether competition policy alone is sufficient or whether there needs to be more regulatory supervision.

Apart from price setting, access is another topic with important competition policy implications. If a number of firms have set up a payment scheme that succeeds in becoming a critical infrastructure, it is essential for outsiders to be able to use this scheme. Otherwise they would not be able to compete effectively. This problem can also be important with respect to

⁸ See European Commission DG Competition (2000), European Commission Press Release (2000), IEIC (2000) and STOA (2000).

m-payments. For instance, in Spain, the competition authorities made it mandatory for Telefónica and BBVA to open their system (Movilpago) to other market participants (see Box 3). Interestingly, the competition authorities intervened before the actual roll-out of Movilpago took place.

5.4 IMPLICATIONS OF CURRENT PAYMENT REGULATION FOR TELCOS

5.4.1 Extending current billing services

To some extent, TOs will have to comply with general regulations of the financial sector (like anti-money laundering laws). However, the interesting question is which payment services they can provide as a TO, which services require an EMI licence and which activities require a full banking licence. (When does a TO become a bank?) Third-party billing is usually possible without a banking licence. However, any scheme involving pre-paid devices will either require an EMI or a banking licence.

5.4.2 Applying for an EMI licence

In the days of fixed-wire telephony the monthly bill was the standard payment procedure. However, in the new world of mobile telephony pre-payment has taken the market by storm. This implies that the “easy” solution of extending the billing relationships and allowing customers to put purchases on their phone bill is clearly limited. Furthermore, other participants like ISPs have offered billing service to e-commerce merchants and may consider doing the same for m-commerce.

Once pre-paid balances can be used for payments of goods and services provided by third parties TOs will need to acquire a banking or EMI licence or they will have to team up with a bank. The EMI Directive aims to provide a simplified regulatory framework for institutions that want to provide payment systems based on “electronic money”. However, it is not always clear where to draw the line between e-money and deposits (the latter would require a banking licence). A case in point is the server-based wallet. If such a wallet contains pre-paid balances, how should these balances be characterised – as account-based funds administered by the issuer or as value stored on an electronic device in the possession of the customer? In the first case, they would be regarded as deposits, in the second case as e-money. Thus, TOs and other non-banks face a certain amount of ambiguity. Hopefully, this ambiguity will be reduced in the process of implementation of the EMI Directive in EU member states.

5.4.3 Becoming a bank

Finally, there is the option to acquire a banking license. Given the regulatory burden, such a move would only be advisable if a TO wanted to move beyond payments into financial services in general. Some TOs seem to be considering this option and at least one, Mobilcom (Germany), has applied for a banking license. It is interesting, however, that Mobilcom has also been seeking a partnership with a bank. Given the complex transformation necessary in order to become a fully-fledged bank it is questionable that many TOs will, indeed, choose this option.

5.5 REGULATORY CHOICES

5.5.1 Regulation of institutions versus regulation of services

In most European countries regulation focuses on banking institutions. With the emergence of e-money policy makers (in particular the EU Commission) saw the need to open the field to non-banks via the creation of a new institution, the Electronic Money Institute. While the idea to open electronic payments to non-banks is laudable, it is worth considering a regulatory approach that is not so institution-oriented (regulating “banks”, “e-money institutes”, etc.) but focuses instead on functions such as retail payments, wholesale payments, making loans, security trading etc. This would provide a unified regulatory framework for all types of institutions that are involved in retail payments. Furthermore, it might make it easier to adapt regulations to technological changes in the payment system.

5.5.2 Tighter regulation versus more competition

Industries with large network effects provide a particular challenge for policy makers. The existence of network effects calls for interoperability between the systems of different network operators. Interoperability can only be achieved by co-operation. This need not be bad. It contains, however, the possibility of collusive behaviour to the disadvantage of customers. Therefore, many network industries are supervised by a special regulator. Traditionally, payment system regulation has been part of banking regulation and/or monetary policy. Thus, most countries have not created a special body regulating payments. However, a recent government report in the UK (Cruickshank 2000) called for a special regulator of the retail payment system. The report explicitly cites network effects as a factor that limits competition and makes supervision necessary.

The case for a special regulatory body looks less compelling though, if there is competition between different payment networks. Thus, before creating a new regulatory agency, one should consider the possibilities for competition between different payment networks more closely. The emergence of new players, such as TOs, and new networks in the payment market may lead to payment provision via alternative networks. This may provide enough competition in payments and make a special regulatory body unnecessary.

5.5.3 Standardisation as a policy issue

The current multiplicity of standards and solutions should be seen as an opportunity rather than a problem. The market for mobile payments is still in an experimental period. In the medium term, there will be consolidation and strong incentives to make systems interoperable. Mandating standards at an early stage may result in sub-optimal standards being chosen. This is not the only risk. The example of Movilpago also shows that arriving at agreement on a single standard and co-ordination of the activities of many different market players can delay the roll-out of mobile payment solution.