



E-Commerce settles for established payment systems

Limited market potential for innovative payment systems

May 14, 2007



Traditional payment systems continue to dominate B2C e-commerce.

A host of innovative payment systems are pushing into the market. However, these systems often have a limited focus on niche segments. The only ones with mass-market promise are those innovative systems that take into account the particular features of B2C e-commerce, enjoy the support of established e-shops or service providers in payment transactions and can convey the unique added value that they offer.

Some innovative payment systems fail to address the typical business situation in B2C e-commerce.

Numerous systems are only geared to settling micro-payments, but most e-shops do not ever charge such small amounts. In addition, innovative mobile payment systems advertise the advantages of their portability. However, this trump cannot be played in a typical online situation.

Payment systems operate in an intensively regulated, complex market environment. Policy and regulatory frameworks even outside the financial sector have a sustained influence on the market potential of payment systems. The net effect of political decisions on payment systems is not clear a priori. Given the substantial administrative expense involved, however, we believe that government regulation limits the potential of the small innovative systems in particular.

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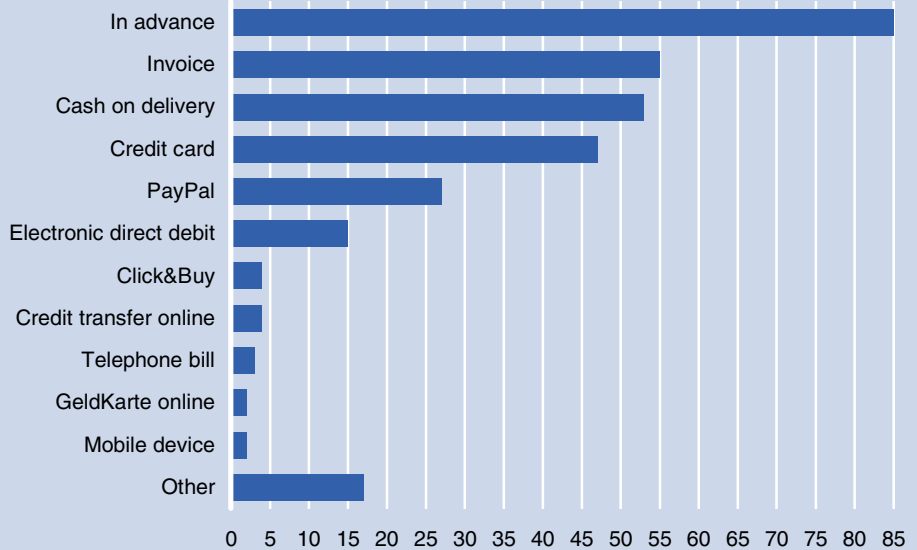
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E-Shops love traditional systems

Share of German e-shops that offer given payment system, % (2006)



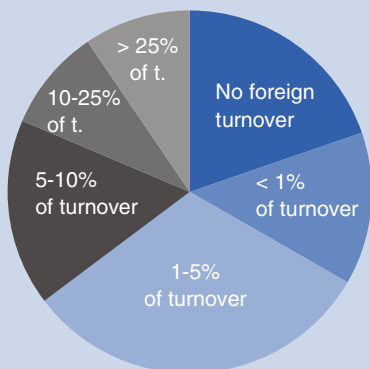
312 responses from German e-shops
Source: ibi research, 2006

Since the turn of the millennium a recurring rash of reports has sought to convince us that the emergence of business-to-consumer (B2C) e-commerce signifies the imminent end of cash, if not of all payment systems in their current form. Indeed, with the advances in digital technology we continually see innovative payment systems bearing imaginative names like Crandy, CoralPay, e-gold, Digitproof and Luup pushing into the market. Compared with innovative systems the idea of money that has enjoyed currency for 3,000 years and likewise the concepts of established payment systems seem pretty old-fashioned at first glance.

This report examines the potential of innovative payment systems and starts out with an outline of B2C e-commerce. We shall first provide a breakdown of the innovative payment systems by structure as we look at goods transfers and the related payment transfers. Building from there we will discuss the current market situation and conclude with a look at the potential of innovative payment systems.

Much online business is home grown

German e-shops and foreign share of turnover, % (2006)

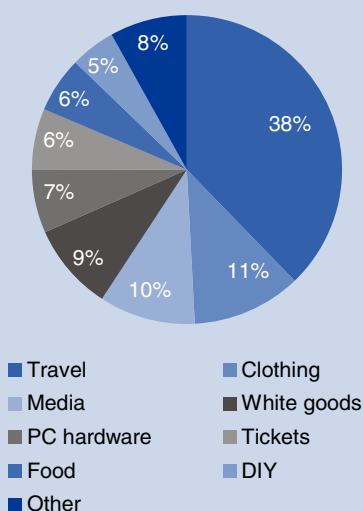


312 responses from German e-shops
Source: ibi research, 2006

1

Beyond the usual suspects

Revenues in European B2C e-commerce, % (2006)



Source: Forrester Research Inc., 2006

2

B2C e-commerce taking off, but not a high flyer

Innovative digital technologies have wrought fundamental changes in goods and services trade. With B2C e-commerce digital web portals make distance selling more transparent and more convenient. This is making B2C e-commerce popular across broad sections of the world's population. An analysis of the shops, shoppers and goods traded in B2C e-commerce reveals numerous special features of this market.

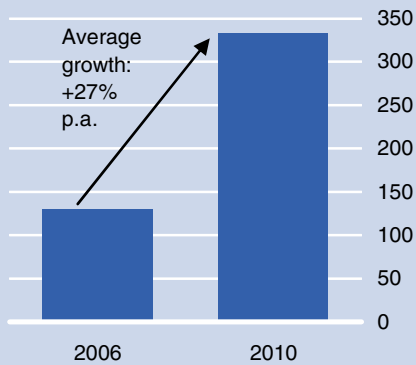
- The shops that are just getting into B2C e-commerce want to tap new customer groups via web-based sales. Many shops have realised that they need to catch up especially in cross-border trade. Two-thirds of all German companies offer their goods and services via internet platforms. At four in five of these shops the cross-border share of total sales turnover however is less than one-tenth (see chart 1).
- Among the shoppers, the issue always considered to be of major importance is security. However, sensitivity regarding security issues differs widely depending on the e-shopper's gender, experience with B2C e-commerce and age. As a rule, men attach greater importance to technical security (especially encryption via Secure Sockets Layer, SSL) than women do. Besides, inexperienced e-shoppers tend to place their confidence in websites with a trustworthy design. Every second person over 60 years of age reduces his/her e-shopping activity because of security concerns and sticks with well-known brands that he/she has come to trust over time.
- In Europe, travel is the category of e-trade that generates the highest turnover. Trailing far behind come clothing, media, white goods, computer hardware, admission tickets, food and beverages, and do-it-yourself (DIY) tools and equipment, all of which follow in close succession. With physical goods such as clothing and household appliances we see also the top hits of conventional distance selling and by far not just the usual suspects, i.e. digital goods, of B2C e-commerce (see chart 2).

Paying the bill is also a part of e-commerce

While the internet is being recognised as an important sales channel by a growing number of companies and consumers, the market share of B2C e-commerce is still relatively small as a percentage of

B2C e-commerce is taking off

B2C turnover in Western Europe*, EUR bn

*EU-15, Norway, Switzerland
Source: DB Research, 2007

3

Strong evidence of network effect in payment systems

All payment systems are subject to the network effect: the more companies and individuals opt for a given payment system, the more attractive it becomes for other companies and individuals to join in. This broad acceptance unleashes a spiral of new possibilities and ever greater value added. Conversely, the network effect also ensures that new payment systems have extreme difficulties to hold their own against already established systems. Therefore, the new payment systems often face a dilemma. On the one hand, shops will be hesitant to invest in a still little-known system. On the other, the shoppers will be reluctant to switch to a payment system that so far has only been deployed by a few shops.

Numerous demands on payment systems

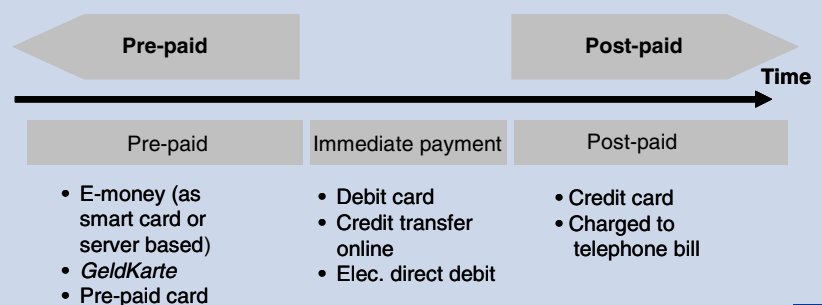
total sales. In our estimation, Western European B2C e-commerce revenues will grow by an average of 27% p.a. between 2006 and 2010 (see chart 3). However, this respectable growth starts from a modest basis, i.e. annual turnover of EUR 130 bn, or one-sixteenth of total retail sales in Western Europe. Hence, this means B2C e-commerce will remain small in comparison with total retail sales on a medium-term horizon.

The e-shops often devote too little attention to the particular circumstances of distance selling in impersonal virtual reality. For example, there is a wide gap between delivery and payment in B2C e-commerce in terms of both location and time. But business partners who do not know each other personally are particularly suspicious in practice when it comes to paying. Thus, while shops often consider the payment transaction a minor detail, it is the Achilles' heel of e-commerce to the customer.

Innovative systems vary considerably in design

The numerous innovative payment systems now starting to compete with conventional systems differ from one another in the following five respects:

- Internet system or mobile system (payment by mobile phone, i.e. text input or text message initiates non-cash payment);
- Time of payment: pre-paid, post-paid or immediate (see chart 4);
- Reloadable or non-reloadable system;
- Size of payment: system to handle small payments (micro-payments less than EUR 10) or large amounts (macro-payments);
- System with or without direct contact to debtor's account.

Pre-paid vs post-paid systems

Source: DB Research, 2007

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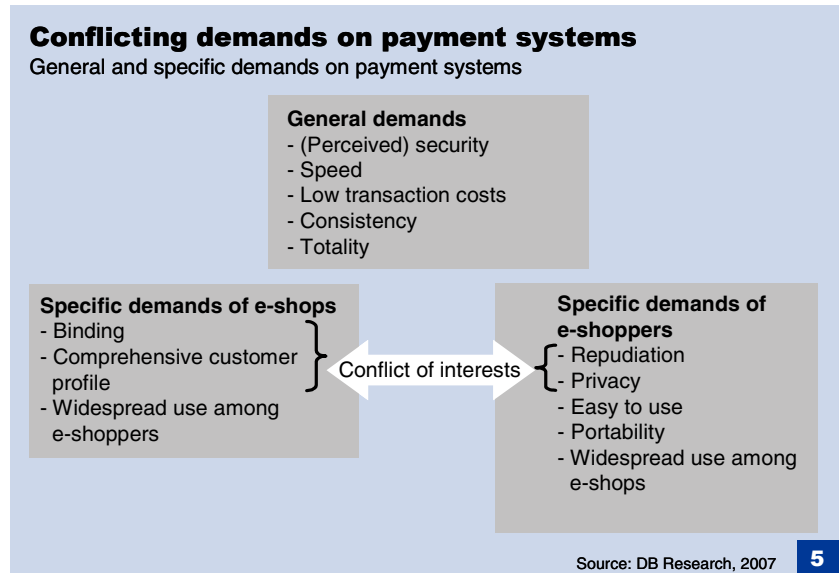
Payment systems face challenges in many ways

E-shops and e-shoppers make numerous, varied demands on payment systems. These relate to the following ten aspects:

- (Perceived) Security, derived from the image of technology and the objective technical security level of the system;
- Consistency of information on the amount, execution date and purpose of a non-cash payment;
- Totality, i.e. if there is undeliberate data corruption, the account of the debtor should not be charged by mistake;
- Repudiation;
- Transaction costs;
- Speed;

- Degree of use among e-shops and e-shoppers;
- Privacy;
- Easy-to-use hardware and software in terms of menu dialogue and system stability;
- Portability, i.e. use of various media and terminal devices in differing situations in bricks-and-mortar as well as virtual trade.

Demands are often contradictory



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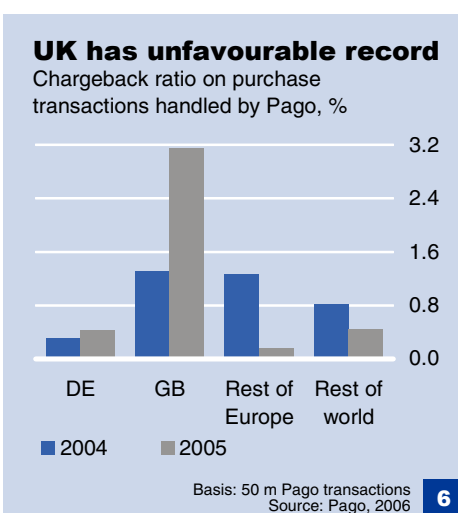
A payment system is the servant of many masters

E-shop and e-shopper demands on payment systems are often contradictory. The conflict of interests becomes particularly visible with respect to personal details and the scope for repudiation and refunds if money has already changed hands. E-shops are keen on learning as much as possible about their shoppers to be able to generate informative customer profiles. The profiles give the shops the advantage of being able to gear product development, pricing and marketing to specific target groups. However, this very possibility of e-shops systematically collecting personal details is diametrically opposed to the interests of e-shoppers who by and large want to have their privacy respected. The conflict of interests also arises over the possibilities for claiming refunds. This is an area where the e-shopper is interested in obtaining the most lenient terms possible. By contrast, the e-shop wants non-repudiation of transactions, with regulations largely excluding the possibility of an e-shopper claiming a refund and driving up costs. Viewed from the perspective of the e-shops and of the e-shoppers these differing appraisals are entirely warranted. However, this mixture of interests places curbs on the market success of the innovative payment systems (see chart 5).

E-shops seldom willing to experiment

When e-shops have to make decisions pertaining to their own payment portfolio they are risk averse. Measures that help to secure their receipts enjoy highest priority here. High chargeback ratios, as registered for example by Pago eTransaction Services in the United Kingdom, are a deterrent (see chart 6).

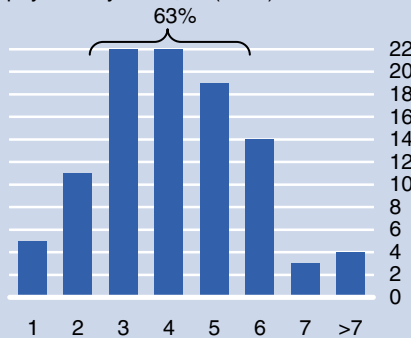
Furthermore, only two out of three e-shops consider offering customer-friendly systems to be an important aspect – despite the fact that 40% of all e-shoppers have at some point broken off a purchase transaction simply because they found the payment



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Majority of shops offer three to five systems

German e-shops offering this number of payment systems, % (2006)

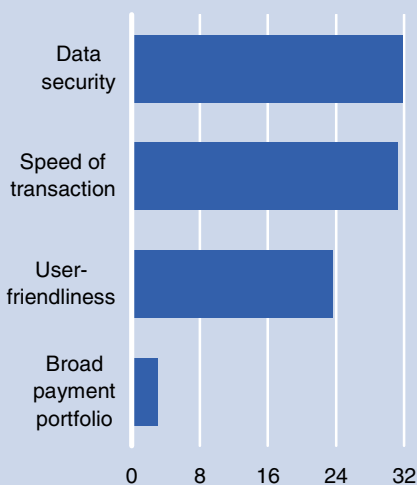


313 responses from German e-shops
Source: ibi research, 2006

7

E-shoppers want it to be secure and fast

German e-shoppers attach considerable importance to this factor when paying, %

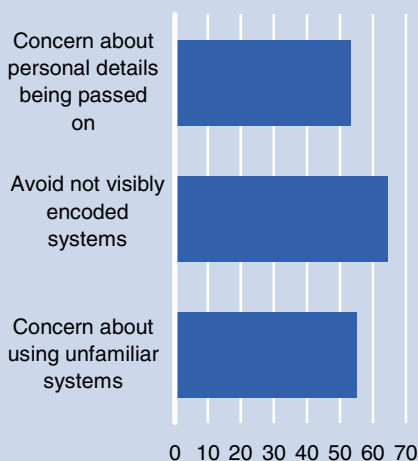


n=759; multiple responses possible
Source: EuPD Research, 2006

8

E-shoppers are easily discouraged

German e-shoppers who agree, % (2006)



Survey of 759 German e-shoppers
Source: EuPD Research, 2006

9

system too complex. Only half of the e-shops in Germany realise that the payment portfolio is a business-relevant instrument. In particular, merely 25% of the e-shops take account of e-shoppers' security concerns.

The e-shops appear to be largely satisfied with the composition of their own portfolios. Nineteen out of twenty German e-shops currently offer at least two payment systems; in fact, nearly two-thirds of them offer three to five (see chart 7). However, the e-shops are usually satisfied to use the long-established conventional systems (payment in advance, by invoice, cash on delivery, direct debit or credit card). So far, one-third of the e-shops have indicated having specific plans to expand their portfolio. Shops from the mid-range revenue class (between EUR 100,000 and EUR 2.5 m) appear to be particularly opposed to expanding the portfolio.

E-shoppers difficult to satisfy when it comes to paying

E-shoppers also place various demands on payment systems. Besides the desire for (perceived) security the e-shoppers are mainly keen on rapid transaction (see chart 8). Furthermore, female shoppers in particular see an extremely important criterion in the degree of user-friendliness. For a payment system, the e-shoppers' combination of lofty expectations in terms of security and user-friendliness is already an extremely complex challenge in its own right, because the e-shoppers tend to feel that technically secure payment systems are not particularly user-friendly.

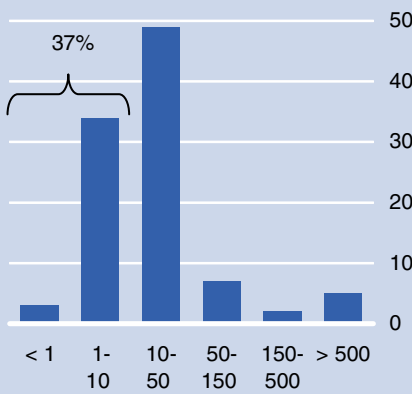
Considering the multiplicity of demands it is little wonder that only 62% of e-shoppers say they are satisfied with the established systems. However, this is no guarantee of success for innovative systems. Even if e-shoppers are dissatisfied with existing offers, they are also very reluctant to try out new systems. And their obvious risk aversion poses a major challenge to the operators of payment systems. For instance, 48% of German e-shoppers believe in the security of the payment systems. By contrast, 52% of e-shoppers hold back if required to divulge a large amount of personal information. Nearly two-thirds of all e-shoppers say they avoid payment systems that are not visibly encoded. Finally, 54% of e-shoppers immediately harbour serious reservations about payment systems they are unfamiliar with (see chart 9).

Three criteria explain the e-shopper's payment choice

Income, age and e-shopping experience largely explain how an e-shopper decides on a payment system. Regarding income, it is striking that the e-shoppers with a net income of over EUR 3,000 per month are more likely to agree to pay in advance or to accept direct debiting than lower-income e-shoppers are. As regards the age factor, it is noticeable that e-shoppers who are 30-39 years old show increasing trust in innovative payment systems. By contrast, the 40-49 age group usually sticks with online credit transfers and electronic direct debiting. E-shoppers over 50 consider security and user-friendliness particularly important, while speed of transaction and settlement are secondary. The over-50 group makes above-average use of credit cards in B2C e-commerce. Those over 60 are the main users of the cash-on-delivery option – despite the high transaction costs. As regards the experience of e-shoppers, it is not surprising that the particularly active e-shoppers are increasingly willing to try innovative payment systems.

No micro-payments at two out of three e-shops

German e-shops and minimum invoice amount (EUR), % (2006)

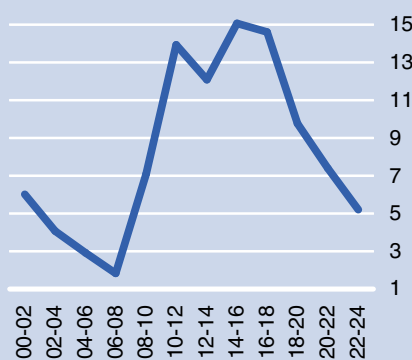


284 responses from German e-shops
Source: ibi research, 2006

10

Little taste for shopping outside opening hours

Breakdown of German e-commerce by time of day, % (2005)

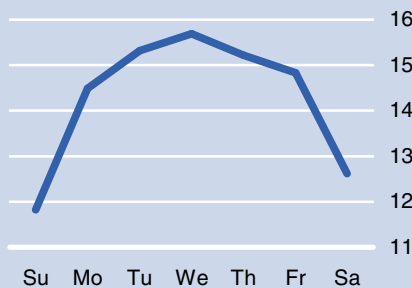


Basis: 50 m transactions handled by Pago
Source: Pago, 2006

11

Little e-shopping at the weekend

Breakdown of German e-commerce by day of the week, % (2005)



Basis: 50 m transactions handled by Pago
Source: Pago, 2006

12

New payment systems struggle for market share

Today there are over 40 innovative payment systems operating in Germany alone. However, it has not been until recently that a few of these systems such as PayPal, Click&Buy and Giropay have actually found their way into the payment portfolio of German e-shops. The dominance of the conventional payment systems can be attributed to the following three points:

- The pronounced network effect prevents new rival payment systems from snatching up market shares.
- The small e-shops' limited endowment with human and financial resources heavily undermines the potential of innovative payment systems. Given meagre resources small shops with their own accounting section can seize only few measures to ensure that customers pay their bills. Therefore, small shops with inhouse clearing often rely on payment in advance.
- The focus of innovative payment systems is in some respects – invoice amount or portability of use, for instance – not geared to typical B2C business situations but to niche segments. Many systems are only geared to settling micro-payments for less than EUR 10. But these micro-amounts are not ever charged at two-thirds of the e-shops (see chart 10). Besides this aspect, the mobile-based payment systems laud their portability. However, analysis of a typical purchase situation very quickly puts the significance of this possibility into proper perspective. In Germany, the bulk of B2C e-commerce is transacted during typical working hours, i.e. largely on weekdays between 8 am and 6 pm (see charts 11 and 12). If e-shoppers make purchases during business hours, this suggests that they typically use the infrastructure of their office environment. In this type of online situation the e-shopper is obviously likely to use the available stationary infrastructure for the entire process. It does not seem reasonable to believe that the e-shopper will decide to change media after having selected a product on the web portal and reach for his mobile phone only in order to pay. It follows that the design of innovative payment systems alone often argues against their success in the mass market.

SEPA and PSD stirring up the market

With the establishment of the Single European Payments Area (SEPA) it will become interesting for some e-shops to refocus on their own payment portfolio. SEPA is the response from the European banking industry members organised in the European Payments Council (EPC) to the heightened integration of the EU markets. From the starting basis of purely national payment transaction systems and differing legal regimes in the member states of the EU, SEPA is meant to create a single market for retail payments by 2010. SEPA transactions have to be processed everywhere in this market on the same conditions. The SEPA direct debit, SEPA credit transfer and SEPA card payment (SEPA Cards Framework, SCF) were meant to be on the market by 2008, but could now be delayed as the political powers have been slow in reaching agreement. SEPA pushes for rapid, low-cost, reliable handling of non-cash payments within the complex cross-border networks and thus acts ultimately towards harmonisation. Innovative SEPA-compatible, e-commerce-enabled and IP-based systems (such as Giropay) seem in principle to have particularly good prospects. This holds all the more given that the current state of discussion suggests

The exception proves the rule

Among the innovative payment systems, PayPal is the big, closely followed exception. Based in London, PayPal Ltd. is an electronic money institution according to EU directive 2000/46/EC and regulated by the Financial Services Authority (FSA). Germany's *Bundesanstalt für Finanzdienstleistungsaufsicht* (BaFin) has accepted the validity of the FSA licence.

Since it was taken over by eBay, PayPal has been directly integrated into the online auction site. Driven by eBay's success, PayPal has more than 115 million users in over 100 countries with 15 different currencies. The business model is specifically geared to the demands of eBay trade. PayPal proves that a business model can only be successful if it takes account of the particular features of B2C e-commerce.

Systems operate in strongly regulated environment**Protection of minors has significant consequences**

that the upcoming legal framework for payment transactions in the single European market (Payment Services Directive, PSD) may possibly give preference to promoting innovation ahead of ensuring equal treatment of all types of payment transaction.

In Germany, innovative payment systems that accept advance payments from their customers are treated as electronic money institutions, as set out in the EU's electronic money directive (2000/46/EC) and Germany's federal bank law (KWG). Electronic money institutions are not banks and thus not allowed to manage savings deposits or grant loans. Furthermore, they have to have minimum start-up capital totalling EUR 1 m (deposit-taking banks: EUR 5 m) at their disposal and have to report to the *Bundesanstalt für Finanzdienstleistungsaufsicht* (BaFin). BaFin's conditions pertaining to innovative payment systems are much less stringent than those for conventional financial institutions.¹ Nevertheless, even these conditions trigger considerable costs of their own.

Government's give-and-take role in market potential

All providers of payment systems have to shoulder considerable expenses to satisfy the legal aspects of the intensively regulated, complex market environment, and not just since the launch of SEPA or the PSD.² In this complex regime, policy and regulatory decisions also outside the actual financial sector have a sustained influence on the market situation of payment systems. For example, thanks to Germany's Highway Code (*Straßenverkehrsordnung*) it has been possible since January 2005 to pay parking fees in Germany by mobile phone. Several projects have already been realised at the local level in cooperative ventures between various providers of payment systems and cities such as Berlin, Paderborn, Saarbrücken and Wiesbaden. With the change of legal foundation the issue of innovative mobile payment systems in Germany has resurfaced. Since the business models of the local authorities address small geographical areas, though, the positive effect on the supraregional innovative mobile systems remains limited.

Meanwhile, the political decision to improve the protection of minors in Germany also bears on the potential of the innovative payment systems. Since January 2007, the 550,000 cigarette vending machines in Germany are programmed to sell their products only to customers with documented proof of being over 16 years of age. This documentation is offered by means of a smart card going by the name of *GeldKarte*. This *GeldKarte* is in wide distribution, but has not been used very often to date. The new approach towards the protection of minors will give the *Geldkarte* a new boost and thus bring additional pressure to bear on the competing innovative payment systems. Ultimately, the net effect of political decisions on payment systems – as seen in the examples of parking fees and the protection of minors – is not clear a priori. Owing to the substantial administrative expense involved, however, we are certain that regulation will tend to place greater constraints on the potential of the small innovative systems.

¹ See Mai, Heike (2005). Payments in Europe: Setting it right. Deutsche Bank Research. Frankfurt am Main.

² See Kern, Steffen (2001). Electronic money – the payment instrument of the future? Deutsche Bank Research. Frankfurt am Main.

Payment systems are a key aspect of B2C e-commerce**Innovative systems are left to scramble for niche segments****Old business idea lives on****Conclusion: Settling for established conventions**

Even though the internet is seen by many suppliers and consumers as a virtual trading platform, B2C e-commerce is still far from exploiting its full potential. Business partners who do not know each other personally may be suspicious about a goods transaction and are even more so particularly when it comes to paying. If e-shoppers do not accept the payment procedure, even the most attractive product runs the risk of being left on the virtual shelf. B2C e-commerce will only flourish once the payment systems can satisfy the particular demands of this business.

The conventional payment systems long established in traditional retail trade in the physical world (payment in advance, invoice, cash on delivery, direct debit and credit card) will dominate B2C e-commerce as well. The pronounced network effect, the limited focus of some systems on niches of B2C e-commerce and the few resources available to many e-shops all limit the potential of new payment systems. Usually the innovative payment systems will be left to scramble for niche segments such as micro-payments or cross-border cashless payments based on mobile technology which, as a business field, do not seem sufficiently profitable to the established conventional systems. PayPal is the big exception in this respect. This exception to the rule confirms that a business model can only be successful if it takes account of the particular features of B2C e-commerce, is supported by established e-shops or financial service providers and can convince the buying public that it offers unique value added.

However, apart from such rare cases the conventional payment systems ultimately leave little room for the innovative systems. This holds all the more because the conventional payment systems are taking up the challenge of the new demands. The internationally accepted credit card is a good example. Card companies say they want to tap new market potential by offering advanced security procedures, such as "Verified by Visa" and "MasterCard SecureCode", or an expanded product range, such as a pre-paid card for customers with a poor credit standing. This suggests that the consolidation wave will not ebb in the near future.

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