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Online payments 2010

Increasingly a global game

“ ‘Online payments 2010’ is a must-read for each web merchant and everybody involved in e-commerce and online payments. The report signals breakthrough developments in the European payments landscape such as the continuing developments in payment solutions for social networks, online games and apps. ”

Wijnand Jongen, Director Thuiswinkel.org & member Emota Strategic Payment Committee

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Increasingly a global game

Editors: Douwe Lycklama, Chiel Liezenberg

Authors: Remco Boer, Cassandra Hensen, Adriana Screpnic

info@innopay.com

www.innopay.com

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Preface

You are reading the report 'Online payments 2010 - Increasingly a global game', the 6th edition. First published in 2005 as a Dutch handbook for Dutch web merchants, this report has evolved into an English edition with a wider geographic focus. Given the strong developments in online payments, the content of this report will continue to evolve in the years to come.

'Online payments 2010' presents the current state of affairs in the global landscape of Internet payments. In this year's edition we have not only covered Europe, but the world at large. The report is intended for the entire industry, including web merchants, banks, payment services, Payment Service Providers, risk service providers, scheme organisations and policy makers.

The report consists of two parts. The first thee chapters address developments in the payments landscape such as the European harmonisation through SEPA and the PSD, European trends in online payments, and global trends in online payments. The final three chapters provide background and theoretical information on the payments field, an overview of the many online payment methods, and consumer payment behaviour.

All details concerning payment methods, specific payment products and Payment Service Providers are based on information that was publicly available when this report was written in the last quarter of 2009. Although we do not claim to provide a complete description of the market, we do feel that we present an overview of the main and relevant developments.

With this report we hope to provide both web merchants and payment professionals with clear insight into the global online payments industry.

Finally, this report has been written with the utmost care. If you discover that, despite our efforts, it contains information that is unclear, erroneous and/or missing, we would appreciate it if you would let us know. Please mail us at info@innopay.com.

Amsterdam, May 2010

Chiel Liezenberg – Partner

Douwe Lycklama - Partner

Innopay on online payments

Innopay is an independent, full service consultancy firm specialised in payments and related transaction services. It is our vision that:

- Globalisation increasingly leads to a network economy.
- Electronic infrastructures enable industries to cooperate in networks, in real-time.
- (Mobile) Internet is developing into a true transaction channel, creating new transaction contexts.
- New contexts require new transaction services and new options emerge in existing contexts.
- Transaction services are part of two-sided markets, with sophisticated network effects.
- Development of successful transaction services requires a thorough understanding of the context in which transactions take place. Development is complex and costly and asks for specialist expertise and a specific approach.

Innopay has been active in online payments since 2000. Many of our consultants have acquired their hands-on experience of online payment solutions in the last decade, in which a great variety of online payment solutions was launched, but of which the larger part has also been closed down again.

Based on our experience we have created the 'Innopay Transaction Context Model' (parts of which are described in chapter 6) to better understand the success factors for online payment services development. We serve our customers in three ways:

- We help professionals to 'structure & understand' the online payment industry.
- We help providers to 'develop & manage' their online payment business, services and products.
- We help merchants and corporates to 'choose & use' (online) payment solutions.

Next to Innopay's practice in online payment, other key practices include: mobile payment, e-invoicing, e-identity, cards and related rules and regulation. On most of these topics we regularly publish leading industry reports which can be downloaded for free from our website.

Innopay is a member of the European Payments Consulting Association (EPCA) and the Payment Systems Market Expert Group (PSMEG) of the European Commission and an associate member of the Euro Banking Association (EBA).

For more information visit www.innopay.com or contact us directly at info@innopay.com or +31 20 6580651.

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Executive summary

Towards the end of 2009, the Euro zone has outgrown the worst of the recession, but it seems the economic recovery in the region will still be slow and sluggish this year. Such expectations are backed by figures which indicate that Euro zone retail sales dropped 1.2% in November 2009 as compared to the previous month, in contrast to the 0.2% growth registered in October.[1] The outlook for the economy in the US is more optimistic: retail sales are expected to increase 2.5% on average, reversing a small decline recorded in 2009[2].

As a result of a booming e-commerce market, the online payment market has grown in importance in recent years. The development of a plethora of alternative payment methods has come to be regarded as a response to the drawbacks associated with online credit card transactions. Lower credit limits, higher fees, interest rate growths and debt-related fears are the main factors which shifted online consumers' attention towards these alternatives.

The year 2009 brought a number of innovative services that demand our attention. Although commercial success may not befall all, they do all posses an innovative quality that could spark great changes. RevolutionCard that offers online PIN credit card transactions may gain a boost in 2010 by its purchase by American Express. The French e-Carte Bleue enables secure online credit card payments by generating fictitious card numbers per transaction. TrialPay has pioneered transactional advertising, that enables consumers to get one good for free if they first purchase a second good at a second web shop. BillMeLater that offers credit on a transaction basis may also gain momentum in the coming year after its introduction on the eBay platform. And, finally, Kachingle enables socalled ‘crowdfunding’ – financing on a subscription basis - of online publishers.

Pre-paid cards continue to be an interesting segment in online payments. Paid for in advance, usually at a brick-and-mortar shop, they enable the ‘digitally nervous’ and the ‘digitally excluded’ to participate in e-commerce.

The dominant position credit cards once held in e-commerce continues to be eroded. Online banking based payment methods as well as a wide variety of non-card alternatives are gaining ground. Merchants clearly push these methods as this is an effective way to reduce fraud associated with cards.

Fraud and the perception of fraud are and remain important themes. In 2009 there were fewer large fraud cases when compared to 2008. However, the occurrences of online card fraud may rapidly increase in the coming year due, paradoxically, to increased security at the point of sale. In the UK the replacement of the swipe-card by EMV, which has both a chip and a PIN, has led to a gradual decrease in the proportion of offline card fraud. As EMV is rolled out across Europe, with some countries like the Netherlands expediting EMV roll-out due to

[1] Eurostat

[2] The National Retail Federation

high fraud levels at ATMs, fraudsters may shift their attention increasingly to the card-not-present transactions.

The harmonisation of Europe

Meanwhile, regulatory changes through SEPA and the PSD designed to harmonise payments in Europe are set to impact the European landscape. The SEPA program was initiated by the European Payments Council (EPC) that was set up the banking sector. Under this program the European banks seek to harmonise credit transfers, direct debits and card products across 31 European countries. The SEPA vision is to abandon the concept of cross-border payments and to treat Europe as one domestic region for payments. Every citizen and organisation should have access to the same payment products all over Europe. This vision is part of the European Commission's Lisbon Agenda, the effort to make Europe the world's most competitive economy by 2010. SEPA officially started its first phase on 1 January 2008 with the SEPA Credit Transfer becoming available on 28 January 2008. The SEPA Direct Debit became active on 2 November 2009, one day after the Payment Services Directive (PSD) came into effect. SEPA for cards started per 1 January 2008 but only for newly issued cards. The vast amount of issued cards will be migrated in the years to come, also the POS card acceptance points will be expanded and upgraded with EMV (where needed).

The SEPA payment infrastructure forms the basis for new harmonised services, such as Internet payments and e-invoicing. Especially European politicians expect a lot from the societal efficiencies as a result of the further penetration of Internet payments and e-invoicing in the coming years (savings of €243 billion is often quoted). Therefore policy makers are calling for an effort 'beyond SEPA' to realise new and standardised services on top of the new SEPA payment infrastructure.

In 2007 the European Payment Council started work on two e-SEPA services. The first service is a model for e-mandates which is positioned as a value-added service to the SEPA Direct Debit and will allow for further dematerialisation of processes between consumers and merchant, corporates, governments and banks. The second is a framework for online payment services based on the SEPA Credit Transfer, which will use online banking as the authorisation mechanism. For the e-commerce sector, progress on these issues has been limited so far. Hopefully 2010 will provide more concrete results.

Although the European Union is striving towards a single market, great divides in e-commerce maturity and IT development persist. Generally speaking, the Nordic countries in addition to the Netherlands and the UK are most advanced while countries in South and Eastern Europe are less advanced. However, those currently lagging behind are making great strides in catching up. Access to broadband Internet has increased strongly in the new EU member states. For example, in Romania broadband access grew from 8% in 2007 to 23% in 2009. Also the proportion of consumers having purchased goods online has grown significantly. Eastern Europe is bound to catch up and may even leap ahead.

Despite attempts to forge a single market from the patchwork of European nations, cross-border e-commerce is slow to develop. Recent research by the European Union revealed that 60% of cross-border orders within the EU were simply not fulfilled. Here too there is great disparity among countries, with the frontrunners demonstrating high levels of both domestic and cross-border purchases while the emerging markets show neither. The hurdles preventing this single e-commerce market include language barriers, VAT issues but also the lack of international or interoperable payment methods.

The ways in which consumers pay for goods online greatly varies in the different European countries. While in the Netherlands online banking payment method iDEAL takes a prominent position, Germans prefer direct debit method ELV, Danes pay with their debit card, the French by credit card and Eastern European primarily by cash-on-delivery. This diversity makes Europe a complex but interesting market, and one in dire need of harmonisation if a single European online market is ever to be realised.

Trends in online payments

We signal a number of important trends that can potentially impact the global online payment and e-commerce market in the near future.

Where once consumers trusted banks with their finances, the credit crunch, the process of globalisation and the implementation of the Payment Services Directive (PSD) in Europe have driven a shift in consumer trust away from banks while simultaneously enabling service providers to enter the financial services market. These parties are not banks, but are rather innovative companies with a large consumer user-base that have already established a trust relationship with these consumers. Companies like PayPal, Amazon and Google are used by hundreds of millions of online consumers and are already trusted with payments, shopping, search and email can now also be trusted with additional financial services.

Multi-channel trade takes place when different sales and payment channels are used during a single trade. Offline payment cards have been used to pay online for years, but now also mobile phones are being used to pay for digital content. Cash continues to play an important role for purchases online and used for payment on delivery or at a brick-and-mortar store while simultaneously picking up the order. Money earned or won online can now easily be used in the real world through debit cards offered by PayPal and Ukash. Finally, also offline business as rudimentary as breweries delivering beer to bars, now use iDEAL for payment.

In 2009, the call for micropayments was reinvigorated with the announcement by Rupert Murdoch, CEO of global news conglomerate News Corporation that online news would no longer be given away for free. The question then was how online news readers would pay for the news.

The great demand for a secure and efficient online micropayments system has hereto not been met and remains a challenge. Perhaps 2010 will bring a resolution.

Interestingly enough, 2009 witnessed the rise and rapid growth of 'online mobile payments', mainly driven by an increase of mobile and Internet based social networks, virtual goods and games, the popularity of mobile applications and a considerable number of unbanked customers (i.e. those too young to have credit cards or a bank account but with access to a mobile phone).

The concept of having virtual goods payments sent to the customer's phone bill has stirred up rivalry between payment services providers like Boku, Zong and Obopay, who have developed platforms designed to let consumers buy online content such as news stories with the charge billed to their mobile phone rather than other payment methods, such as a credit card. The mobile channel has thus come to be regarded as a promising medium for such developments, as they could solve some of the problems associated with selling content online, such as users' reticence to use a payment card online due to security issues.

One trend that is quickly changing the way things are done online is the advent of the web application, or app, built on top of existing infrastructure by independent developers. The iPhone apps are a popular example where third parties can develop programs to do all kinds of interesting things using the iPhone and the Apple infrastructure. Apps allow a stacking of payment services, such as the example of TwitPay that stacks payments on Twitter on top of PayPal transactions that in turn are stacked on core payment mechanisms such as credit transfers and direct debits. A challenge that remains is that some platforms like PayPal with their bold PayPal X initiative encourage the development of apps and earn on the transactions while others, like online banks, deplore the utilisation of their infrastructure by third parties like Directebanking. The latest development is the rise of 'in-app' payments in which the customer completes the payment entirely within the app, e.g. via Jambool.

Online banking payment methods continue to play an important role in the European payments landscape. In many countries there are multi-bank, mono-bank or intermediary solutions. What remains a challenge is the cross-border use of these payment methods. While the intermediary solutions can quickly expand, the bank owned solutions can not or do not. New efforts will be made in 2010 towards interoperability through the ICPNO and internationalisation via the ECP.

Non-card based payment services bring several benefits for both merchants and customers. These include lower transaction processing fees than the interchange charged by card companies and a lower risk of fraud, as the merchant never gets to see or store the customer's financial information. In the context of a plethora of alternative payment methods invading the market, the expansion of the usage of PIN-based debit cards in the online environment has come to be regarded as a market opportunity. Acculynk extended the choice in how a consumer uses the debit card by making available a PIN debit payment option: PaySecure. The PaySecure platform allows consumers to use their PIN debit cards to pay for online purchases. PaySecure utilises a graphical, scrambling PIN-pad for the secure entry of a consumer's PIN. Consumers enter their debit card information as they normally would on a merchant website. Once the consumer submits the information, PaySecure performs a check on the card number. If the card can be used with a PIN and is in Acculynk's

network of participating issuers, PaySecure's graphical PIN-pad is presented and the consumer is given the opportunity to enter their PIN. The consumer enters their PIN on the PIN-pad, clicks Submit PIN and the transaction is processed as PIN debit[3]. Such a technology has enough potential for fast online adoption, since it offers consumers the convenience of paying with a card they already have and a PIN only they already know and use for offline purchases as well.

With the world of online payments in continual flux, 2010 will be another exciting year.

[3] Online Paypers, Vol.3, Issue 2

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Part 1

Market developments and trends

1 The harmonisation of the European payments landscape

1.1 The Single Euro Payments Area (SEPA)

For the last few years the European banks have been under pressure from European policymakers to address the fragmented payments landscape in Europe. In 2002, this led to the introduction of the 'Bolkestein Directive', which stipulated that the costs for a cross-border money transfer must be the same as the costs for a domestic money transfer.

In the years thereafter, strong political efforts have been made to realise a full harmonisation of Euro payments. This is called SEPA: 'Single Euro Payments Area'. This vision of the European Commission entails that citizens and companies within Europe can have access to a single set of payment instruments. This set is the combination of a bank account and instruments like credit transfer, direct debit and cards. SEPA signifies the end of 'cross-border' or 'international' payments within Europe.

The European banking sector responded to the pressure with self-regulation by setting up the European Payments Council (EPC) in 2002, through which the banks work together to translate the political objectives into rules and regulations for core payment instruments. This became SEPA. In concrete terms this means that new standard payment instruments were developed. These include credit transfers and direct debits. As far as cards (credit and debit) are concerned, no new instruments are being developed, but instead rules are being drafted for the 'SEPA Card Framework'. After that, it is up to the market. This means that the local debit cards in various countries (including the Dutch PIN card and the current German EC Cash card) may either disappear in their current form, change or link up to other international networks. Combinations are also possible. The existing international networks of MasterCard and Visa will play a major role in realising SEPA for cards, but also alternative SEPA card products are likely to emerge, such as EAPS, PayFair and the French/German initiative Monnet.

In January 2008 the SEPA credit transfer and in November 2009 the SEPA direct debit came into effect so that it currently makes no difference whether money is being transferred domestically or within the SEPA region.

In the coming years we will increasingly see SEPA products and services come to the market. Existing instruments will not disappear immediately, but in the next 5-10 years the entire banking sector is expected to migrate towards new payment methods. Currently, discussions are being held on a mandatory end-date for banks' migration to SEPA and on the continuation or termination of domestic and niche payment products. It is widely thought that without a mandatory end-date for migration to SEPA, few banks will be prepared to incur the costs and hassle of migration unless others do so as well. An end-date will level the playing field.

1.2 'E-SEPA'

E-SEPA is an opportunity for the e-commerce sector as it has the potential to create pan-European online payment instruments. E-SEPA refers to both SEPA products being used in online environments and new products making use of the SEPA infrastructure. While SEPA is a bank-to-bank effort, e-SEPA is broader in scope and includes the bank-to-customer channel. Politicians and regulators are putting pressure on the banking sector to innovate 'beyond SEPA'.

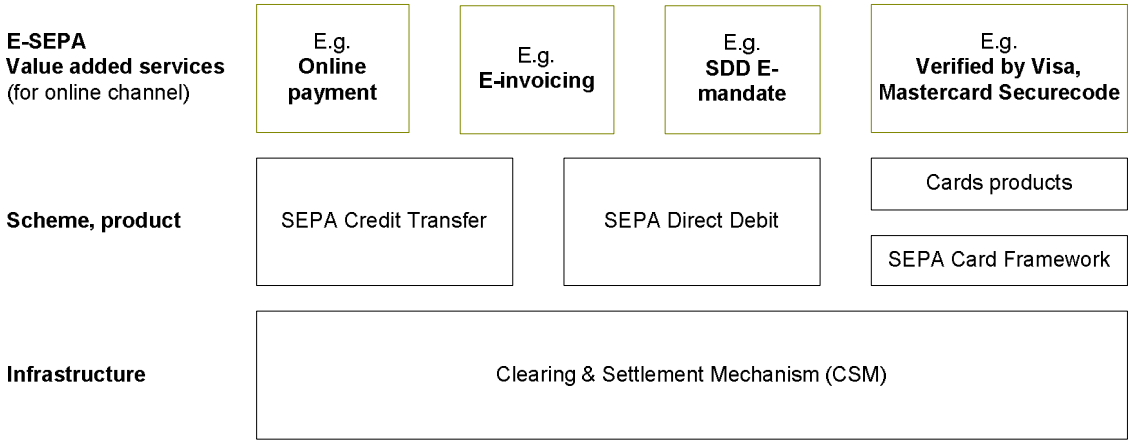

Figure 1: SEPA and some examples of e-SEPA value added services (for the online channel).

In the first category of e-SEPA we find services directly related to payment instruments, such as e-mandates, online payments and 3D Secure services for cards, such as Verified by Visa and MasterCard SecureCode. E-mandates are dematerialised mandates used for direct debit. Buyers will be able to issue a mandate online, which will provide a new and powerful service for merchants because it saves the cost of the handling the paper mandates. Both SDD E-mandate and SEPA online payment are not compulsory, so it will depend on individual banks whether these products will be offered to their customers. Both the European Central Bank and the European Commission have been pressing the market for more innovation in this field.

The second category of e-SEPA is a product like e-invoicing, because it can build on top of the SEPA payment instruments and other e-SEPA services. Dematerialisation of paper trading documents is high on the political agenda because of the potential cost savings adding to the competitiveness of Europe as part of the Lisbon Strategy. However, e-invoicing is not the native domain of the banking industry, so a multi-stakeholder effort is needed. The European Commission took the lead by installing an Expert Group on Electronic Invoicing, which finished work in November 2009 and proposed the European Electronic Invoicing Framework.

E-SEPA should be regarded as an opportunity for the e-commerce sector, because it will contribute to further efficiency and creation of customer centric services. Unfortunately the pace of development is slow.

1.3 Payment Services Directive

In addition to SEPA, which is a self-regulatory initiative, a new legal framework has to be established to harmonise the European national payment legislation. This is the Payment Services Directive (PSD) which had to be implemented in the national legislations by 1 November 2009.

The main purpose of the PSD is to harmonise European payment legislation and to increase transparency and efficiency of payment systems as well as to foster competition. As such the PSD is designed to protect the interests of consumers, retailers, companies and public authorities.

The effects of the PSD on the payments playing field remain to be seen, but the first effects are expected to become visible in 2010.

1.3.1 Payment institutions

The PSD is also meant to create a level playing field making it easier for new (non-banking) entrants to take part in payments business, eventually leading to more choice and lower prices.

The PSD introduces the 'payment institution' (PI). Although a precise definition of a payment institution is provided, this definition and its transposition into national legislation leaves room for interpretation. It is, however, clear that payment institutions can transfer money, hold payment accounts and grant credit, and are prohibited from taking deposits and issuing e-money (Art. 16 §§2-4). Organisations that will start and implement such financial services need a license according to the PSD (Art. 10 §9).

The introduction of payment institutions is especially relevant for the online payments sector where non-bank service providers already provide a wide range of payment services. Many payment services providers may need to acquire a license to continue operations. Non-bank acquirers offering card or alternative payments can enter the market potentially driving down costs. In addition, many non-bank service providers can expand their portfolio of services.

1.3.2 Comparison of SEPA and PSD

For a clarification of how SEPA and the PSD are connected we provide an overview of the scope of several variables. SEPA and PSD are tied to each other. Without PSD there cannot be a full SEPA and vice versa.

	PSD	SEPA
Origin	European Commission	Self-regulation by banks
Geographical scope	EU + EEA	EU + EEA + Switzerland
Currencies	Euro + member state currencies	Euro
Stakeholders	Any payment service provider	Banks
Space	Payment Service Providers and users	Interbank
Services	Payment services	Credit transfers, direct debits, cards

Table 1: Scope of PSD and SEPA compared.

1.4 Impact of SEPA and PSD on online payments

Banks have to adhere to the rules and standards set out by SEPA and adjust their payment services to comply with the new regulations. Banks have to be SEPA compliant. Those offering payment services will also need to comply with the PSD to continue operations and be vigilant for new entrants into the payment services market.

Web merchants will need to adapt their payment systems and, most importantly, seize the opportunities that SEPA and the PSD offer.

To get ready for SEPA and the PSD web merchants should do the following:

- Ensure that your banks are fully SEPA compliant.
- Make sure you know your IBAN and BIC and make sure your customers know your IBAN and BIC. Publish these numbers in your business communication.

It is also worth considering these opportunities and threats:

- There will be more competition among financial services providers such as banks, PSPs, PIs which will probably lead to lower prices and better service. Track this development.
- There will likely be more transparency in the costs of various payment methods.
- There will likely be more as well as more standardised payment products and value added services available. Keep track of these opportunities.
- More players will enter the payments market as a result of the introduction of payment institutions as well existing companies starting cross-border operations.
- It will be increasingly possible to centralise European payment operations.
- It is possible to receive and pay funds across Europe from a single bank account. This will most likely boost online banking based payment methods.
- SEPA Direct Debit and e-mandates will enable pan-European online direct debit payment.
- Faster processing of transactions will allow funds to be available quicker.

2 European trends: a patchwork of markets

2.1 Europe: differences between countries decline

European e-commerce is rather diverse. Due to the fact that different markets in Europe are in different stages of market development, the differences in average online spending are enormous. These differences are, however, decreasing.

The growth in e-commerce has taken on spectacular proportions in the last decade. E-commerce has evolved from a novelty, via a nice-to-have to a need-to-have. It has developed from scratch to a multi-billion euro industry. But there are large regional differences in Europe.

Generally speaking, the UK, Germany and the Netherlands are frontrunners in the adoption of e-commerce. The exceptional performance of the UK is partly due to the fact that the UK attracts a large amount of cross-border commerce. A significant percentage of UK merchants already accept orders from mainland Europe, the Americas and Asia Pacific. In 2010, a higher percentage of UK merchants are expecting their online revenue to grow year-on-year (69 percent vs 51 percent)[4]. As part of their growth strategy, UK merchants will start accepting international orders from more countries, including China. The number of UK Internet shoppers is expected to reach 31.8 million by 2013[5], accounting for over one-half of the country's population.

Although initially German retailers were slow to recognise what advantages online sales could bring (30% of the German companies selling on the Internet in 2008 launched their online stores in 2007 or even later[6]), e-commerce has become a must have for brands.

In France, e-commerce growth is attributable to an increase in the number of online stores (over 15,000 e-tailers opened their virtual doors for the first time within the past 12 months)

Country	Turnover in B2C commerce, in EUR (2009)
United Kingdom	55.5 billion
Germany	29.0 billion
France	28.1 billion
The Netherlands	6.5 billion
Italy	5.8 billion

[4] CyberSource: The Sixth Annual UK Online Fraud Report

[5] eMarketer

[6] idem

Poland	3.7 billion
Russia	3.1 billion
Sweden	2.0 billion
Romania	225 million

Table 2: Online turnover and spending in selected European countries. Source: FEVAD, The Paypers various articles, IMRG, the National Association of Members of E-commerce-Russia, Retail Decisions, Trade Research Institute, Dziennik Gazeta Prawna, www.money.ro

Research suggests that the differences within Europe can be explained by two factors: a difference in Internet penetration and especially broadband Internet, and a difference in disposable income.[7]

The growth of e-commerce in the past years was based upon two factors:

- The growth in Internet access leading to increased demand and ability to spend money online.
- Existing Internet buyers spending more online.

2.1.1 Growing Internet access

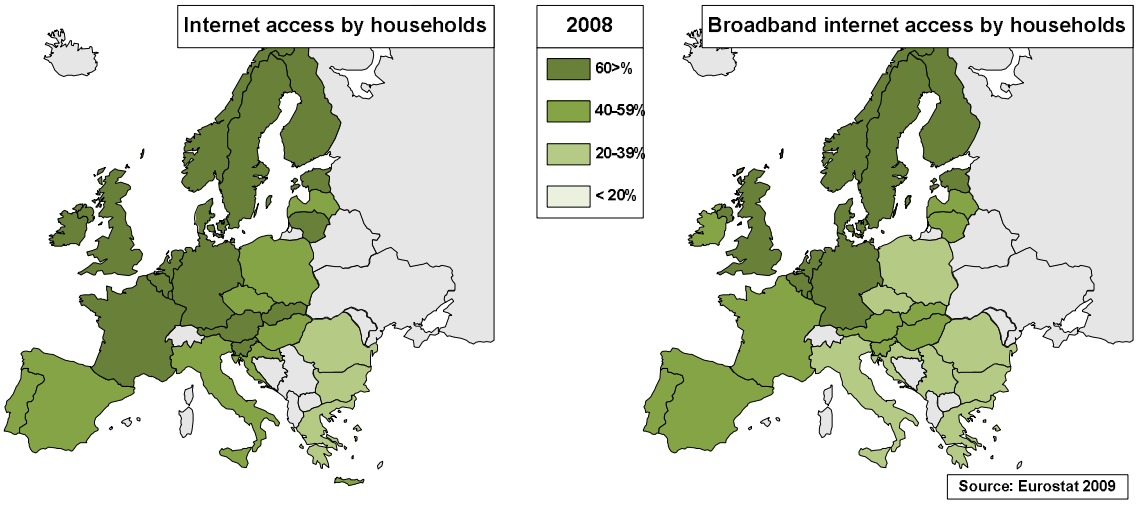

Figure 2: Access to (broadband) Internet by household. Source: Eurostat 2009.

In North-Western Europe the e-commerce markets are more mature. This is reflected in slowing growth. The main cause of this is that in the past, growth was primarily driven by an increasing number of Internet users. Now, with a high level of Internet penetration, this

[7] The Paypers: Online Paypers vol. 1, issue 6.

factor of growth has evaporated for these developed markets. Any future growth has to come from extra spending of existing online consumers.

In Central and Eastern European countries there is serious growth potential, despite the relatively smaller size of the e-commerce turnover and lower consumer spending. Internet access and e-commerce spending is up across the region. For example, Polish e-commerce grew by an estimated 60% in 2008 and the online banking and payment sector is developing very rapidly[8]. The less developed markets in Eastern Europe still have a low Internet penetration but are catching up quickly. For example, broadband access in Romania went from 8% in 2007 to 23% in 2009. The online payment industry in the region still demonstrates a very high degree of fragmentation with a high number of new initiatives. The credit crunch greatly impacted the economies of Central and Eastern Europe, with the exception of Poland, but the setback will be only temporary.

The lower Internet penetration in Eastern and Southern Europe results in a higher percentage of people who have never made a purchase over the Internet. In these regions there are relatively large percentages of individuals, reaching 59% in Latvia, who have never order anything over the Internet.

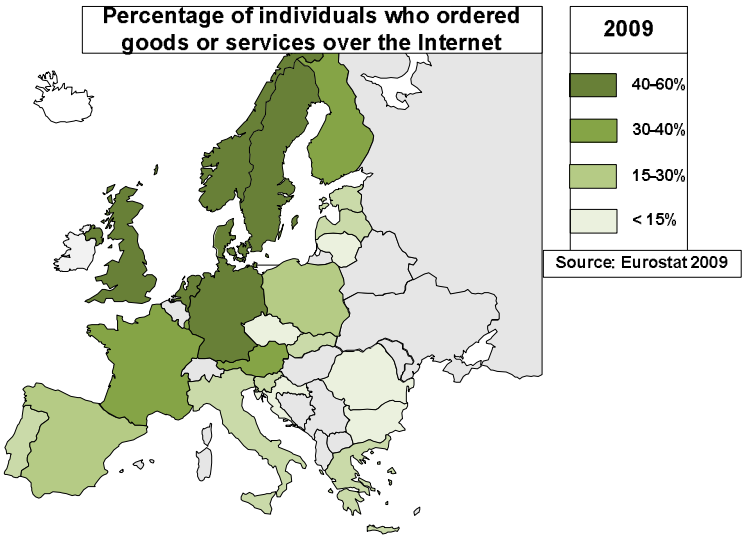

Figure 3: Percentage of individuals who ordered goods or services over the Internet. Source: Eurostat 2009

With Western Europe having to rely on just one factor (average spending per consumer) for growth and Eastern Europe having the ability to tap from two sources of future growth (higher average spending and higher Internet penetration), it comes as no surprise that Eastern Europe will be closing the gap with its Western counterparts in the near future.

[8] Source: The Paypers, Online Paypers, issue 19, p 9.

2.2 European cross-border e-commerce and payments

Despite efforts to turn Europe into a single market and harmonise (payments) legislation, cross-border e-commerce is slow to develop. In October 2009, 10,964 mystery shoppers hired by the European Commission tried to buy good online from another European Union country. Over 60% of orders were simply not fulfilled. While 33% of EU consumers shop online, only 7% do so cross-border.[9]

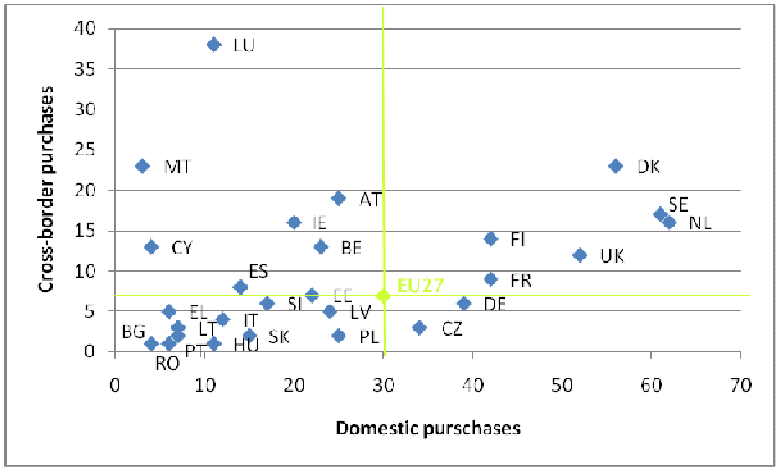

Figure 4: Percentages of consumers having bought goods or services on the Internet from sellers in another EU country (cross-border purchases) vs. in their own country (domestic purchases). Source: Eurostat 2009

When the percentage of consumers having bought goods domestically is plotted against those having bought goods from another country, big differences between countries are revealed. Plotting the average of the 27 EU member states, the scatter plot reveals four quadrants.

- **The frontrunners** with relatively high rates of both domestic and cross-border consumer purchases are Denmark, Sweden, the Netherlands, Finland, the UK and France. These are also the more mature online payments markets.
- **The international oriented countries** are those that have lower than average rates of domestic purchasing but higher than average rates of cross-border purchases. These countries are relatively small and, notably, speak the same language as a larger neighbor. These include Luxembourg, Malta, Austria, Ireland, Belgium, and Cyprus. Spain is also just in this group.
- **The domestic oriented** countries demonstrate higher than average rates of domestic purchases but lower than average rates of cross-border consumer purchasing. The two

[9] http://ec.europa.eu/consumers/strategy/docs/COM_2009_0557_4_en.pdf

countries in this group are Germany and the Czech Republic. It is expected that as domestic e-commerce grows, many more countries such as Poland will join this group.

- **The emerging markets** have both lower than average rates of domestic and cross-border consumer purchasing. E-commerce is still developing in these countries. Several are on the verge of moving to the next quadrant, such as Estonia, Slovakia and Poland. Others, like Bulgaria and Romania, are still a long way from the European average on either axis.

There are many barriers that prevent cross-border e-commerce from developing in Europe. Language barriers but also VAT and shipping issues persist. Additionally, EU reports signal the lack of a reliable cross-border payment instruments as a major barrier preventing cross-border sales. Web merchants specifically pointed to the lack of interoperability among payment systems, concerns over possible non-payment, the heightened threat of credit card fraud in cross-border trade, and consumer worriers over safety and security of payments. Additionally, consumers point to fears over payment fraud and possible complications as well as surcharging and currency fluctuations.[10]

Within Europe, only credit cards currently have full reach of the continent, although they remain constrained by concerns over fraud. E-wallets and pre-paid cards also have wide breadth while debit cards and online banking based payment methods mostly only have domestic reach. The development of a secure and reliable pan-European online payment method is imperative.

2.2.1 Alternatives to cross-border

There are alternatives to cross-border trade that enable merchants to overcome the problems discussed above.

Instead of gearing a business towards international cross-border sales, many online merchants prefer a multi-local approach. Instead of a centralised website servicing the whole continent, merchants subdivide their business into regional branches as if they were domestic firms and approach those markets as domestic markets. Their product range is tailored to this market as are the payment instruments on offer. This makes all sales and payments domestic even though the parent company is international. Within the European patchwork of nations and languages, a multi-local approach seems to be a practical solution.

A second alternative is to route payments through a collecting Payment Services Provider. A web merchant can maintain a single web shop to service a number of different countries. Payments by international or domestic payment methods are then collected locally by the PSP and periodically paid out to the merchant.

[10] Report on cross-border e-commerce in the EU, February 2009, http://ec.europa.eu/consumers/strategy/docs/com_staff_wp2009_en.pdf

2.3 Method of payment in European countries

Assessing the market share of different payment methods in the various European countries is precarious. Exact market shares are hard to come by. There are many different payment methods, both online and offline, offered by many different providers and aggregated by many PSPs while some payment methods require no service provider at all. This complicates the assessment of the market share of payment methods in European countries.

Below we present the market share of payment methods per county if reliable studies are available. In those cases where figures are lacking, we give only a rough overview of which payment methods are popular.

Austria - In Austria many online payment methods are used. ELV as well as multibank payment method EPS represent more than a third of all online payments. MasterCard and Visa credit cards represent another third. The remaining third is comprised of many smaller payment services such as Paybox and PaySafeCard.

Belgium - In Belgium consumers primarily use cards and online bank payment methods to pay online. The introduction of Maestro online debit card payments in 2009 is sure to impact the way Belgians pay online. Notably, credit card fraud on the Internet has almost doubled in three years in Belgium, according to a representative of the Federal Computer Crime Unit (FCCU)[11]. The number of Belgians having their credit cards used fraudulently on the Internet reaches several thousands each year, but exact figures have not been revealed.

Czech Republic - Czech consumers, like others in Central and Eastern Europe, in great majority pay by cash-on-delivery followed by bank transfers and credit cards. E-wallets and pre-paid cards are also used. According to a study conducted by the Association of Electronic Commerce (APEK), 70% to 80% of online purchases take place via mail order in the Czech Republic. The same source indicates that the percentage of other online payment methods used in the country, including credit cards, is insignificantly small. On a comparative basis, the situation in Western countries is reversed, as cash on delivery comes only third in the consumers' top preferences, while the dominant payment method is credit card (for almost 80% of the cases). Banks in the Czech Republic are trying to come up with online systems that allow them to offer online payment and also set a more favourable charge than in the case of a credit card.

Denmark - Credit and debit cards are used for the vast majority of online payments in Denmark (89%). Most of these are via the Danish national debit card Dankort that can be used both offline at points of sale as well as online. In Q1 2009, online transactions made by Danish online buyers with their credit cards reached almost 10.49 million for the second quarter in a row[12]. In the previous quarter, the number of Internet transactions via credit cards reached 10.40 million, while on a year-on-year basis, the number of such transactions for Q1 rose by

[11] The Paypers

[12] Statistics have been released by Danish market research firm ehandelsanalyses.

11.5%. Other payment methods used in Denmark are online bank payment methods (7%), invoice (2%) or cash-on-delivery (1%). [13]

Finland - In Finland online bank transfers (44%) are frequently used to pay online. The services are offered by individual banks such as Nordea, Sampo, OKO and Aktia. This is followed by cards (21%), invoices (21%), cash-on-delivery (9%), e-wallets (3%) and mobile payments (2%)[14]. Nordic consumers decide on the online payment method according to ease of use, security and price[15]. Thus, credit and debit cards rank highest in terms of their preferences, as a whole, followed by online bank transfers and invoices. In spite of differences in terms of consumer habits and shopping patterns in the Nordic region, the distance selling market is showing sustained growth because of the popularity of online commerce, the wide range of products and services enabled by the Internet and significant customer demand. This is why it has enough potential to become a challenge for companies and customers to get more involved in such activities.

France - In France credit cards are the dominant online payment method. To a much lesser extent cash-on-delivery and alternative payment methods are also used. PayPal ranks second in the top of the most popular online payment systems in France, following Visa, according to ITespresso.fr In 2008, the volume of payments via PayPal reached EUR 1 billion on the French market alone (versus EUR 41 billion in the world). The number of PayPal account holders has reached 8 million in this country. France is the third European country in terms of the number of PayPal accounts, after the UK (21 million) and Germany (10 million). In Europe there are 52 million PayPal account holders.

Germany - German consumers have a clear preference for direct debit payment method ELV. This is followed by payment by credit cards, online bank payment methods such as giropay and Sofortuberweisung, and e-wallets. PayPal is gaining popularity across Europe, especially in Germany: in March 2009, PayPal had more than 10 million accounts, as compared to 5 million in February 2007.

Hungary - In Hungary cash-on-delivery is most often used to pay online followed by bank transfers and credit cards. E-wallets and pre-paid cards are used to a lesser extent.

Ireland - Debit and credit cards are used to pay online. Irish debit card Laser is the most popular, but Maestro and Visa Electron are used as well.

Italy - In Italy consumers primary use credit cards to pay online although cash-on-delivery and alternative payment methods are also frequently used.

[13] DIBS Nordic E-commerce Index, March 2009.

[14] Idem.

[15] Online Paypers, issue 11

The Netherlands – iDEAL ranks highest in the top of the most popular online payment systems, with 44% of online shoppers preferring this payment method to any other option[16]. Acceptgiro comes second (28%), followed by credit transfer (9%), credit cards (6%), PayPal (5%) and direct debit (4%).

Norway - In Norway, cards are the most common way to pay online (61%). Online bank transfers (18%) such as through the multi-bank service BankAxess as well as invoices (12%) are also used to pay online. Cash-on-delivery (5%) and e-wallets (4%) are much less popular.[17]

Poland - In Poland the most popular methods of payment are cash- or card- on-delivery and by bank transfers. Bank transfers are often standard credit transfers, sometimes initiated offline, but can also be conducted through one of the many mono-bank online bank payment methods. Credit cards, e-wallets and pre-paid cards are used as well but to a lesser extent.

Romania – Romanian consumers primarily use offline payment methods such as cash-on-delivery and bank transfers to pay for online purchases. Credit and debit cards (5%) are rarely used.[18]

Russia - Most online payment systems here are mainly developed for the Russian online community: e-wallets, such as WebMoney, Yandex.dengi, Kredit Pilot, e-port, Rapida systems (many of them are processed through Cyberplat and Assist). Some local banks offer online credit card processing services (ImpexBank) and there are also third party payment processors (Chronopay).

Slovakia - Slovak consumers mostly pay by cash-on-delivery followed by bank transfers and credit cards while e-wallets and pre-paid cards are also used.

Sweden - In Sweden, cards (35%), online bank transfers (30%) and invoices (28%) have a roughly equal share of the online payments market and together represent over 90% of the online payments market. Cards used in Sweden are the international card brands. Online bank payments are offered by individual banks such as Nordea, Handelsbanken, SEB and Swedbank. Cash-on-delivery (3%) and e-wallets (3%) are also used.[19]

United Kingdom - Debit and credit cards are most frequently used for online purchasing, with Maestro representing around 10% of all transactions. Other methods such as e-wallets and pre-paid cards are used to a lesser extent.

16 ThuisMarktMonitor Blauw research

17 Idem.

18 www.thepaypers.com, 'Exclusive interview with GECAD ePayment on online payments and e-commerce in Romania', 27 November 2009.

19 Idem.

3 Developments in online payment

With huge growth, global reach and the entrepreneurial spirit there is always a lot going on in the online payments market. We will touch on some of the most important trends that will define the market in 2010.

3.1 Old players, new roles: PayPal, Amazon and Google

Structural changes have picked up speed in 2009 and are set to change the online payments market. These changes drive and enable shifts in consumer trust as well as service model. We see service providers such as PayPal, Amazon and Google acquiring a role in online payments and traditional banking services. Unless banks pick-up on this trend their role could be marginalised.

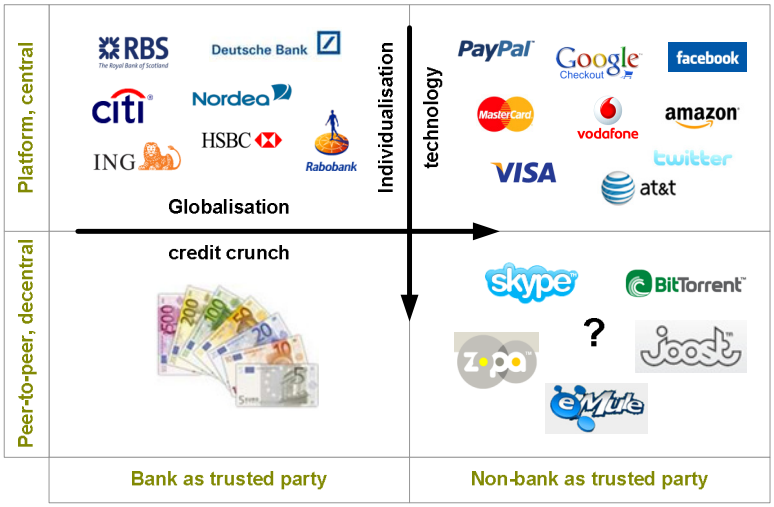

Figure 5: consumer movement from banks to service provider to peer-to-peer.

Where once consumers trusted banks with their finances, the credit crunch, the process of globalisation and the implementation of the Payment Services Directive (PSD) in Europe have driven a shift in consumer trust away from banks while simultaneously enabling service providers to enter the financial services market. These parties are not banks, but are rather innovative companies with a large consumer user-base that have already established a trust relationship with these consumers. Companies like PayPal, Amazon and Google are used by hundreds of millions of online consumers and are already trusted with payments, shopping, search and email can now also be trusted with additional financial services.

PayPal has steadily been expanding its payments and financial services offerings and now seems to be eyeing the role of acquiring and issuing bank. Also, in the past years web

merchant Amazon and search engine Google have begun offering extended checkout and payment services and branched out into new domains.

But, development will not stop there. Both banks and the new service providers are based on a central platform model. Meanwhile, under pressure of individualisation and technological innovation decentralised peer-to-peer services have become very popular and attracted millions of users. BitTorrent technology that couples supply and demand of individual users is currently widely used for sharing movies and music. In the long term, we expect peer-to-peer to become the new paradigm and radically change the way payments and financial services are offered online.

3.1.1 PayPal's ambitions

PayPal is still growing rapidly with 78 million active accounts (200 million total) worldwide. It is offered in 190 countries and in 24 currencies, having added 5 new currencies from Asia and South America in 2009. PayPal's current position of strength and its ambitions for the future make it a force to be reckoned with.

PayPal stated as an e-wallet but soon, by enabling consumers to link their credit cards and bank accounts to their PayPal accounts, took on the role of a payment services provider. Through integration with PayPal, merchants can accept credit cards and other (local) payment methods without having to go through a complex sign up and acceptance procedure with an acquirer.

PayPal also began to move into mobile payments, micropayments, the issuing of debit cards and co-branded credit cards all for use on and offline. PayPal now also offers consumers credit through BillMeLater.

PayPal has had a banking license for several years but has seemingly done little with it. However, in 2009, PayPal hired three new executives with banking experience at Wachovia, Citigroup and Barclays Bank. The potential for PayPal in the banking industry are vast. PayPal already operates a truly global network of accounts in different currencies and languages enabling a rapid transfer of funds. Soon consumers will be able to do more with their PayPal account than with their bank account, and many already can.

To consumers, PayPal has demonstrated to be reliable and innovative and is well entrenched in the online world which is a market traditional retail banks are only just beginning to enter.

To leverage its existing user-base and global infrastructure, PayPal has recently offered third-party developers the possibility to develop applications that use this infrastructure. PayPal has published a series of APIs, or application programming interfaces, that describe how other applications can interact with PayPal. This 'PayPal X' platform enables third-parties to develop their own payment services that use PayPal for the actual transaction. In this way, PayPal is starting to act like a payments processor or payments infrastructure provider allowing others to develop user friendly services while earning on the transactions.

PayPal has the users, has established trust and is clearly eyeing the banking industry. PayPal has moved far beyond the e-wallet it once was and may disrupt not only the online payments market but the global payments and banking community as well.

3.1.2 Amazon Payments

Amazon started as an online bookseller, but quickly grew to become one of the biggest online retailers. Amazon had diversified its offerings to include publishing and printing and through Amazon Web Services offers cloud IT infrastructure services, fulfillment and payments. Amazon began its payments division in 2007 but has recently made strides in its development becoming something of a payment services provider.

Amazon Checkout is a payment service for third-party web shop. With Amazon Checkout, merchants have access to payment services while consumers can use their Amazon account, and the payment and shipping details stored in it, to easily and quickly shop at web merchants connected to the service.

In 2009, Amazon extended the Checkout with Amazon PayPhrase that enables consumers to pay online with only a single phrase and a four digit PIN. As a security measure, when using PayPhrase no personal information can be seen or changes. This makes the relatively easy task of guessing a PayPhrase and cracking the PIN rather pointless. What makes PayPhrase more than a quick checkout is that several phrases can be coupled to the same Amazon account and each can be given its own spending limit. This allows parents to give each of their children their own phrase to shop online with, with their own spending limit, and keeps control over payment and shipping information with the parents.

Amazon also launched Amazon Flexible Payments (AFP) that allows third-parties to structure their own payments in any way they want. For example, a third-party web merchant may want to let customers use their Amazon account to pay a monthly subscription fee. Transaction dates and payment methods can be set and micropayments can be aggregated into single transactions. All this can be developed using AFP. Although AFP has great potential, enabling merchants great flexibility and access to millions of consumers, the uptake seems disappointing.

Amazon has greatly diversified since its launch as an online bookstore and shows the ambition to grow even further. With millions of consumers, global network and a truly vast IT infrastructure, Amazon's first steps into the payments space could be followed-up by much more.

3.1.3 Google in payments

Search giant Google began offering many services in addition to search and the related advertising including e-mail; online software for making document, spreadsheet and presentations; online video and picture services; online book archive; news; maps; translation

and most recently its own browser. It also stepped into the online payments market in 2006 and may expand to other financial services too.

At the start of 2006 Google unveiled Google Checkout, effectively introducing a new category of payment providers: 'search-to-purchase'. With most purchase intentions starting with a search, Google's initiative may greatly transform the online market place.

With Google's search-to-purchase, consumers can search for products which Google retrieves from multiple web shops and lists on its webpage. Consumers can sort the products according to price and in the case of books can leaf through a large part of the book online. Consumers are then forwarded straight to the web merchant's product page where they can select to pay with Google Checkout. Google Checkout enables consumers to link credit and debit cards to their Google account allowing them to pay safely and having to register at Google only. At Google, consumers can track their purchases.

Google enriches the search experience with the possibility to compare products from different merchants and with a transaction moment. The transaction thereby becomes part of a bigger whole.

For merchants the primary benefit is that Google delivers them customers and this is a bigger added value than only providing transaction services. On the down side, search-to-purchase effectively disintermediates the web shop and prevents a relationship with the customer. The merchant's core functions that remain are the catalogue and logistic fulfillment. However, search-to-purchase can be seen as an added value for certain merchants who deal with fast moving consumer goods that are standardised globally (e.g. electronics or books).

With Google Checkout, Google has begun offering financial service. In some countries such as the Netherland, Google has already obtained a banking license. Although currently Google seems more focused on other domains, its ventures in payment and financial services do indicate an interest. Google's history of rapidly moving into a broad range of seemingly unrelated fields, coupled with its immense global online presence, makes it an ideally poised for a breakthrough into financial services.

3.2 Continued importance of multi-channel trade

Multi-channel trade takes place when different sales and payment channels are used during a single trade. For example when goods are purchased online but are paid for offline or, conversely, goods are bought offline but are paid for online. Increasingly, consumers and businesses alike are transcending the channels leading to the further integration of the online and offline worlds.

Offline payment methods such as credit cards have been used online for many years. Debit cards that are normally issued and used offline are also increasingly used online. Irish Laser debit card or Danish debit card Dankort, used for 80% of online purchases, are prime examples. Maestro is set to rollout its debit card for use online across Europe in 2010.

Also the use of the mobile phone for payment has been a common practice in e-commerce for some time. Often these mobile payments take the form of premium SMS or the phone can be used to dial a premium number. Newer initiatives such as Boku and Zong add the payment to the monthly phone bill. The mobile phone is mostly used for small value payments and digital content.

Cash-on-delivery is still widely used to pay for goods bought online. Due to its enduring popularity, postal companies continue to innovate the payment method. For example, Dutch postal company TNT is currently preparing the launch of a new payment on delivery service in Q3 2010, Online Rembours. With this service, the payment is made upfront using iDEAL and kept in escrow by TNT. The payment is only released to the merchant when the consumer confirms receipt of the order at delivery. This confirmation, and release of payment, works via a special code that only the consumer knows and which is entered at the door. This makes this payment method a unique combination of payment- and logistic-services that targets at e-commerce transactions with a relatively high risk perception.

The physical brick-and-mortar store is starting to play a role in online commerce for both payment as well as delivery. The store plays an important role as the location where pre-paid cards, used for online purchases, can be bought using cash or cards. Alternatively, pay-in-store online payment methods have been developed whereby consumers print out a bill and pay it in a store. The store then sends a message confirming payment to the web merchant who then ships the goods. The Polish Unikasa or Zapłac w Żabce are examples of this.

Increasingly merchants are offering online purchase and payment with pickup taking place in a store or offering the option to return the product to a store even though it was purchased online. This practice is common among brick-and-mortar merchants who have opened web shops. But increasingly merchants who previously focused only on the web as their sales channel are beginning to open brick-and-mortar shops. Also third-party pickup services like the Dutch Kiala deliver the purchase to a pickup point where the consumer can receive and pay for the purchase.

Another trend is that the funds earned or stored online are becoming increasingly easy to convert to cash. PayPal offers its Americans customers a debit card which can be used to withdraw cash from ATMs or pay in stores where MasterCard is accepted. UK initiative Ukash offers its online gamblers the same possibilities with UkashOut, enabling them to withdraw or spend their winnings offline. Money earned or won online can thus quickly be used in the real world further bridging the gap between the online and offline realms.

A trend that is developing slowly but harbors vast potential is that of paying online for offline trade. An example is Dutch payment service AcceptEmail that requests payment via email with the payment taking place through online banking method iDEAL. AcceptEmail is now being used as an alternative to invoices and used by brewers to request immediate payment when delivering beer to bars. PayPal's new European CEO expressed the ambition to have PayPal available as a payment method, through a mobile phone, in brick-and-mortar shops.

There are many way in which the online, offline and mobile channels are converging. Crossing over from one to the other within a single trade has already become fairly common. We expect this development to steadily continue until there is little distinction between them.

3.3 The need for micropayments: lots of movement, in all kinds of contexts

A micropayment is a payment of very low value, often under a Euro. In the summer of 2009, the call for online micropayments was reinvigorated with the announcement by Rupert Murdoch, CEO of global news conglomerate News Corporation, that online news would no longer be given away for free. The question then was how online news readers would pay for the news? Whereas subscription models require periodic (recurring) payments of larger amounts, a business model based on a small fee charged per news item is confronted by the lack of adequate online micropayments.

In addition to providers of news, the call for micropayments has also been heard from the providers of online games, music, video or computer applications where users can purchase low value digital content.

Micro payments pose three major problems that have yet to be overcome:

- **Transaction costs.** Because the transaction value of the micropayment is by definition very low, using conventional online payment methods for these values is too expensive. In fact, transaction fees may exceed the total value of the payment. Conventional online payment methods, be they cards, bank transfers, pre-paid or e-wallets, can therefore not be used.
- **Usability**. Micropayments are small and, in the context of small online purchases, will be made frequently. Imagine a consumer reading a news site that charges a few cents per article. It is unlikely that the consumer will make the effort to go through the process of filling in personal details and credit card numbers for every article he wants to read. Sending an SMS or dialing a phone number is hurdle as well. For the user, a micropayment needs to be quick and simple to use while remaining relatively secure. One solution is to aggregate the micropayments into one larger payment to reduce the cost of the transaction. Several third parties are beginning to act as intermediaries to do just this. One example is Spare Change that enables payments on Facebook by leveraging PayPal and settling accounts periodically. Another example is Zong that adds the payment to the phone bill through the mobile network operator. Kachingle (see section 3.6.5) is a third example where readers pay a single amount to Kachingle up-front which is then distributed to the sites the consumer visits according to the frequency of his visits.
- **Reach**. Consumers won't be willing to register to a large number of different single merchant or aggregator services with the need to log in to each one every time they want to make a payment. Some companies with extensive reach are beginning to offer micropayments. PayPal already offers a micropayment option that charges a lower fixed fee compared to normal PayPal transactions. It has, however, not gained widespread

adoption. In September 2009, Google announced it was working on a micropayment service as an extension of Google Checkout enabling payments as small as 1 cent. The service will be released somewhere in 2010.

The issue of micropayments is a complex one and probably will not be solved in the short term. But the demand persists. While there is no consensus yet on how newspapers and magazines should charge, it seems that technology companies manage to keep pace with current market demands, by offering online media publishers both subscription-based and micropayment systems to help them generate revenues and stay in business. Examples are: Journalism Online, Z-Commerce for Media (developed by Zuora), ZoolahScribe (launched by online services provider Aurumis), Kachingle and others. Most recently, The New York Times has revealed plans to introduce a metered payment model for NYTimes.com, providing users with free access to a certain number of articles per month and then charge by the article if that number is exceeded.

3.3.1 New online contexts: games and apps

The online gaming sector has rapidly gained popularity among Internet users. Growing interest in this sector is sustained by the continuous development of software, instant support, monitored games and payout options. As ever more gamers across the world are spending more time and money in virtual worlds, Internet payment services providers have come up with payment options to suit the needs of merchants and consumers alike.

A concurrent trend that is quickly changing the way things are done online is the advent of the web application, or 'app', built on top of existing infrastructure by independent developers. An app is software accessible online that is designed to perform a specific task and leverages the infrastructure on which it is built. The app itself often also has online access. Games on these platforms are also called apps. Apple's iPod/ iPhone apps are a popular example where third parties can develop programs to do all kinds of interesting things using the iPod/ iPhone and the Apple infrastructure. Now even payments are possible through and from within iPhone apps.

US sales of virtual goods reached USD 1 billion in 2009 and are projected to grow to USD 1.6 billion in 2010. Online payment companies like PayPal, Kwedit, Boku and Offerpal want to get a piece of the virtual goods market, but one of the biggest winners could be Facebook. The company is looking to develop the virtual goods ecosystem created around the social networking website via a Facebook-endorsed virtual currency dubbed Facebook Credits. Facebook Credits can currently be used for buying virtual gifts or interacting with a number of select applications, but Facebook also started to trial alternative payment methods (like Zong) for its virtual currency, more specifically looking for ways to incorporate Facebook Credits into third-party applications.

Initiatives in this market that successfully address the problem of perceived insecurity and give customers easy access to their gains and allow them to easily transfer money have a promising future.

3.3.2 'In-game' and 'in-app' payment services

Since last year, independent third-party application developers and publishers of games and apps (or of the underlying platforms such as Apple) allow users to purchase and pay for (virtual) items 'in-game' and 'in-app'. Service providers als Nonoba, Jambool, Boku and PayPal act as a kind of payment service provider, but the user stays completely within the experience of the game or app during the payment.

Jambool, a US developer and distributor of widgets, offers the SocialGold payment and virtual goods platform for several applications on Facebook and MySpace. Via the platform, online customers can purchase virtual goods and services and pay for them via mobile phones in 37 countries as well via credit cards and bank accounts through PayPal, Amazon or Google. Nonoba offers a comparable payment service. In some services, Settlement takes place via the mobile phone bill or pre-paid balance.

3.3.3 The advent of the payment-app

Payment-apps are apps that are specifically developed for (micro) payments and they ar increasingly used for online payments. Such payment services are being developed for online social networks like Facebook and Twitter. For example on Facebook, e-wallet company iCoins developed the Coinjars application which enables Facebook users to transfer funds among each other free of charge. Similar applications are available for other wallets such as MoneyBookers, Obopay, WebMoney, Spare Change and several for PayPal.

In 2007 Facebook announced it was working on a payments platform of its own so that users would not have to use third party payment methods. The system was finally cancelled and in the summer of 2009 Facebook launched a payment system based on a virtual currency instead. Users first buy Facebook credits which they can then use to pay for virtual goods within Facebook.

Payment methods on Twitter such as Tipjoy and Twippr are e-wallets where users load the wallet before making payments. Both Tipjoy and Twippr enable funds to be loaded and debited via PayPal.

PayPal has recently opened up its payment platform to third-party developers through an API (see section 3.1.1). The PayPal API allows payments between PayPal accounts to be split or aggregated in any way the developer sees fit thereby allowing for a wide range of payment services. TwitPay allows payments from Twitter and leverages both the Twitter platform as well as the new PayPal API. With TwitPay, users can pay multiple recipients with the same PayPal transaction. Transferring money is as simple as entering the following in Twitter: @recipient twitpay $5.

The intermediary online banking payment services are part of this trend (see section 3.4). The services enable consumers with access to an online banking portal to make payments online.

The development of the app clearly demonstrates how payments are being 'stacked'. Underlying all online payment methods is a basic payments infrastructure that allows funds to be credited (pushed) or debited (pulled) from a user's account. These are the fundamental transaction types on top of which services are built. On these services, such as credit cards, additional services can be built, such as PayPal, on which additional services can be built etc.

Let's take TwitPay as an example. TwitPay utilises the Twitter messaging infrastructure and the PayPal payments infrastructure through the PayPal API. However, PayPal is a service as well, utilising existing payment infrastructure. The PayPal transaction is either a credit card transaction (pull), a direct debit from a bank account (pull) or has been pre-transferred to the PayPal account by the user (push). Underlying the core payment mechanism are the issuing, acquiring, processing, and clearing and settlement services (see chapter 0).

When services are stacked, the costs of a transaction do usually increase because all underlying platform share, in some way, in the revenue.

The big difference between the intermediary online banking payment services and the others mentioned above is that some of the platforms that are being leveraged have been opened up to third party developers while others have not. Facebook and Twitter allow third parties to build apps. PayPal specifically released the APIs to enable third parties to develop apps using PayPal. Banks, however, have not opened up their online banking platform and often protest once third parties try to leverage the platforms. While the open platforms capitalise on their platform's exploitation by third-parties (PayPal for example earns on the transactions), banks do not and in fact perceive their clientele to be subjected to increased risk of fraud.

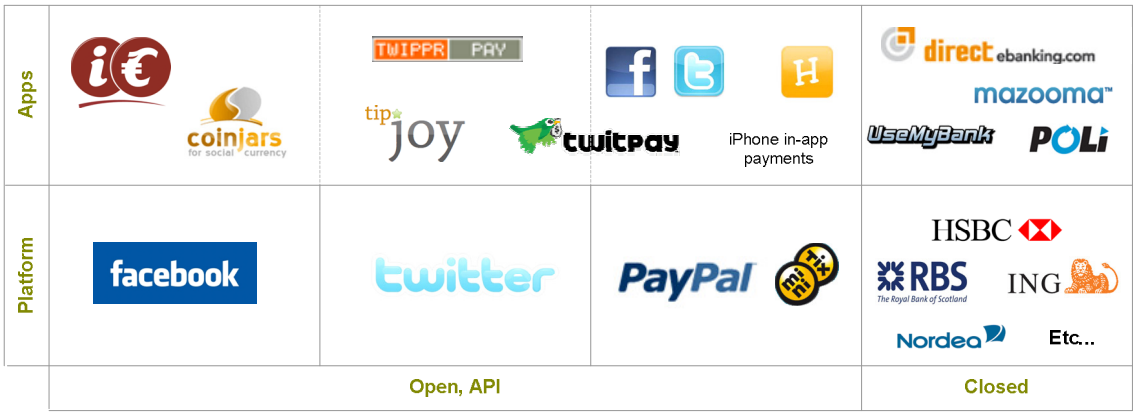

Figure 6: Applications on open and closed platforms.

Banks attempt to combat these intermediary services, with varying success per country. This is related to specific terms of use that banks apply and to solutions that the banks themselves offer and how these are (technically) architected.

Banks should realise that there is clear and demonstrated demand for online banking payment services. Banks could take the initiative to collaboratively create their own payment solution to offer consumers secure payments across the web. Alternatively, they could consider opening up their platforms to third parties and/or create additional value added schemes to generate revenue with the transactions or additional services. The development of payment apps is still in its infancy. There is still much more to come.

3.4 The rise of online banking based Internet payments

Online banking based Internet payments are the fastest growing category of online payments in Europe. Buyers initiate transactions at a merchant's website and are redirected to their own online bank for the authorisation of the payment. The merchant receives an instant payment confirmation, after which the money arrives as a regular credit transfer. For merchants the major advantage of using online banking is the elimination of fraud since the issuer bank is responsible for the authentication of the transaction.

Such payment systems come in three forms:

- 'Multi-bank' schemes.
- 'Mono-bank' solutions.
- Bank-independent 'intermediary' or 'overlay' payment solutions.

In a multi-bank environment the merchant needs only one connection with one of the participating banks for reaching the buyer population. In a mono-bank situation a merchant has to have a connection with every single bank. Often this burden of connectivity is handled by Payment Service Providers (PSPs). Bank-independent intermediary payment solutions make use of their own web interface to enable consumers to pay online via their own online banking portal. At the intermediary's interface, and not at their own banking portal, consumers fill in all the login and authentication details needed to transfer funds. The main benefits for the merchants are the relative low costs as well as the possibility to accept payments by international customers. For consumers there are, however, a number of safety and liability issues associated with this payment method.

3.4.1 Factors that contribute to success of online banking based Internet payments

There are several variables that influence the level of success:

- **Guaranteed payment.** Buyers are not able to reverse a completed payment one-sided (charge back), because they authenticated the transaction personally through their online banking. For merchants and banks this eliminates fraud and therefore costly losses and back office processes.
- **Price model.** Some schemes have a transaction pricing and others use a percentage pricing model. With a rising e-commerce average transaction value, a fixed fee per

transaction is more advantageous for merchants. When a percentage based pricing model is used there is little price differentiation with credit cards. The differences in success between the different countries of this payment method category can largely be attributed to the different pricing models. Where a percentage based pricing model is used merchants have little incentive to widely promote this alternative payment method.

- **Acceptance by the consumer community.** People like to stick to their habits, also in the process of doing a payment. When a payment strongly resembles an online banking transaction, the change of habit is minimal.
- **Level of commitment and push from the merchant communities.** In countries with successfully introduced payment methods the merchant community plays an important role in the adoption of the payment method.
- **Amount of cooperation between the participating banks.** In some markets the scheme is rolled out by the inter-bank organisation, in others the banks themselves take the lead. This depends on the specific market structure. In Germany almost 2000 banks are active on the retail market, whereas in the Netherlands only 4 banks represent more than 97% of the account holders. Some of the schemes are offered by one bank only, such as Nordea's Solo (Nordic) and ING's Home'Pay (Belgium). For these payment methods the market development will be slow, and the reach will always stay limited.
- **Level of adoption of online banking in a particular country.** The adoption rate of online banking is different per country but in general it is growing in each market.

Country	% online population using online banking
Netherlands	52.9
France	49.9
Sweden	48.4
UK	46.1
Belgium	39.0
Germany	38.6
Denmark	36.7
Spain	35.2
Norway	34.4
Finland	33.1
Ireland	28.4
Turkey	28.0
Italy	26.9
Austria	23.4
Portugal	17.2
Switzerland	15.9
Russia	6.0

Table 3: Online banking reach in Europe in 2009 (Source: comScore)

Despite the big differences between countries, we strongly believe that online banking based Internet payments are a compelling proposition to Internet merchants, if the surrounding conditions (pricing, marketing, market attitude etc.) are optimised. The main value drivers for merchants are elimination of fraud and reduction of cost. Cost reduction is a direct consequence of the fraud reduction and instant payment confirmation, but also a low processing cost per transaction contributes to this. The main value driver for buyers is the ease of use and increased trust when doing a transaction. More standardisation is needed on a European level.

At present, online banking based e-payments (OBePs) are mostly a local affair, with the mono- and multi-bank solutions restricted to their domestic market. Through the ICPNO attempts are made to make these local services interoperable while through the European Payments Council efforts have been made to create a European standard for these payment methods. The intermediary services, on the other hand, are not limited to their domestic market and can relatively easily add new banks in new markets. These intermediary services can therefore quickly and easily offer cross borders payments.

The merchant community can play a pivotal role in expressing their needs for Internet payment methods which better match their requirements in terms of usability, security, price and scope. This, coupled with competition by intermediary services, will raise the awareness with banks that the e-commerce sector is a profitable business sector. And that this sector is very open for innovation of payment instruments and other solutions that will increase the overall operational efficiencies.

Today, the following multi-bank payment methods are operational:

- EPS: Austria (since 2001)
- e-Dankort: Denmark (since 2003)
- iDEAL: the Netherlands (since 2005)
- Bancontact/Mister Cash: Belgium (since 2006)
- Giropay: Germany (since 2006)
- BankAxess: Norway
- Secure Vault Payments: USA (since 2008)
- Interac Online: Canada
- eNETS: Singapore

Intermediary services include the following:

- DIRECTebanking.com (Sofortueberweisung): Germany, Austria, Switzerland, the Netherlands, Belgium, United Kingdom
- POLi: Australia, New Zeeland, United Kingdom

- UseMyBank: Canada, UK, China, the Netherlands, Austria, Poland, Germany, Switzerland, Australia, Belgium
- Mazooma: United States
- SafteyPay: United States

3.4.2 iDEAL

iDEAL is by far the most successful of all online banking based payment methods. The payment method was launched in October 2005 and has seen a high growth rate since. In 2008 the number of iDEAL transactions increased by 87% compared to the previous year resulting in 25 million transactions worth EUR 2.1 billion[20]. In 2009, iDEAL witnessed a growth of 63 percent in the number of transactions to 45 million, as compared to 2008. Overall sales with iDEAL reached almost EUR 3.4 billion, up 62% year-over-year. The value of an average iDEAL payment in 2009 was EUR 74.69[21].

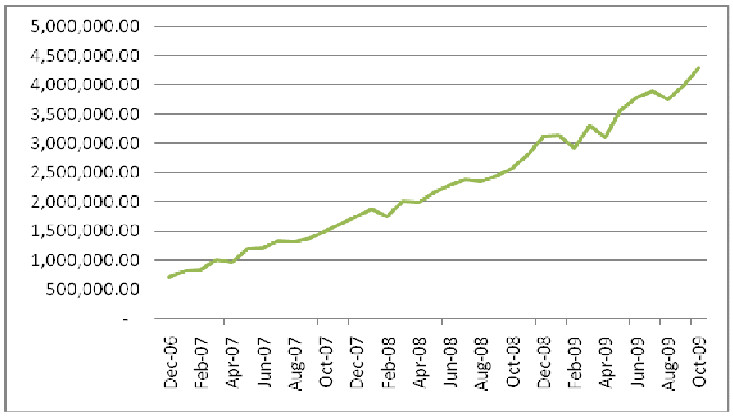

Figure 7: The number of iDEAL transactions per month since 2006. Source: Currence.

iDEAL is the preferred payment method for 44% of Dutch online consumers and the payment method is now accepted by 88% of major webstores.[22]

With the participation of Rabobank, ABN AMRO bank, ING, SNS, Fortis, RBS, ANS bank, Friesland Bank nearly 97% of the Dutch consumers can be reached with iDEAL. About 75% of the consumers of these banks use Internet banking.

[20] Source: Currence

[21] Source: Currence

[22] Source: Currence

As of September - October 2009, customers of Friesland Bank, ASN Bank and SNS Regio Bank have been able to use iDEAL to pay for products or services online. With these three banks, the number of consumers who can pay with iDEAL has surpassed 12.5 million.

iDEAL is administered by the Currence organisation, an entity established by the participating banks to manage payment products and enhance further development of the payment methods.

Although iDEAL can currently only be used with Dutch accounts, Currence is looking at a possible international expansion through interoperability with the ICPNO or as a standard through the European Payments Council.

3.4.3 Bancontact / Mister Cash

Bancontact / Mister Cash is the Belgian debit card scheme and has been available for online payments since 2006. Both Bancontact and Mister Cash were established in 1979 as two distinct schemes by two coalitions of banks. In the late 1980's the two schemes merged and came under supervision of Banksys which in 2006 was acquired by Atos Worldline, part of Atos Origin. Bancontact /

Mister Cash cardholders can use their card in combination with their online banking portal to pay online. To pay online cardholders have to enter their 16-digit card number in addition to the expiry date. They are then redirected to their bank's website where they can authorise the transaction in their online banking portal. This last step often also requires a card-reader or token. The method is accepted by 90% of the Belgian banks and has the potential to reach 8 million Belgian consumers, or 80% of the total population.

3.4.4 EPS

EPS is the Austrian multi-bank online banking based payment solution. It was developed by STUZZA (the bank owned Study Company for Cooperation in Payment Transfers), Austrian banks and the Austrian government.

As other online banking based payment methods, at checkout consumers select EPS as a payment method and are forwarded to the bank's website where they log in using their exiting user ID and PIN. All transaction details are pre-filled and the user authenticates the transaction with a transaction authentication number (TAN).

At the end of 2008 more than 650 web merchants and many government related institutions offered EPS. EPS accounted for 960,000 transactions in 2006 which climbed to 1.28 million in 2008 and a transaction volume of EUR 80 million[23]. For 2007 the transaction volume was 60 million, realised out of 1 million transactions. For both years the growth rate is therefore 25% compared to last year. Much of this growth is realised by the Austrian tax collecting offices which accept EPS as a payment method.

[23] Source: Raiffeisenbank Austria and e-force.at, 2008

3.4.5 Giropay

Giropay was introduced in February 2006 in Germany by Postbank, Sparkasse-Finanzgruppe and the central IT service providers of the bank group Volksbanken Raiffeisenbanken. In 2008, Giropay's transaction volume grew by 60% to a total of 3.2 million transactions. A total of 1.4 million people made use of Giropay for online purchases while, with 1,500 banks offering giropay, a total of 17 million consumers could potentially use the service. In 2009 this growth has continued: the number of transactions rose to 4.6 million and the total value rose from 185 million (2008) to 289.5 million in 2009. So the number of transactions rose 40% and the value 56% in 2009. Giropay illustrates that only 4 years after market launch of the payment service it has become one of the large providers of online payments in Germany.

Giropay is part of the ICPNO, an organisation that works towards international interoperability.

3.4.6 BankAxess

In Norway consumers can pay online from their bank account with multi-bank solution BankAxess. BankAxess uses BankID, an authentication method developed by the Norwegian Bank for use online. Since 2009, BankID can also be used on mobile phones allowing for BankAxess payments on the mobile phone as well. Costs per online transaction are approximately EUR 0.50. Online banking based payments account for 18% of total online payments with credit and debit cards accounting for 61%.

3.4.7 e-Dankort

Denmark has the e-Dankort online banking based payment method that is issued by PBS, the Danish electronic payment solution provider. With a market share of under 3% it is not very successful. E-Dankort has to compete with the Danish debit card Dankort that can also be used online and represents the vast majority of online transactions.

3.4.8 Faster Payments Service

Vocalink is currently developing an online banking payments solution for UK bank account holders. It utilises the Faster Payments Service (FPS) that was launched in May 2008 which enables near real-time payments. At checkout, consumers are redirected to their online banking portal. There the payment form has been pre-populated and the consumer only needs to authorise payment to complete the transaction. The service will be white labeled and hosted and managed by Vocalink.

3.4.9 Secure Vault Payments

Secure Vault Payments was launched by NACHA in the United States in May 2008. NACHA is the American Electronic Payment Association and oversees the automated clearing house

(ACH) network as well as binding together 19 regional payments associations and 12.000 financial institutions in the US.

Secure Vault Payments enables US online consumers to pay online directly from the online banking portal, free of charge. With an estimated 61 million online banking users in the US, the payment method has vast potential although uptake has hereto been slow[24]. If it proves to be a success it may take away market share from credit cards and alternative payment methods, thereby greatly impacting the payments and e-commerce market place.

3.4.10 Interac Online

Interac Online is a Canadian multi-bank online payment service launched in 2005. It is owned by The Interac Association, of which a number of banks are member, and is operated by bank owned Acxsys Corporation. The Interac Association also owns the Canadian debit card network Interac Direct Payments.

Interac Online can be used by four of the five large Canadian banks RBC Royal Bank, BMO Bank of Montreal, Scotiabank and TD Canada Trust enabling a potential 9.5 million Canadians (or 30% of the population) to use the service. Roughly 300 merchants offer the service, including some very large retailers, government organisations and universities.

3.4.11 eNETS

eNETS is a multi-bank payment service in Singapore. It is eNETS is an online payment services provider and is owned by NETS, the bank-owned service provider for point-of-sale card payments. In contrast to most other online bank payment methods, eNETS does not initiate a credit transfer that 'pushes' funds to the merchant but rather initiates a direct debit authorising the merchant to 'pull' the funds from the consumer's account. Login to the online banking portal serves as authorisation for this direct debit.

Account holders at DBS/POSB, UOB and Citibank, which represents over 90% of Singapore's population, can use eNETS.

3.4.12 Directebanking

Directebanking is a German intermediary service. It was developed by bank-indepent company Payment Network which was founded in 2006 and operates. In German speaking country the service is called Sofortueberweisung ('Direct Bank Transfer') while internationally it operated under the name Directebanking. Directebanking is available in Germany, Austria, Switzerland, Belgium, the Netherlands and the UK.

Online consumers select Directebanking at checkout and get redirected to a Directebanking portal. There, in that portal and not in the bank's online portal, consumers have to enter the

[24] '2007 Online Banking and Bill Payment: Trends, Forecast, and Strategies for Reinvigorating Growth and Adoption' Javelin Strategy and Research

bank code, the bank account number and authenticate the transaction. The fact that online banking information is given to a third party may deter some consumers.

In January 2009 the service was introduced in the Netherlands. Although several PSPs and merchants started to use Directebanking, they used it primarily for international clients. The Dutch banks were not happy with the new service. In November 2009 the Dutch Bankers Association issued a press release warning consumers for the so-called 'overlay' payment services citing the risk of fraud. Although Directebanking was not specifically named, it was clearly directed at the new entrant. Online merchants have been divided on the issue. Some fear fraud and the negative consequences this may have for the whole e-commerce sector while others welcome the competition. Because of bank opposition and competition with the very popular iDEAL, it seems unlikely that Directebanking will be successful in the Dutch market.

Directebanking has been more successful in other markets. Dutch airline KLM recently announced that for payments in Germany, it substituted Directebanking for Giropay. Today it processes approximately 25,000 transactions a day. The service is still available in Germany, Austria, Switzerland, the Netherlands, in Belgium and in the UK as well. It is available for 99% of German banks, a total of 3.725 online banking portals. In Austria around 1.200 transactions per day are processed and can be used by account holders of 95% of the country's banks[25].

3.4.13 POLi

POLi is an Australian intermediary payment method owned by Centricom. POLi is currently available to users in Australia, New Zealand and the UK. POLi works with a dedicated browser that users first download. At the web shop, consumers are redirected to their online bank portal. After logging in, POLI pre-fills the transaction fields with the relevant transaction details. The consumer can then complete the transaction and return to the web shop. POLi has been successful in New Zealand where it was adopted as payment method by some government organisations, but its planned roll-out in continental Europe has not yet materialised.

3.4.14 PayEx

Danish e-payment company PayEx has developed an intermediary service that aggregates the main online banking based payment methods in the Nordic countries. With PayEx Direct bank, merchants can accept online bank payments from account holders from Norwegian, Danish, Swedish and Finnish with a single connection. This aggregation provides merchants with a single connection for the Nordic market, but also enables cross-border payments. It is a prime example of the strength of intermediary services.

[25] Source: Payment Network, January 2009

3.4.15 Glue Pay

Glue Pay was developed by Glue Finance AB, a Sweden-based payment services provider. Glue Pay is an automatic instant bank transfer systems which enables merchants to send money to customers` bank accounts and also to receive bank deposits from their clients. By depositing cash with Glue Finance AB, which holds accounts in major banks, Glue Pay merchants get virtual accounts in these banks, i.e. unique account numbers in the Glue Pay system used to segregate funds. For merchants, payouts to the player are made from the virtual account in any bank with which the player has its bank account. Merchants can top up their Glue Pay accounts by regular bank transfer. Payments from the player to the merchant are made via intra-bank transfers. An automatically generated unique ID number identifies the payments and will be sent to merchants.

The service has been made available in selected banks in the following countries: Sweden, Finland, Denmark, Norway, UK, Spain, Poland, Germany, Estonia, Latvia, Lithuania and Turkey.

3.4.16 International solutions

The growth of online banking e-payment methods as a serious alternative to cards is steadily developing. However, mono- and multibank solutions still only have domestic reach. To gain international reach, three approaches are being tried.

Several players in the field have taken initiatives for interoperability, such as the established International Council of Payment Network Operators (ICPNO). The intention is to retain domestic schemes, but make transaction from one compatible with those of the other so that international transaction are possible. The ICPNO was established in 2008 to determine standards and rules for the interoperability of domestic payment networks. iDeal (Netherlands), Giropay (Germany), Vocalink (UK), NACHA (USA) and Interac (Canada) participate in the initiative. The ICPNO is also cooperating with the European Payment Council (EPC). The interoperability of iDEAL and giropay is planned for 2010.

In an alternative to international cooperation, domestic payment methods may expand abroad. In 2009, iDEAL was offered to the European Payments Council (EPC) that works for the harmonisation of payments in Europe through SEPA. iDEAL was suggested as a new standard on which to base pan-European online banking payments. The EPC has, however, not accepted the offer.

A third option is through the intermediary solutions like Payment Network from Germany which offers its Directebanking.com in several European markets. At the start of 2009 it had planned to expand across Europe. By the end of the year the plan proved too optimistic, but the potential of such services is there. Adding another bank in another country is far less problematic for intermediary services than for multi-bank solutions thereby enabling very rapid international expansion. Another example is PayEx that developed an aggregate solution

for the Nordic market or Canadian company UseMyBank that, using a variety of methods, connects various existing online baking payment methods to give them global reach.

Interoperability and intermediary solutions may be suitable for markets where online banking payment methods have already been established. In newer markets, however, attempts should be made to create a new international standard on which a scalable network service can be developed. Using iDEAL as a standard is not such as bad idea.

3.5 China and the world

Chinese online payment industry has characteristics which are different compared to other countries, as its most preferred online payment instrument is remittance (debit transfer), collection (credit transfer) and collection with acceptance (debit transfer) market.[26]

China is a vast market and its development represents a real challenge to e-commerce across the globe. In 2009, the Chinese online payment market has not been affected by the financial crisis, registering rapid growth in terms of both number of users and market scale. The number of users has climbed from 52 million in 2008 to over 90 million in 2009, while the online payment market hit EUR 42.28 billion (CNY 430 billion), up from EUR 20.65 billion (CNY 210 billion) in the previous year. [27]

Within China, the largest online payments method is Alipay. Alipay is part of the Alibaba Group, founded in 1999, which also own the Alibaba e-commerce platform. Alipay is an escrow service that lets consumers pay online by credit card or online bank. Alipay keeps the payment until the goods are delivered and then transfers the funds to the merchant. As competition in the online payments industry continues to intensify, Alipay is set to expand its footprint and challenge PayPal by revealing plans to top eBay`s division by transaction value in two years.

Alipay has already reached the 270 million user milestone by late 2009, as compared to 200 million users reported in July 2009. Alibaba has already started expanding into the rest of China, but in 2009 also entered the United States and the European markets. It is unlikely that in the short term this entry will impact online payments, but as their base in China continues to grow their foothold in the US and Europe may leave a sizable footprint.

[26] Koncept Analytics

[27] China Online Payment Industry Report, 2009 released by ResearchInChina

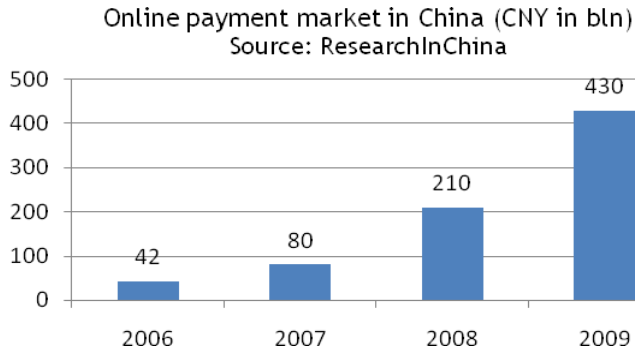

Figure 8: Online payment market in China. Source: ResearchInChina.

3.6 Innovative payment products: a selection

There is a lot of space for innovation in the online payments market. With ever changing circumstances new business models or transaction services can be developed that have the potential to change the market. We discuss a few we find especially noteworthy.

3.6.1 RevolutionCard: a new form of card payments

RevolutionCard offers a credit card that is cheaper and more secure to use offline as well as online. In November 2009, RevolutionCard was acquired by credit card company American Express for USD 300 million.

RevolutionCard is a PIN-based credit card that does not have the card number or the card holder's name printed on the card. This reduces the risk of fraud after theft or loss of the card. The 4-digit PIN can also be used for online purchases and is entered in the CVC/CVV field. As an added security feature, cardholders can generate one-time PINs for use online so that they never have to enter their primary PIN. This makes stolen or intercepted transaction information useless to fraudsters.

For merchants the primary advantage is less costs. The charge for merchants will be 0.5% of the transaction value, which is much lower than the merchant service charge of credit cards.

RevolutionCard also offers RevolutionMoney, an e-wallet account through which sending or receiving money is possible. After subscription for money exchange the accountholder designates an account to link with his MoneyExchange account. Sending and receiving money between MoneyExchange users is free.

The acquisition by American Express confirms the company's viability. RevolutionCard will most likely remain as a second card brand offered alongside the American Express brand. Additionally, it can be expected that the RevolutionCard brand will be used for innovative card developments. With the backing of one of the big three in credit cards, RevolutionCard may be set for rapid growth.

3.6.2 e-Carte Bleue: fictitious credit card number

The e-Carte Bleue, launched in France in 2002, is a credit card developed specifically for online use and is based on the domestic Carte Bleue card scheme. Through a downloadable application, the e-Carte Bleue generates a one-time fictitious credit card number that is based on the actual credit card number. This fictitious number is inputted at the online merchant so that no real information is sent to the merchant. It is offered by banks including Credit Lyonnais, Societe Generale and Credit Agricole.

The advantages for merchants are: secure transactions and the elimination of the chargeback reason 'it wasn't me'. This will reduce fraud and help raise the percentage of successful transactions. Although for the buyer the e-Carte Bleue procedure requires more actions in the payment process, it does alleviate security concerns.

Despite its innovative characteristics, e-Carte Bleue has not been a great success. As of June 2009, only 750,000 of the 23.5 million French Internet users had made use of the service.

3.6.3 TrialPay and transactional advertising

US company TrialPay, launched in 2007, has pioneered what may be called transactional advertising. The company's founders noticed that people are not prepared to pay for some online goods, such as software or subscriptions, but are ready to pay for other often tangible goods. What TrialPay does is offer the customer the first good for free if they purchase a second good at another vendor.

At checkout of the original vendor, the customer chooses TrialPay from among the payment options. Subsequently, the customer is offered a series of purchasing offers from other vendors from which they can select one. After completing that second purchase, the customer is sent an email providing the details of how to accept the now free original product. For example, a customer may be offered the program WinZip for free if they also spend USD 50 on clothing at Gap.com.

It seems like a win-win-win situation. The customer gets a product for free. The original merchant, WinZip in the example, makes a sale they otherwise may not have made. And Gap.com acquires a new customer. It is this second merchant that reimburses the original merchant for the customer's 'free' product in order to obtain a new customer.

The second merchant is, in essence, engaged in advertising; sponsoring the free product in order to acquire a new customer. The new customer is found by means of a financial transaction, hence the term 'transactional advertising'. Advertising at the moment of purchase has been a common technique to boost sales, from the candy bars at the supermarket cash register to the related products offered at Amazon's checkout. But now the acquisition of the sponsored free product is linked to an actual sale of a second product at a second vendor thereby immediately converting the consumer into a new customer. The conversion rate for this form of advertising is thus 100%.

TrialPay claims impressive growth. Within three years of its founding, TrialPay already boasts 40 million registered users (15 million last year) and 7,500 online merchants who offer the payment method. Although the concept is innovative, it requires some specific circumstances in order to make it work. Both the first and the second merchant have to be of specific types, that is, the first must have a product that consumers want but are generally unwilling to pay for while the second must be a brand in high demand. What is more, because the consumer is referred from one merchant to the other, the merchants are affiliated and hence their brands cannot be irreconcilable. The concept is innovative, but if it will gather lasting commercial success remains to be seen.

3.6.4 BillMeLater: credit per transaction

In October 2008 eBay, owner of the leading online marketplace eBay as well as Skype and PayPal, acquired BillMeLater for USD 945 million. With the purchase, eBay bought one of PayPal's competitors and a new kind of online payment method.

With BillMeLater US consumers can get credit for their online purchase per transaction as opposed to the pre-determined credit limit used by credit cards. By assessing a consumer's credit per transaction, BillMeLater prevents consumers from slipping into insurmountable debt and protects itself from non-payment. The consumer pays no interest for the first 90 days if the debt is settled in full within that time.

For the consumer using BillMeLater is relatively easy. There is no need to register or create an account. All consumers have to do is enter their date of birth and the last four digits of their social security number at checkout and BillMeLater determines their credit worthiness within three seconds.

BillMeLater presents this as an added security feature, saying that there is no account information to steal. However, a username and password can be changed while a date of birth and social security number are fixed. What is more, it is still only a single factor of authentication, something you know, and does not incorporate other factors which increase security. Also, the assumption seems to be that a person's social security number is known only by that person while in reality many organisations may have access to a person's social security number as well as their date of birth.

When eBay purchased BillMeLater four million people were already using the payment method. In 2009 1,000 merchants offered the payment service and in October 2009 eBay began offering BillMeLater on its platform as a trial. BillMeLater is an innovative product and will most likely become a staple in online payments.

3.6.5 Kachingle: 'crowdfunding' for online content

Launched in 2009, Kachingle offers a 'paradigm shift' in online payments by awarding online publishers according to how often a reader reads their content.[28]

Kachingle works as follows. A consumer sets a fixed monthly amount that he is willing to spend on online content, EUR 5 for example. This EUR 5 is then divided amongst all the websites (who are connected to Kachingle) in accordance with the frequency of the consumer's visits. If he visits one site 9 times and another only 1 time, the first site will get EUR 4.50 and the latter EUR 0.50. The crowd of visitors thereby funds online publishers. Kachingle charges 20% of the transaction as a fee.

Kachingle offers an interesting and innovative new way to pay online but large scale commercial success is most likely out of reach. Firstly, the monthly fixed amount is entirely voluntary. Secondly, users can choose to what site to contribute and include in a share of the money. This makes it more akin to charity and evokes feelings of 'volunteerism, altruism, and good citizenship'.[29] Publishers then have to compete for persistent favor in addition to traffic. As a result, publishers cannot be assured of income in the long term and therefore cannot develop their business. It is thus not a viable payment method for commercial publishers.

3.7 Continued developments in prepaid cards

The use of prepaid cards for online payments has gained further interest in 2009. Online, pre-paid cards are used primarily by the 'digitally nervous' and the 'digitally excluded'. The digitally nervous have access to other online payment methods such as credit cards, but are concerned over fraud or worry about privacy and therefore choose to use a pre-paid card to pay online. The digitally excluded are those not able to pay online by other means. These people are not necessarily unbanked, but may have bank accounts and cards that cannot be used online. This is especially the case in Eastern Europe and in developing countries.[30]

More and more pre-paid cards came to market targeting the young specifically. Examples are the Ultimate Game Card, the Wallie-card and Denmark's Getitcard. In some countries, such as the UK and some American states, a clear distinction is made between cards suitable for adults only and those suitable for all ages. The two types of cards have different numeric pre-

[28] The Online Paypers, Volume 2, issue 23, 'Exclusive interview with Kachingle, a voluntary-pay solution for content monetisation'.

[29] Idem, Paul Romer quoted by Yves Huin of Kachingle.

[30] The Paypers, 'Exclusive interview with Ukash's CEO Mark Chirnside', 14 September 2009.

or suffixes in the card number to identity the category. Cards suitable for all ages cannot be used to pay for adult oriented goods or services.

The three main markets for which pre-paid cards are used are online gambling, voice over Internet protocol (VoIP) and online games.

Usually pre-paid cards for online use are purchased in brick-and-mortar stores and come in the form of cards or cash register receipts bearing a numeric code. Pre-paid cards can also be purchased online and in some countries, such as Spain, can be bought at ATMs.

Important pre-paid cards are Ukash and PaySafeCard that are available in most European countries and TicketSurf that is available in many French speaking countries in Europe and Africa.

3.8 Extended payments: e-invoicing and e-payments

A harmonised SEPA payment infrastructure forms the basis of new harmonised services, such as Internet payments and e-invoicing. Especially European politicians expect a lot from the societal efficiencies as a result of the further penetration of Internet payments and e-invoicing in the coming years (a figure of €243 billion is often quoted). Therefore policy makers are calling for an effort 'beyond SEPA' to realise new and standardised services on top of the new SEPA payment infrastructure.

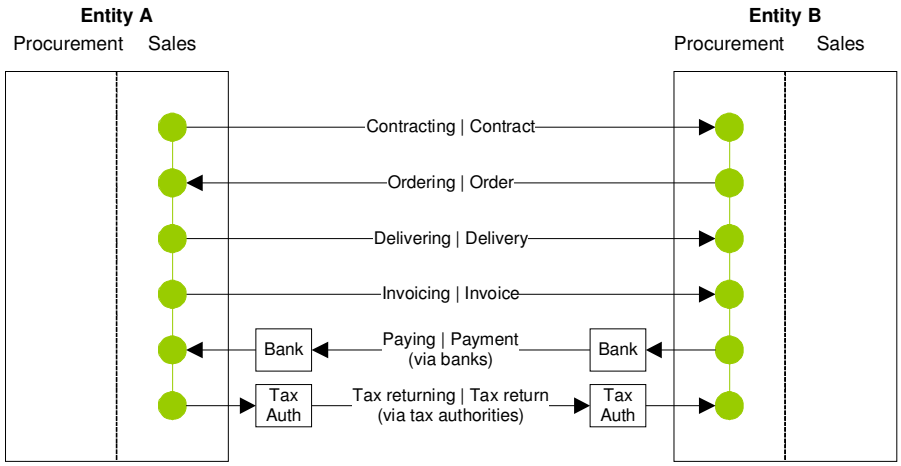

Figure 9: Payments are one step of many in the end-to-end trade process.

E-invoicing is mainly geared to improving efficiency by dematerialising paper invoices and is not specific for the e-commerce industry, although the e-commerce sector is leading the way when it comes to dematerialisation and efficiency. According to a report published in early 2009 by the European Commission's Expert Group on E-invoicing, the electronic processing of B2B invoices alone saves European companies around EUR 200 billion on an annual basis.

2009 has seen e-invoicing make good progress both with regard to the global scale of e-invoicing adoption as well as far as regulatory compliance and cross-border e-invoicing fronts[31]. Electronic invoicing has been acknowledged as a major source of productivity improvement for both the B2B and B2C sectors. Not only is e-invoicing a reflection of how technology can be made to work for the environment, cutting back on CO2 emissions and lowering paper consumption, but it is also an important element of the financial supply chain, linking the internal processes of enterprises to the payment systems, stimulating the digitisation of document layers in supply chain and procurement processes and lowering VAT fraud.

Specifically the combination of e-invoicing and payments offers room for providers to create new propositions. Solutions that enable further automation and better reconciliation for companies, both on the accounts payables and receivables side will benefit from the fact that under pressure resulting from cost optimisation and political agendas companies will address and act on both areas in the near term.

3.9 Fraud

Fraud and the perception of fraud are and remain important themes in online payments. Although most online transactions are conducted without fraud, the well-publicised fraud cases involving million of card number or billions of Euros worry consumers and merchants alike. The real cost of fraud is the sum of money lost in fraud, that spent on prevention as well as the loss of trust in the online channel by consumers and businesses.

In 2009 there were fewer large fraud cases when compared to 2008. Most fraud cases still use rather unsophisticated methods such as repeatedly trying combinations of card numbers and identities until a match is found or consumers denying the good was delivered and demanding a refund.

However, the occurrences of online card fraud may rapidly increase in the coming year due, paradoxically, to increased security at the point of sale. In the UK the replacement of the swipe-card by EMV, which has both a chip and a PIN, has led to a gradual decrease in the proportion of offline card fraud. Meanwhile, online card fraud has gradually increased while the total volume of fraud has decreased. As EMV is rolled out across Europe, with some countries like the Netherlands expediting EMV roll-out due to high fraud levels at ATMs, fraudsters may shift their attention increasingly to the card-not-present transactions.

Consumers are usually reimbursed after fraudulent use of their card, while the industry as a whole bears the costs which merchants see reflected in higher fees.

- The continuance of online fraud with payment cards demonstrates the need for secure online payments methods developed specifically for the web.

[31] E-invoicing Papers, volume 2, issue 25

In addition, there is a real need for merchants to know who they are dealing with. Merchants are already investing resources in tracking consumer's spending patterns and are querying external databases to establish the consumer's identity.

- This demonstrates the need for a robust e-identity solution such as BankID in Norway or the Estonian e-identity card by which consumers can prove that they are who they claim to be.[32]

3.9.1 Fraud detection and prevention

Fraud comes in many forms but is most often related to payment and the delivery:

- Buyers reversing transactions after the goods are shipped or service delivered. This is only possible when payments are done with payment methods with 'chargeback' functionality such as credit cards.
- Buyers buying goods and services with 'stolen' payment credentials.

Web merchant have to clearly analyse their risk related to their payment context. As we will see in chapter 6 the risk of a context is determined by the four situational factors: timing, location, product and relation.

Fraud is very often related to the use of credit cards. The reason for this is simply that credit cards have not been designed for Internet use. The credit card number contains all valuable information (identity and account number). Because many parties are involved in processing these valuable numbers, the use of credit cards is prone to theft and fraud. Despite many added security features, fraud with cards and other payment methods persist.

A good match between the payment and delivery methods used in contexts can already prevent a lot of fraud. For example, for the first transaction with a new and therefore unknown client, a guaranteed payment method might be used (e.g. bank transfers). Only when a relationship has been established, a web merchant might decide to use a less guaranteed payment methods (e.g. direct debit). When looking at this from a commercial point of view the reasoning might be reverse: give the easiest payment methods to new customers and accept the risk. This means that web merchants continuously have to balance their risk against costs and ease of use. Fraud for merchants can be completely avoided if merchants would use guaranteed payment methods in combination with pre-payment.

[32] Innopay has published a number of papers on e-identity. Download them for free from www.innopay.com

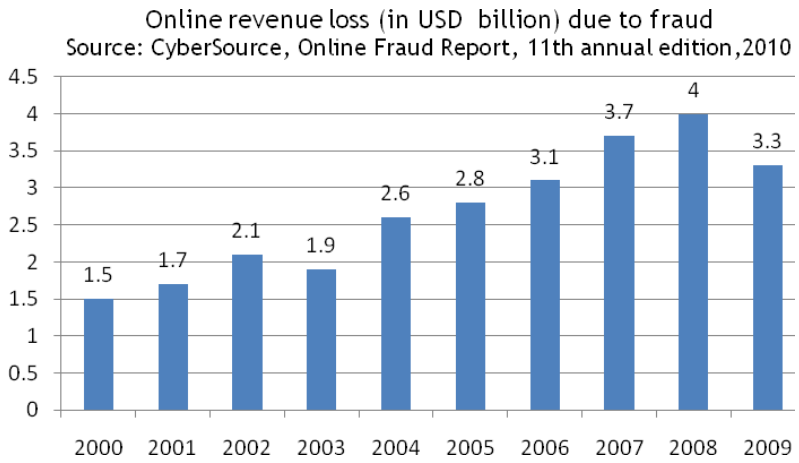

Figure 10: Development of fraud in e-commerce. Source: CyberSource.

3.9.1.1 Steps in the fraud detection and prevention process

Fraud prevention saves money, but also costs money. Not only because of the costs associated with using certain methods, but also because of the false rejection of non fraudulent transactions. In addition to automated mechanisms, fraud prevention can also involve manual processing of transactions when the risk is considered significant, with high value items for example.

Fraud detection and prevention can only be done when a merchants knows 'something' of the customer. The more he knows, the better he can estimate the risk of accepting a certain transaction. In an Internet environment the merchant knows very little of (new) customers and he must work with this limited available information. We distinguish two approaches which can be combined as well:

- Merchant fraud prevention and monitoring. In this situation the merchant builds up his own records of fraudulent customers, e.g. based on credit card number, names and addresses. He maintains his own black lists.
- Use of external sources for fraud prevention. The merchant uses external sources to validate certain information he receives from customers. This can be e.g. credit card number, address and credit status. He uses black lists from external sources.

In practice these approaches often are combined. Also the level of automation can vary. The next paragraph will elaborate further on the last approach category.

3.9.1.2 External screening

The use of automated, basic fraud detection tools continues to grow. These tools are offered to merchants by issuing banks, Payment Service Providers and IT vendors. These tools make use of information provided by buyers, which often leads to additional manual actions in

order to complete an online transaction. Examples are filling in the 3-digit CVC code or filling in a PIN-code for authentication as part of the Verified by Visa (VbV) or MasterCard Secure Code (MCSC) process. Automated fraud detection tools include:

- **Address Verification Service (AVS**): compares address data of the buyer with the address data in file at the cardholders' issuing bank. *It is only available in a national fashion in the US and has limited availability in Canada and the UK*. In Europe several issuing banks set up similar files with their cardholder data and offer this information to merchants and Payment Service Providers. These individual initiatives are fragmented compared to AVS.
- **Card Verification Code (CVC),** also known as Card Verification Number (CVN): the purpose is to verify that the person placing the order has the actual card in his possession. When a card is stolen this tool is obviously worthless, since the possessor of the card has access to the code.
- **Risk Management modules or Fraud screens.** These are software modules, provided by a solution provider to the merchant. A risk management module usually contains a series of checks. Every check generates a certain score. If all scores together exceed a certain value, the transaction is blocked automatically. A merchant can adjust every check to his own requirements (threshold values). A fraud screen can include:
  - Referral list checks. These are based on black lists and white lists of credit card numbers, built up over time or bought from a reliable, specialised source.
  - IP address of transaction originating country. Many merchants block IP-addresses from certain countries.
  - Shopper session check: count the payment behavior and attempts within a certain time frame. A velocity check can be a part of this check procedure.
  - Consistency checks. A mixed set of checks, e.g. on email address, name, location.
  - A new development is in/out of wallet challenges, where during the order process buyers are asked specific questions to test authentication and validity against a certain profile known with the merchant or third party.
  - A hardware oriented development is device fingerprinting, in which information is collected about the configuration of the device the order is placed from.

3.9.1.3 Liability shift upon authentication: VbV and MCSC

In the past years merchants have been motivated to cooperate in fraud prevention because of the so called 'liability shift'. When merchants comply with certain fraud measures then the liability of certain chargebacks is shifted from the merchant to the issuing bank of the card.

Examples of such measures are 3D-Secure (branded as Verified by Visa and MasterCard Secure Code) and EMV (in UK: 'Chip and PIN') for physical retail transaction. Merchants who adopt these programs are no longer liable for card-non-present (CNP) chargebacks resulting from transaction denials where customers claim 'it wasn't me'. Merchant should realise however

that chargebacks are still possible, and that liability remains for other reasons such as ‘goods not received’ and ‘goods not in line with order’.

When a merchant implements 3D-Secure it is up to the issuing bank to check the identity of the buyer. Depending on the card portfolio an issuing bank might decide to add an additional authentication loop in a transaction e.g. by issuing a PIN code or making use of the online banking log in credentials. For a web merchant this can mean that the ease of use of credit cards will deteriorate. This will require decisions regarding the payment methods offered.

3.9.1.4 Manual review

Online merchants will often be faced with manual processing of transactions that have been rejected by the automated fraud process, but still have a ‘reasonable’ score. Judgment by a well-trained employee will help to make a good decision. Furthermore, the aggregated manual analysis enables the organisation to refine the settings of the fraud detection tools. The longer an organisation is involved in online payments and the larger it is, the more efficient the manual review process should be. This can be attributed to a higher use of case management: the more cases, the better the efficiency of the analysis.

3.9.2 Fraud management: charge backs and refunds

If a consumer denies receiving the goods he can undo the credit card purchase through a chargeback. It is up to the retailer to prove that the consumer did place the order over the Internet and has received the product.

Once transactions are disputed the merchant and shopper go into the dispute process. The bank will initiate a question-and-answer procedure, to which both merchant and shopper are subject. This is a time-consuming and therefore costly process for the merchant, shopper and issuing bank. Therefore every bank will urge a merchant to take preventive measures to stay out of the chargeback procedure. Charge backs can incur penalties, and can cost the merchant up to 30 euro per disputed transaction.

There is another way of treating a reversed transaction: a refund. When it turns out that the product does not live up to his expectations or is damaged on arrival, merchant and shopper can communicate with each other with a view to sending the product back (by the shopper) and returning the amount (by the merchant). This functionality is called a ‘refund’ and can prevent charge backs. Refunds are much cheaper, since parties stay out of the dispute process. Most PSPs offer this functionality.

3.9.3 Implementing risk management

Implementing a complete risk management system is a major project that not many retailers will undertake by themselves. Many PSPs offer risk management systems that are integrated

with their payment platform. Usually these systems are based only on data related to the payment itself, with no use of external sources. There are separate providers of risk management solutions only, which operate independently from payment processing and which use external resources. Sometimes these providers can be integrated with the payment processing, making it easier for the merchant to integrate and manage.

Finally, it is important to realise that general risk management systems are not company-specific, so the merchant has to 'tweak' and 'tune' the systems to his own circumstances. The web merchant will often have to include the necessary checks in their own systems, for instance additional checks for high-risk products, suspicious orders involving more of the same products. So applying own logic to the own transaction context. This is the basis of risk management.

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Part 2

Theory and background

4 Players and developments in the payments field

Activity in the payments landscape has been increasing rapidly over the last few years. With the arrival of SEPA and the PSD in 2009, even more activity can be expected as existing value chains will be reconsidered and reshaped. Consolidation will be a central theme in the banking and processing business, convergence and disintermediation will be on the mind of service providers and existing players and new entrants will all be looking at the opportunities in this changing landscape, where so many players are active.

For a good understanding of the process of e-commerce and online payments, it is important to understand each player and their role. In general, a number of different categories of players are active in the payments arena, often visualised in a 4-party model.

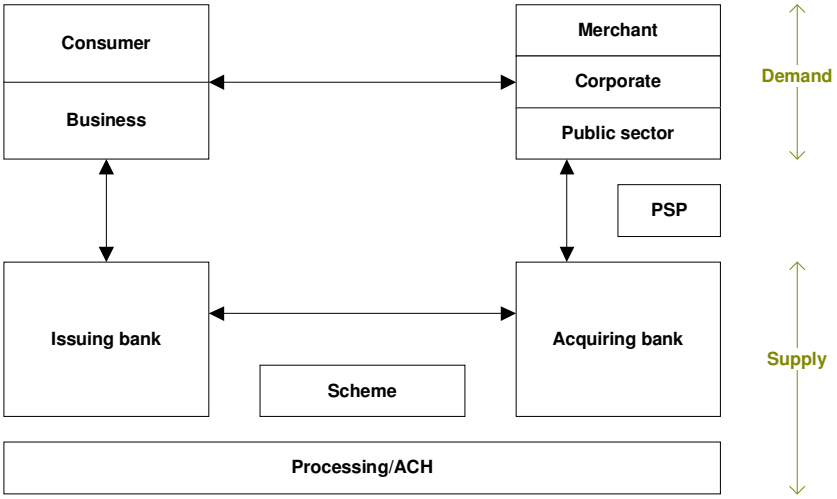

Figure 11: The 4-party model, extended with processing.

The figure shows the relationships between the four main groups of parties:

- Organisations providing products and services, either merchants, corporates or the public sector.
- Consumers or businesses who buy the products and services.
- Acquiring bank, maintaining the relationship with the selling party.
- Issuing bank, maintaining the relationship with the buying party.

4.1 Banks

These parties offer payment methods and products that enable account holders to transfer money between different accounts. For example transfer forms, direct debits, 'acceptgiro' slips, and recently Giropay (Germany) and iDEAL (the Netherlands). They offer the service of transferring money to both payer and payee. Because banks do this in a (often locally) standardised fashion, network effects were created. Payees can receive money from anyone in the banking system and payers can pay to anyone in the banking system. More recently, banks offer their customers Internet banking facilities for managing their current account functionality. Results are increased processing speed and ease of use for both consumers and merchants, and reduction of processing costs for the banks themselves. The number of people using these facilities has grown tremendously in recent years, and the general consensus is that online banking will become the dominant banking channel. Initially online banking has been set up in a 'silo-ed' way, so serving either retail or wholesale clients. With the advent of Internet payment via online banking, we see a networked cooperation in the Internet domain of the two sides of the banking sector. This is done both in a multi-bank manner (iDEAL, Giropay, EPS) as well as in a mono-bank set up (e.g. Nordea Solo, Poland, Belgium: various individual banks).

History shows that 4-party models (Visa, MasterCard) have the strongest network effect, because every party has its own role and incentive to grow the network. In so called 3-party models, issuing and acquiring are combined and the provider has to organise both issuing and acquiring, which naturally limits the reach across the globe.

4.1.1 Acquiring bank

An acquiring bank holds the formal relationship with the merchant and provides the settlement of money to the merchant. Acquirers are licensed by schemes (see 4.2) such as Visa, MasterCard, iDEAL and Giropay, to accept their transactions.

As a result of decreasing margins in acquiring a strong development is the internationalisation of acquirers, especially in the cards area since these generally operate internationally. Acquirers are looking for cross border business as well as acquiring foreign merchants for their domestic business. Examples are B+S, Concardis (both Germany), Elavon (Ireland) and BCC (Belgium) entering the Netherlands.

The new regulations of SEPA will require that merchants only need one acquiring contract for their European transactions, avoiding today's practice of having to organise acquiring contracts per region. As a result merchants can also choose to have one pay out flow for their total volume (central acquiring), but this is only beneficial for merchants who have organised their treasury function like this. Many merchants still have this organised locally. We expect that under SEPA more merchants will seek to rationalise and centralise their payment operations.

4.1.2 Issuing bank

Issuers are (often banking) institutions that issue cards or accounts. They hold the relation with buyer. For every transaction that is requested from a merchant the acquirer seeks real time authorisation at the issuer after which the transaction is guaranteed to the acquirer.

Typically the issuer is a different entity from the acquirer, but e.g. American Express is an exception because these schemes combine issuing and acquiring in one entity (a so-called three party scheme). MasterCard and Visa are so-called four party schemes where issuing and acquiring are done by separate entities and thereby creating a strong global network.

4.2 Schemes

A scheme is the set of rules and regulations to which its licensees have to comply. The licensees are the acquirers. The overall objective of a scheme is to ensure the operational quality and confidence in the payment method. The scheme rules deal with issues such as branding by issuers and acquirers, security, access criteria for payers and payees, processing requirements and terminal requirements. Some schemes also deal with pricing and transaction routing. Examples of schemes are Visa and MasterCard and local schemes such as PIN (debit the Netherlands), EC-Cash (debit Germany), iDEAL and Giropay (online schemes for respectively the Netherlands and Germany).

SEPA prescribes the way schemes should operate and organise their governance, ensuring a level playing field for every party who wants to be active in a part of the payment value chain. Many schemes active in the European area will be affected by SEPA, and will have to re-organise in order to comply with the SEPA requirements. Politicians and merchants fear that SEPA will result into a oligopoly of today's international card schemes, resulting in a strong political interest in new schemes. One of the ambitious new schemes is EAPS which is a cooperation of several strong domestic debit schemes. It is clear that domestic schemes (e.g. PIN in the Netherlands and EC Cash in Germany) will cease to exist in their current form.

The international cards schemes are under continuous investigation by the European Commissioner for Competition (Neelie Kroes) on the subject of interchange. This is a fee (set by the card schemes) between issuing and acquiring banks for settling credit and debit transaction. In December 2007 MasterCard was summoned to remove the fees for European cross border transactions.

4.3 Processors

Processors are typically service providers for the parties that offer payment services, such as issuers and acquirers. Processing is needed in three areas: buyer side (issuer), merchant side (acquirer) and interbank (ACH and/or scheme network). In general there are two types of

processors: interbank (typically as an ACH function) and commercial processors who work for the whole industry.

Processing is a volume business (mainly fixed costs) and as SEPA leads to further standardisation and commoditisation strong consolidation is expected. Equens, the combination of the German Transaktionsinstitut and the Dutch Interpay is now one of the top three ACH's of Europe. Equens processes 7 billion transactions per year, which is 10% market share within the euro zone. This will grow further after the announced close cooperation with Cegeti from Italy. Other major ACH players in Europe are VocaLink (UK) and Stet (France). In the commercial processing arena the major players such as First Data Corporation and TSYS seek to increase their footprint. TSYS acquired CTL in 2007.

A commercial processor subcategory is parties that maintain the network of PoS terminals (e.g. Alphyra, CCV). SEPA will also lead here to further consolidation, as all terminals will have to be adapted due to authentication measures.

Another subcategory is the technical solution providers. One example is the German PAY.ON, which provides platforms and payment outsourcing for Payment Service Providers.

4.4 Payment Service Providers

Payment Service Providers (PSPs) are service providers that enable web- and offline transactions for merchants. PSPs aggregate various payment methods from various acquirers into one contract and one technical interface for merchants.

In order to select a payment service provider (PSP) it is good to know what kind of roles a PSP can play, what services they can offer and how they relate to other relevant parties like acquirers. For this reason this paragraph starts with providing some insights in the PSP market and the characteristics of PSPs and their services.

PSPs have a place in the 4-party model. In this model the PSP places itself between the merchant and the set of multiple acquirers and issuers needed to offer the desired payment methods in the merchant's web shop. This prevents the merchant from having to make connections with too many acquirers. Especially in global activities this would require a lot of connections, contracts and implementation effort from the merchant.

While PSPs started providing connections to process the payments in the Internet channel, they nowadays offer a wide range of additional financial services to their customers. A PSP is therefore an aggregator of connectivity and financial flows. Important reasons for a merchant to do business with a PSP are:

- A single technical connection for all the payment methods that are offered to the consumer on the web.
- Access to local payment methods in defined countries.
- A single administrative connection (reporting).
- A single settlement procedure with an agreed frequency.

- Usually fewer contracts are needed, compared to having individual connections to acquirers. The PSP acts as the 'super merchant', being able to offer lower fees because of its purchasing power at the acquirers.
- Access to specialist knowledge concerning payment process.
- Risk management and fraud prevention tools are provided and regularly updated.

4.5 Characteristics of PSPs

4.5.1 Distributing and collecting PSPs

Distributing PSP

This type of PSP focuses only on the connectivity aspect of the PSP. The money flows directly from the acquirer to the merchant. When using a distributing PSP, the merchant:

- Executes reconciliation in the back office (matching of orders with incoming payments).
- Executes his own cash management.
- Sets up and manage own acquirer relations.

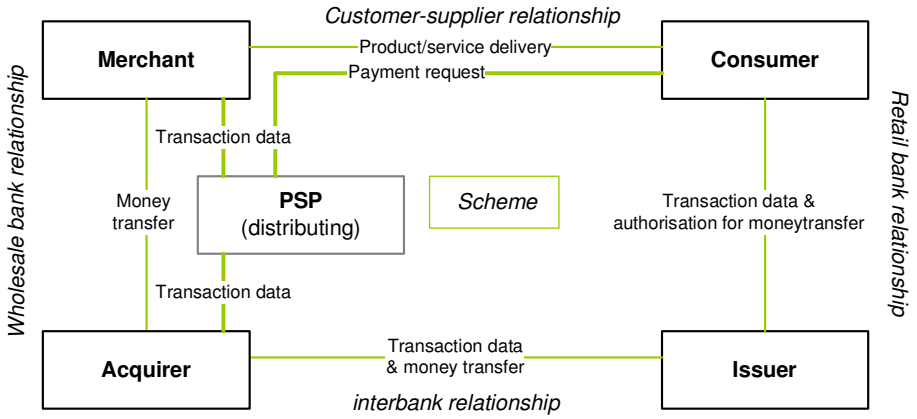

Figure 12: The distributing PSP in the 4-party model.

Collecting PSP

A collecting PSP offers connectivity and collection at the same time. The merchant's acquirer pays out to the PSP on behalf of the merchant. The PSP aggregates all payments and pays out in regular batches and in any required currency. The collecting PSP offers the additional reconciliation information, matching the payment identification (generated by the PSP) with the order identification (generated by the merchant).

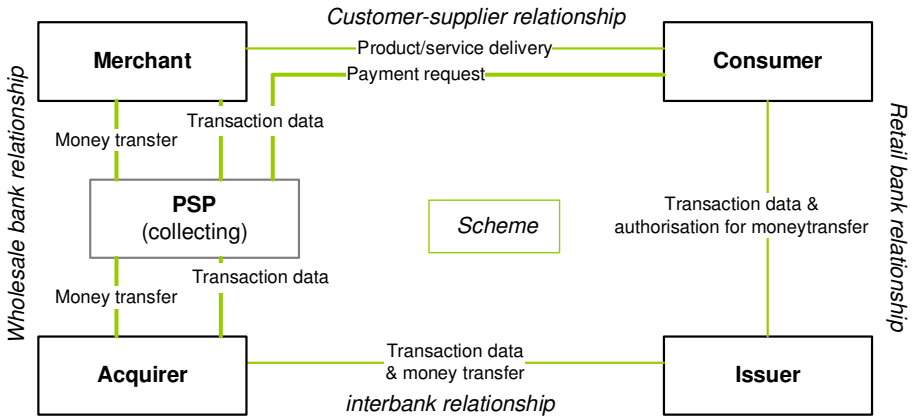

Figure 13: The collecting PSP in the four party model.

4.5.2 Acquirer connectivity

Acquiring costs are the biggest cost factor in online payments. When using a collecting PSP there are three business models to work with:

- **Using the PSPs 'master merchant account'.** In this case the merchant uses the PSP contract with its acquiring relationship(s) and does not need to bother about separate contracts with the various acquirers. The PSP gives a (blended) transaction rate to the merchant. The acquirer issues one single account to the PSP. The PSP then uses that account for one, many or all of their merchants. Master merchant model is nowadays rarely found in the industry as the schemes have banned it. This is because it does not allow them to adequately identify which transactions belong to which merchant, which is against money laundering policies. These guidelines are edited as PCI-compliancy rules.
- **Working with the 'umbrella' model.** In this model the PSP negotiates a standard sign-on procedure and contractual arrangements for their merchants with the acquirer. This means the acquirer trusts the merchants signed on by the PSP. The acquirer identifies each merchant with its own merchant's identification (mID). The merchant still needs only one contract with the PSP, and does not need to bother about separate contracts with the various acquirers. The PSP gives a (blended) transaction rate to the merchant.
- **Setting up direct relationships with acquirers.** The merchant negotiates his own contract with the various acquirers. This is more work, but usually there is margin to be gained by doing so, especially when the amount of expected transactions is relatively high. A business case for a comparison of the two options should be set up. The money can still go through the PSP for the reconciliation services.

Next to the differences in business models, PSPs differ in the amount of acquirers they connect to. Not only in the total amount of acquirers, but also in the amount of acquirers per geographical area (country). This again depends on the payment methods that the acquirer

offers and that are most commonly used in that particular country. Furthermore the service that acquirers offer to a PSP will vary.

4.5.3 Offering card and non-card payment methods

PSPs have an important role in enabling local non-card payment methods for merchants, enabling reach through a single interface.

Non-card methods for larger amounts are usually bank transfers and wallet systems such as PayPal. Direct debit cards have very high reach in some countries, such as ELV in Germany. Just like credit cards these are prone to fraud due to the possibility of charge backs.

4.5.4 Online versus offline payment methods

Online payment methods provide feedback immediately to the merchant and buyer on the payment status. This status is usually 'authorised', so capture can be realised. Based on a successful transaction the merchant can start directly with the fulfillment of the order. Examples are credit cards, PayPal and the category of online banking based Internet payments (OLIP) such as iDEAL in the Netherlands and Giropay in Germany.

Offline payment methods are methods that have a certain lead time between order and the confirmation by the financial institution that the payment will be honored. Think of regular bank transfer or direct debit. During this stage the transaction will have the status 'pending'.

These types of transactions have a higher chance of failing, because buyers have the possibility to change their mind during the process. For them this is also a manual process, which is more hassle and prone to errors. For the merchant this leads to higher back office costs because of a higher rate of unidentifiable payments.

Collecting PSPs in general offer a set of services to provide feedback and information for online and offline payments. Needless to say that PSPs, just like merchants, encourage online methods because of their velocity and cost efficiency.

4.6 Other organisations in the value chain

In Figure 11 the four key parties in the online payment chain are shown: the consumer, the merchant, the issuer and the acquirer. The payment service provider is shown as an intermediating party between merchant and acquirer. The scheme organisations maintain the networked cooperation from a technical, functional and business perspective.

Not necessarily being part of the 4-party model, more parties can be involved in the payments value chain:

4.6.1 Billing Service Providers

The core business of Billing Service Providers (BSP) is to enable electronic exchange of payment- and invoicing information between bill senders and their customers. They enable billers to send their billing data in their own formats. This data is aggregated and converted to messages on web pages or email that are readable and comprehensible for the recipient. Often the recipient can initiate a payment from this electronic bill. For more information on billing and e-invoicing in general we refer to the Innopay-EBA 'E-invoicing 2010' report.

4.6.2 Credit management companies

Credit management companies come into play when debtors defect in paying their creditors and the creditor has sent several requests and reminders to pay the bill. Merchants and corporates vary in the moment at which they outsource this collection activity. The later this is done, the more costly it becomes to collect the money. Credit management companies operate with the legal framework for debt collection, allowing them to charge to both the debtor and the creditor. Well known companies in this field are Intrum Justitia and Lindorff (Europe), InkassoUnie (the Netherlands) and Albis (Germany).

4.6.3 Factoring

Factoring companies go further, because they become involved at the moment of invoice creation. They take over the complete risk and effort of collection. The creditor directly receives the money at a discount from the factoring company. Factoring is often a banking activity, since it is a means of financing companies.

4.6.4 Risk rating

Several companies have specialised in categorising payers, resulting in classifications on their payment behavior. A population is segmented on basis of family size, education level, age, income and many other variables. The findings are structured and provide data intelligence, also in a real time fashion during the transaction process. The data are sold or rented to any merchant willing to reduce his payment risks. Large providers are Experian (consumer ratings) and Graydon (company ratings).

4.6.5 Bailiffs

Whereas credit management companies have no legal instruments at their disposal, bailiffs do. They are accredited by the crown and have legal instruments to make a debtor pay. They enter the debt collection chain when the credit management company has applied all possible instruments and the debtor still has not paid and a judge had rules against the debtor. It is with the court's backing that bailiffs collect outstanding debts. A few of the legal instruments that a bailiff disposes of are confiscation and public auction of goods and real estate.

5 Payment methods

5.1 Classification of payment methods

For merchants that want to start or enhance their e-commerce business it is not easy to get an overview of all payment methods.

Timing, place, relation and the distinction between a product and a service have been mentioned in the previous paragraph. Beside these, the next aspects to analyse when deciding on payment methods are:

- **The distribution channels the merchant uses.** Online, mail order and telephone order (MOTO-channel) or a combination. Are these online sales added to existing physical sales channels, or is the retailer only active in the online channel?
- **How orders, billing, delivery and payments are being processed.** The merchant might want to match the Internet sales and payment processing as closely as possible to the existing sales and payment procedures. Reconciliation and other back-office integration for Internet sales provide important requirements.
- **The company's target groups.** Desired reach (national only or international), the degree to which payment methods are used by the company's target groups, the user friendliness or usage conditions of the payment method, and the level of 'knowing and trusting' the targeted consumers. A large international editor, editing more than 200 magazines, will offer credit cards to the readers of its 'younger professionals' magazine. And the editor will offer bank transfer as a payment method to the readers of its 'lady magazine' aimed at a target group with a higher age.
- **The current payment infrastructure related to the merchant's business.** The current situation might influence the choice of acquirer and payment processor. For example, for a German airline it is very relevant to have a connection with an acquirer that supports airline loyalty programs, since their customers participate in these programs. The right acquirer for this airline submits the so called 'branch specific extension (BSE)', enabling the merchant to provide more service to his customer.

The characteristics of the retailer and his e-commerce situation need to be matched with the possibilities that the many payment methods offer. The three most relevant characteristics for a merchant are:

- **Geographical span of the payment method.** Which geography does the merchant want to reach? National versus international. In this report we will make a distinction between payment methods that can be used virtually *unconditionally* (so by everyone in a specific geographically area), and methods that can only be used after certain conditions are met, e.g. the user has pre-registered for the method (*conditionally*).

- **Amount size. I**s the payment method suited for micro or macro payments (or both). This has a relation to relative cost and risk profile of the transaction.
- **Level of payment risk.** Whether the payment is guaranteed or not. The level of payment risk is however not completely set by the selected payment method but also by the way the retailer organises his billing, payment, and delivery processes around a sale. Hence level of payment risk is less suitable to classify payment methods. With each payment method we will elaborate on the payment guarantee involved.

For this report we will use a two dimensional model along which we will analyse the various payment methods. The two dimensions are reach and amount size.

Other important aspects that will be described with each presented payment method are:

- The functioning of the method and the issues for applying the method in the online or phone channel.
- The ease, speed and security with which the consumer can authorise a payment.
- The requirements to the retailer and the arrangements that are needed to be able to offer the payment method.
- The time that passes between the purchase, the submission of the payment order, the authorisation by the bank and the transfer of the money to the retailer's bank account.
- The costs involved in offering the payment method.

The classification of payment methods is represented by a matrix in which reach (unconditional vs. conditional) and sales amount (macro vs. micro) are used as main dividers. In this way we get four quadrants in which the several payment methods are presented.

	Unconditional reach	Conditional reach
Macro amount	1 Direct debit Bank transfer Pre-filled transfer form Cash on delivery Card on delivery	2 Online banking Credit card Online e-wallets
Micro amount	3 Premium SMS 0900 pay numbers	4 Online e-wallets

Figure 14: Classification of payment methods.

In the first quadrant we find all traditional payment methods. In the second quadrant we start with Online banking based Internet payments. This payment requires bank account holders to use their bank's online banking service. In some countries this is by far the majority of the account holders. But this is not the case on a European level. Also in the second quadrant we have the online usage of credit cards, the recent initiatives around e-invoicing and a large amount of e-wallets, online or mobile phone based. For the e-wallets the distinction between macro and micro payments is somewhat blurred. Hence we find also e-wallets in the fourth quadrant as the only method in this quadrant. The last couple of years this area has been (and still is) quite a battle ground for newly introduced payment methods. The third quadrant is mainly in the hands of premium SMS and 0900 pay numbers.

The next sections will cover the listed payments methods for each of the quadrants in detail.

5.2 Overview of payment methods

In this chapter we will give an overview of the various methods of online payment. A description of the payment method is provided in addition to information on relevant providers.

In line with the classification as presented in the previous section, the following payment methods will be discussed.

Unconditional reach – macro payments:

- Bank authorisation / direct debit.
- Bank transfer.
- Cash on delivery.
- Card on delivery.
- Pay-in-store.
- Escrow.

Conditional reach - macro payments:

- Online banking based Internet payments.
- Credit card.
- Online e-wallets.

Unconditional reach – micro payments:

- Premium SMS.
- 0900 pay numbers.

Conditional reach – micro payments:

- Online e-wallets.

Per payment method their specifics will be described. System specific characteristics that are covered are:

- **General description of payment method.**
- **Channels.** *Application of method with online purchase or mail order/telephone order.*
- **Market reach.** Reach in terms of potential consumers (national/ international) and in terms of conditions for consumers.
- **User friendliness for the consumer.** Ease, speed and security with which the consumer can authorise a payment.
- **Payment guarantee.** The degree to which the consumer can reverse the payment after it has been authorised and processed. When a consumer cannot reverse a payment after it has been authorised by the bank, it is a guaranteed payment.
- **Time line for settlement of the payment.** The time that passes between purchase, submission of the payment order, authorisation by the bank and money transfer to the merchant's bank account.
- **Requirements for acceptance.** The criteria a retailer has to meet and the arrangements that are needed to be able to accept the payment methods.
- **Processing costs.** The costs involved in accepting the payment product.
- **Suppliers.** Names and website.

5.3 Macro-payment methods with unconditional reach

Despite the rise of online payment methods, offline payment methods are also still being used much for online shopping, in spite of the high costs for Cash on Delivery and logistic inefficiencies. The latter is because payment occurs after delivery of the goods sold.

However, in a lot of cases offline payment methods have advantages, due to differences in risks to the merchant and buyer. This is the case for example with Cash on Delivery, where the buyer pays when tangible goods are delivered. Payment by the customer before delivery, as is usually the case with online payment methods, will work only when consumers have a high trust in the merchant. If this is not the case then paying before delivery might become an obstacle for the purchase. So the merchant has to balance between lowering the threshold and the risk.

In these situations an escrow service can be considered. Not so much a payment method, but more a service that can be used with most of the presented payment methods.

5.3.1 Direct debit / Bank Authorisation

General description	After authorisation of the consumer (or by means of a paper mandate), the originator (the organisation requesting the money) is allowed to initiate a bank transfer from the consumer's account to his own account. The advantage for the originator is that he can initiate the payment at the agreed moment. For the buyer no further action is required once the authorisation is given. Although originators are required to give customers a period of notice before any change in the amount of a direct debit, there is no way for a bank to verify that this notification has taken place before allowing a direct debit to be paid from a customer's account. Customers are usually unaware that a mistake has been made until after an erroneous amount has already left their account (although if an originator fails to give appropriate advance notice your bank is obliged to return the payment).
Varieties in the product:	
– One-off authorisation	For every direct debit withdrawal from the consumers' account his authorisation is needed.
– Recurring authorisation	The consumer gives an authorisation once to withdraw a certain amount periodically. By means of a written form the consumer can stop the merchant's mandate to withdraw the amounts.
Application in channels:	
– Online	The Netherlands: Cannot be used as online payment method. The consumer cannot give an online authorisation to withdraw the amount: only written authorisation is valid. However, the merchant can send in direct debit at his own risk of charge back. Germany: Elektronisches Lastschriftverfahren (ELV). The online version of ELV is often referred to as OLV: 'Online Lastschriftverfahren', and works the same as ELV. United Kingdom: Direct Debit or Mandate. The consumer should contact the organisation he wants to pay, who will forward and check the data with the consumer's bank. Channels can be Internet as well as telephone. Belgium: Domiciliering. The same rules apply as for the UK. Spain: Domiciliaciones Bancaria. Cannot be initiated online. Per country the process is different, as every country has its own rules and regulations. It is expected that this will be harmonised within the SEPA framework.
– Mail order / telephone order (MOTO)	In general: There are special (banking) regulations per country for orders by telephone that are paid with direct debit, see general description.
Market reach	In general: not every country allows direct debit as payment method for online or telephone purchases. Some countries do allow them for these two channels but strictly require the written authorisation on paper with it. However the maintenance of these rules is difficult. The reach in general remains stable. Within a specific country the consumer reach for this method is very large as

	it is a product that can be used by (almost) all holders of a bank account. Germany: ELV usage is large: more than 30% of the consumers use ELV. Netherlands: one-off authorised direct debits are not so popular online. Only online retailers that are well-known and trusted can get their customers selecting this method. The situation is the same for Belgium, UK and Spain where only around 1% of online transactions are conducted via direct debit.
User friendliness	The consumer authorises a company to withdraw money from their account, and does not have to worry about any other administrative handling.
Payment guarantee	The Netherlands: a one-off authorisation given by a consumer can be reversed within 30 days after the transaction date. ELV in Germany is without authorisation. Upon request by the consumer the bank will reverse the payments. An additional risk for ELV arises when consumers provide invalid card details (expired, marked as lost or stolen, etc.). And a check if there is enough money on the account is not made; capture takes place immediately. ELV transactions therefore have a higher risk to be charged back than other transactions. Beside the amount itself, banks impose fines on chargebacks since it implies extra labor for their back offices. These fines differ per bank and/or per payment service provider, but can be up to 25 euros per transaction. In general, including Belgium and the UK, when there are no sufficient funds at the consumer's account the direct debit cannot take place. Therefore the payment is not guaranteed. The obligation to pay remains.
Time frame between payment - settlement	The exact time it takes for the money to be transferred depends on the submission of the direct debit to the bank (or processor) by the merchant. After a direct debit has been submitted, settlement is within a few days.
Processing Costs	The Netherlands: Direct costs involved in a direct debit order vary between € 0.07 and € 0.10 credit side and between € 0.09 and € 0.14 debit side. High volumes to be negotiated. For Germany and Belgium the pricing is similar. In the UK the processing of direct debit is GBP 0,21.
Information / Suppliers	The Dutch Association of Banks: www.nvb.nl Currence: www.currence.nl The National Bank of Germany: www.bundesbank.de The German Association of Banks: www.bankenverband.de BACS: www.bacs.co.uk Febelfin: www.febelfin.be
Additional information	Product names The Netherlands: eenmalige incasso, machtiging (for one-off direct debit), automatische incasso (for regular payments) Germany: Electronisches Lastschrifverfahren (ELV) UK: Single Direct Debit (for one-off direct debit) Belgium: Domiciliering Spain: Domiciliaciones Bancaria Poland: polecenie zapłaty

5.3.2 Bank Transfer

General description	Any person with a bank account can execute a bank transfer to wire money from his account to the receiver's account. Consumers that choose this method of payment determine when the payment takes place. The consumer can decide to use either paper bank transfer forms, a telephone-based method of banking, electronic banking or Internet banking. The advantage of applying this method online is that it can be used to receive money from local as well as foreign consumers. Disadvantage is that it is an offline payment method. This means that the consumer needs all correct payment details and after that the customer goes offline for the payment. The customer is in control when he pays and whether he pays. This leads to a high level of deals falling through. Furthermore the customer handles all payment details manually, which makes it prone to mistakes and unsuccessful payments and reconciliation.
Varieties in the product:	Not applicable
Application in channels:	
– Online	Only applicable offline - see General description
– Mail order / telephone order (MOTO)	Only applicable offline - see General description
Market reach	The transfer can be used to receive money from any consumer with a bank account at local as well as foreign banks. For transfers between countries, an IBAN number is required, which can be conducted under the same conditions as a domestic payment. For the Netherlands, Germany, UK and Belgium the market share is in all countries around 20%. In general the bank transfer is overtaken by online payment methods. For e.g. online banking see paragraph 5.4.1 and further.
User friendliness	For national payments the product is standardised and well-established. The consumer determines when payment will take place, and he can decide to use either paper transfer forms, a telephone-based method of payment, electronic banking or Internet banking.
Payment guarantee	Once a transfer has been made a consumer cannot reverse it unilaterally. So the risk of non-payment is not related to the payment method, but only to the merchant's policy on timing of payment reception and product delivery.
Time frame between payment - settlement	In case of an ordinary domestic payment the money is transferred in about 1 to 2 days after the order was given, depending on the banks involved. Foreign transfers within the European Union take 6 to 7 days, unless the IBAN-number is provided: processing time is much shortened. These are guidelines, as the time frame is dependent on the acquiring party.
Processing Costs	The direct costs of a domestic transfer are € 0.14 credit side and between € 0.05 and € 0.07 debit side for digitally processed transactions. Using paper forms will cost about € 1.00. The overall processing costs depend in particular on the extent to which a company has automated this procedure. Incoming foreign payments may involve additional costs that are considerably higher than the domestic rates.

Information / Suppliers	IBAN number www.ibannl.org www.ibanrechner.de Apacs www.apacs.org.uk
Additional information	Product name: The Netherlands: Overboeking, Bankoverschrijving Germany: Überweisung UK: bank transfer Belgium: Overboeking Poland: polecenie przelewu or przelew

5.3.3 Invoice with pre-filled transfer form

General description	A merchant can decide to send the customer an open invoice per mail, accompanied with a pre-filled transfer form. Several European countries apply a standard format for this pre-filled transfer form. The pre-filled transfer form contains all merchant and purchase related payment details. The consumer only needs to complete the form with his own details, date and signature. Then this transfer form can be submitted per mail to his bank. In some countries consumers can also choose to make a cash deposit at the bank office.
Varieties in the product:	Not applicable
Application in channels:	
– Online	Only applicable offline – see General description
– Mail order / telephone order (MOTO)	Similar to bank transfer, the customer is in control whether to pay or not. An advantage of the pre-filled transfer form is that it prevents customers from making mistakes or not using your unique reference (order number, billing number). This guarantees a smooth matching of incoming payments with the original orders. It is up to the merchant to ship the goods prior to or only after reception of the payment. In The Netherlands quite a lot of web shops send the invoice with the 'Acceptgiro' together with the purchased product. In this way they improve the conversion rates, although they have to accept some risk of non-payments. As with a normal bank transfer, this payment method is not suitable for the sales and delivery of virtual goods (downloadables).
Market reach	In general: Acceptgiro (the Netherlands), Überweisung-Vordruck (Germany), and the pre-filled transfer (UK) is a method that can be used by all consumers that have a bank account. A consumer can decide to use the open invoice to make a cash deposit at the bank office or to send it to his bank, after which the amount will be deducted from his account. In Belgium there is no such product. The Netherlands: In 2005 almost 200 million Acceptgiro's were processed. In 2006 this figure decreased to 150 million. The 'Acceptgiro' is the most used payment methods for online purchases in the Netherlands. Payment with 'Acceptgiro' after delivery of goods has been

	used by 56% of the consumers, and before delivery of goods by 17% of the consumers. Germany: 55% of all the household and recurring payments is done by Überweisung-Vordruck
User friendliness	The product is standardised, easy to use and is a common payment method since many years. It offers consumers the possibility to manage their budget by choosing when to pay/send.
Payment guarantee	Once a transfer has been made a consumer cannot reverse it unilaterally. So the risk of non-payment is not related to the payment method, but only to the merchant's policy on the timing of payment reception and product delivery. When the invoice and pre-filled transfer form are sent along with the product, actual payment remains uncertain. In that situation the risk of non-payment can be reduced by monitoring the nature of the order and the creditworthiness of the consumer.
Time frame between payment - settlement	In case of an ordinary domestic payment the money is transferred in about 1 to 2 days after the order was given, depending on the banks involved. Foreign transfers within the European Union take 6 to 7 days, whereas foreign transfers outside of the European Union take between 5 and 20 working days, depending on the method used by the consumer's bank.
Acceptance requirements	In the Netherlands a merchant has to enter into an 'Acceptgiro' contract with a bank and with Equens (formerly Interpay, the central national processor). Next to this the merchant has to ensure that the forms meet the specific technical requirements (for the sake of processing by banks). A system test by Equens has to be completed successfully. There are various kinds of contracts, depending on the question whether it is the merchant or a service agency that produces the pre-filled transfer forms. In Germany a merchant has to close a contract with a bank. The bank will support the company in dealing with the processor, as also in this case the company, or his billing service agency, has to ensure that the pre-filled forms meet the specific requirements. For the UK the procedure is similar
Processing Costs	The Netherlands: direct costs vary between € 0.58 and € 1.45, depending on the numbers being used and the output that is chosen. A breakdown of these costs is: Production: € 0.01 to € 0.09. Postage: € 0.31 to € 0.41. Processing by banks: € 0.06 to € 0.65 debit side and € 0.20 to 0.30 credit side. The overall processing costs of the 'Acceptgiro' depend in particular on the numbers and the extent to which a company uses automated processing procedures. The costs of the Uberweisung-Vordruck in Germany and the pre-filled transfer form in the UK are comparable.
Information / Suppliers	The Dutch Association of Banks: www.nvb.nl Currence: www.currence.nl The National Bank of Germany: www.bundesbank.de The German Association of Banks: www.bankenverband.de

Additional information	Product name: The Netherlands: Accept Giro Germany: Überweisung-Vordruck UK: prefilled transfer form

5.3.4 Cash on delivery

General description	A merchant can deliver the goods together with a Cash on Delivery service (CoD). This means the buyer has to pay on delivery in order to receive the goods. If he does not want (to pay for) the goods, the goods will not be handed over. It is considered as a disadvantage that the delivering person carries cash money or should carry a mobile PIN terminal. In case the addressee is not at home, or has insufficient cash available, he can collect the package at the Post Office at a later moment. There the consumer can pay at the counter in cash or any other payment method available at that counter. In Germany this additional service with a delivery is called 'Nachnahme'. In The Netherlands and Belgium this is called 'rembours', Spain contrareembolso and in Poland przekaz pocztowy.
Varieties in the product:	Not applicable
Application in channels:	
– Online	This service can go very well with online purchases that require physical delivery. Both the merchant and buyer face no risk with this type of payment and delivery. If a buyer decides not to take and pay for the goods, the merchant faces only the costs for the CoD service. When using Cash on Delivery as payment method it is important to clarify what the conditions are with regard to shipment and which rules apply when a consumer wants to return the package.
– Mail order / telephone order (MOTO)	For sales per telephone the same is valid as for online sales.
Market reach	Cash on Delivery can be used by anybody and is offered both to private persons and companies. This service can also be combined with international deliveries.
User friendliness	The buyer pays cash on delivery. This means he needs to have sufficient cash available at home when the goods are delivered. The payment risk is equally divided between seller and buyer, therefore this payment method is very well suited when there is low trust between seller and buyer.
Payment guarantee	After the payment has been made and the goods are received, the buyer cannot reverse the payment via the carrier. The supplier faces no risk with the payment.
Acceptance requirements	A single CoD package can be shipped via the Post Office, but for larger volumes of shipments it is advisable to arrange a contract. The supplier needs to include a shipping document with each shipment – either electronic or non-electronic – and a CoD form. The maximum CoD amount for shipments within the Netherlands is € 2,000. The maximum CoD amount for shipments within Germany is € 3,500 or € 5,000 depending on the delivery service selected. For international

	shipments this maximum amount depends on the country of the addressee.
Time frame between payment - settlement	The Netherlands: cash is transferred to the supplier's account within 15 days after delivery of the goods to the addressee. The average time between delivery and transfer is one week.
Processing Costs	The costs for 'rembours' within the Netherlands consist of a provision of 1% of the amount. The maximum amount is € 2,000. The above-mentioned rate does not include the costs involved in shipping. These costs depend on the weight and the number of packages. In Germany the costs for national 'Nachnahme' are € 3.60 for delivery plus € 2.00 for money transfer. The latter is only charged when the receiver actually paid for the goods. The costs for Belgium and the UK are comparable. The CoD service can be extended to include an additional insurance coverage for the package. Shipments abroad can also be sent CoD. Different rates and conditions apply.
Information / Suppliers	TNT Post : www.tntpost.nl Deutsche Post : www.deutschepost.de. DHL: www.dhl.de Royal Mail : www.royalmail.com De Post : www.post.be
Additional information	Product name: The Netherlands, Belgium: Rembours Germany: Nachnahme UK: Cash on Delivery Spain: Contrareembolso Poland: przekaz pocztowy

5.3.5 Card on Delivery

General description	This is a variety on the Cash on Delivery method. In order to facilitate Card on Delivery the use of a mobile payment terminal is required. By providing the card options with Cash on Delivery (CoD), the risk of buyer not having sufficient cash available is eliminated. For other aspects this payment method is similar to CoD.
Varieties in the method:	In this payment method the payment can be done with different cards:
– Credit Card	Withdrawal of the amount later
– Stored Value Card	Pre-paid card, withdrawal has been done
– Debit Cards	Withdrawal of the amount at the moment of payment
Application in channels:	
– Online	This service can go very well with online purchases that require physical delivery. Both the merchant and buyer face no risk with this type of payment and delivery. If a buyer decides not to take and pay for the goods, the merchant faces only the costs for the CoD service.

– Mail order / telephone order (MOTO)	For sales per telephone the same is valid as for online sales.
Market reach	Using a mobile payment terminal makes it possible to pay on delivery by debit card, stored value card or credit card. This means that the coverage is very good. Being a variety on Cash on Delivery, the reach is the same:
User friendliness	User friendlyliness of payment by debit, stored value or credit card is high.
Payment guarantee	After the payment has been made and the goods are received, the buyer cannot reverse the payment via the carrier. The supplier faces no risk with the payment.
Acceptance requirements	To be able to accept card payments on delivery in the Netherlands a company has to sign a contract with Equens (former Interpay), one of the certified mobile network suppliers and possibly with the credit card company for mobile debit or credit card payment. There are also service providers that lease out mobile card terminals, without the need for a contract with Equens. This is the same in Germany where several terminal providers offer mobile card terminals for rent.
Time frame between payment - settlement	In the case of payment by debit card it will take one to several days for the money to be transferred after the transaction has been made. With stored value card payments it depends on the moment of deposit (the transfer of data during a link-up with the processor). Receipt of funds when paying by credit cards takes approximately 2 weeks.
Processing Costs	The costs involved in mobile payment are: One-off fee for the mobile terminal. One-off fee for the connection to the GSM-network. Subscription fee (vary per bank/provider). Subscription fee for the connection to the GSM-network. The Netherlands: Stored value card transaction fee (vary per bank/provider, about € 0.05 per transaction). Debit card transaction costs are € 0.07 per transaction. Intermediaries use higher rates, for instance € 0.25 per transaction. The average transaction time is 11 seconds. For Germany, Belgium, and the UK a similar cost structure is applicable, however costs may vary with the transaction amounts. The credit card transaction fee varies per credit card company.
Information / Suppliers	CCV: www.ccv.nl Pinlinq: www.pinlinq.nl Rent a PIN: www.rentapin.nl Awita: www.kartenterminal.com CCV-Allcash www.allcash.de
Additional information	Product name: The Netherlands, Belgium: Rembours Germany: Nachnahme UK: Card on Delivery

5.3.6 Pay-in-store

General description	Pay-in-store online payments enable goods purchased online to be paid for at a brick-and-mortar store. This method is frequently offered by brick-and-mortar shops that also operate an online equivalent. In the case of web only shops, third-party agents are used to accept payment on their behalf. These agents are usually stores where consumers make frequent purchases, such as supermarkets or corner shops. Depending on the merchant or third-party involved, pay-in-store may also be combined with in-store pickup of the product.
Varieties in the method:	The eventual payment method used to fulfill the payment is dependent on the methods offered by the store where the payment is completed. Cash is therefore an option, as are electronic payment methods such as credit, debit and pre-paid cards.
Application in channels:	The payment method is suited for both online and mail order/ telephone order and may be used by consumers unwilling or unable to pay online.
Market reach	The market reach is dependent on the extent of the two-sided network. The network needs both web shops offering the payment method and brick-and-mortar stores offering the payment method in the consumer's vicinity. To gain reach, large brick-and-mortar chains function as agents, such as corner shop chain Żabka in Poland.
User friendliness	Pay-in-store requires extra effort from the consumer when compared to other online payment methods. However, consumers choosing this payment method will do so for very specific reasons (anonymity, inability or unwillingness to pay by other means) and will therefore figure the extra effort into their payment decision. In addition, because agents are often shops that consumers frequently visit, consumers can combine their regular visit with the payment of their online purchase.
Payment guarantee	When the consumer pays for the online purchase at an agent, the agent sends a message to the web merchant to notify him of the payment. Frequently, only then the product is sent to the consumer. In this case, pay-in-store offers a payment guarantee to the merchant but may involve more risk for the consumer because he pays in advance. When pay-in-store is combined with in-store pick up the payment and product are exchanged simultaneously removing most of the risk from the transaction.
Time frame between payment - settlement	This is dependent on which payment method is selected at the brick-and-mortar store.
Processing Costs	The cost of a pay-in-store online payment is split into two parts: the costs for the merchant's connection to the brick-and-mortar store and the costs of the actual payment which takes place at the brick-and-mortar store. This can be demonstrated with the case of Poland's Zapłac w żabce (Pay in Żabka). Web merchants pay a fee of 2.8% of the purchase value to their online payment service provider. In addition, the consumer pays a commission to Żabka of PLN 0.99 (EUR 0.23) per payment. This first part of the total cost only connects the online purchase with the in-store payment and does not yet involve an actual transaction. Additional fees are paid by the Żabka store for the actual payment. These costs are dependent on which payment method is selected at the brick-and-mortar store to complete the purchase.

Information / Suppliers	żabka: Kiala:	www.zabka.pl www.kiala.nl

5.3.7 Escrow Services

General description	Escrow means the involvement of a trusted third party for the transactions of goods and money. When the buyer orders his good he pays to the escrow service provider. The merchant can deliver. The buyer checks the purchased goods upon delivery. When the delivery is as expected, the escrow service provider will transfer the money to the merchant. If a dispute arises around the delivery, the escrow service provider will mediate to settle this dispute. In general Escrow Services are well applicable in situations where seller and buyer do not know each other and when there are no means to check each other's identity or trustworthiness (large areas and distances).
Varieties in the product:	Not applicable
Application in channels:	
– Online	An escrow service is especially interesting when buyer and seller do not know and/or trust one another. This is often the case with online purchases, for instance with web shops that are relatively unknown and more and more with person-to-person sales that take place on online marketplaces like eBay.com or marktplaats.nl. The escrow service can be offered by the merchant or seller, but can also be initiated by the buyer. In both cases the buyer and reseller need to sign up with the escrow service. The use of an escrow service is elaborate and as such it is suitable for goods that are exclusive, fragile or valuable.
– Mail order / telephone order (MOTO)	Sales per telephone are mainly done by companies that are known to the consumer. Hence an escrow service is less likely to be used for sales via this channel.
Market reach	Coverage is determined by the range of payment methods accepted by the escrow-service, usually credit card payments and (local) bank transfers. The Netherlands: small penetration and applicability due to the small geographical area. For Germany, Belgium and the UK there are no data available.
User friendliness	Using an Escrow service offers both the consumer and the retailer security. In general the process is: - Consumer and retailer sign up. - A transaction agreement is drawn. - The consumer pays the escrow service. - The retailer sends the goods to the consumer and posts the expected delivery date on the website of the escrow service. After the expected delivery date the consumer has a seven day inspection period, after which the escrow service pays the retailer on acceptance of the product by the consumer.
Payment guarantee	Using the escrow service gives a buyer the guarantee that the retailer will only be paid if the quality of the goods is satisfactory. The retailer has the

	guarantee that the amount involved has indeed been paid by the buy and the money will be transferred if the buyer accepts the product.
Acceptance requirements	Users need to sign up to the website of the escrow service. Sometimes this can be done through the auction or marketplace where the transaction has been made (for instance eBay.com or marktplaats.nl).
Time frame between payment - settlement	The exact moment the money will be transferred by escrow depends on the payment method the consumer has selected, the speed with which both consumer and retailer respond and the agreement with the organisation carrying out the escrow.
Processing Costs	**International**: To use the escrow service an amount of money has to be transferred related to the price of the article being sold. It is a percentage of the transaction amount varying between 0.5% and 2.5%, and/or a commission fee of € 2.00.
Information / Suppliers	Escrow Europe: www.escroweurope.com/nl Triple Deal: www.tripledeal.com Moneybookers: www.moneybookers.com PayDutch: www.paydutch.nl eBay Treuhandservice: www.ebay.de iloxx SAFETRADE: www.iloxx.de ECO-Truehand: www.eco-truehand.de S-ITT: www.s-itt.de Alipay www.alipay.com PayEx www.payex.com
Additional information	Product name: 'Escrow Services' is an internationally used term

5.4 Macro-payment methods with conditional reach

The reach of the payment methods in this section is limited, as the conditions for buyers to use these methods are of such nature that not all buyers can be reached. These conditions are in most cases related to buyer sign-up processes ('opt-in'), which form a barrier for the consumer to start to use the method. In some cases buyers are even required to pay for the service, or deposit money upfront in an electronic purse.

In this area we see the rise of online banking based Internet payments. Online banking is becoming more and more the tool for buyers to manage their bank account. This trend is very supportive to the (potential) success of e-payment methods. European countries that are front-runners with online banking have realised this, and have taken initiatives in developing nation-wide standards for online banking combined with Internet payments.

In the Netherlands iDEAL is operational since November 2005 and has not only gained quickly a substantial share in online payment methods but also boosted online sales. In Germany the situation is a bit different due to the fragmentation in the consumer banking landscape. Giropay was launched in February 2006 by Postbank, Sparkasse, Volksbanken and

Raiffeisenbanken. About 17 million German customers of these 3 bank groups can use Giropay, however the actual use is modest. In Belgium Bancontact/MisterCash was launched in 2006. It is being enrolled: ten of the fifteen participating banks have enabled the Bancontact/MisterCash debit card for online transactions. In this market also Dexia, KBC and ING offer their 'single bank' pay buttons. Their reach remains limited, as a web merchant should have a current account with all these banks separately to reach their customers.

These methods are for now at best national standards. From a geographical point credit cards have a great advantage: they are not limited by country borders. But still only a certain percentage of consumers own a credit card, although this varies quite between countries. In general the reach of credit cards is high in Anglo-Saxon (US, UK) and Latin countries (Southern Europe, South America). In North-western Europe (Nordics, the Netherlands, Germany and German speaking countries) debit cards have a higher market share compared to credit cards.

Recent initiatives in the area of Electronic Bill Presentment & Payment (EBPP) might give new possibility for methods with potentially an unconditional reach. For the moment most of these methods are not that widely used as they require a customer opt-in or a validated e-mail address. Also cross-border transactions might be difficult as each country has its own rules and regulations with respect to bills. On the long run SEPA might be helpful in this area as well.

Next to these initiatives we have seen the rise of wallet-based systems over the years. Some have already disappeared, while others are gradually growing in number of users. Of the online versions PayPal is best known, but Google started just recently with Google Checkout. Mobile phone based versions have had a tough time to get a foothold.

5.4.1 Online banking based Internet payments

Online banking is the fastest growing payment method in Europe. It is the electronic version of the traditional, manually written bank transfer. Banks in several countries developed online banking with the objective to enable faster payments and to reduce the costs of processing.

General description	Real time bank transfer works by re-directing the buyer from the check-out page at the merchant site towards the online banking site of the consumer's bank. After logging in the own online banking environment, the buyer is directly presented with an online transfer form that is automatically filled with the transaction details as presented at the merchant's check-out page. The only manual action left is to uthorize this online transfer. Once the buyer has uthorized the online transfer he is re-directed back to the merchant's check-out page where his payment will be confirmed. The merchant has received the guarantee that the payment is made, so he can directly present the delivery details and start delivering to the customer. For this payment method national standards (schemes) have emerged. The

	national scheme in the Netherlands is iDEAL. In Germany the national scheme is Giropay. These are both open standards, which means they are open for any (banking) party to participate in. This enhances the reach of these methods tremendously. Belgium has its own 'multi bank' solution Bancontact/MisterCash. With one integration a merchant can reach many buyers.
Varieties in the product:	'closed' method, or 'single bank': offered by only one bank, providing its own online banking e-payment method. 'open' method, or 'multi-bank': more banks share the payment platform, therefore a transfer from the one bank to the other participating bank(s) is possible, enhancing the reach considerably.
Application in channels:	
– Online	This payment method is perfectly suited for online purchases, especially from the perspective of the online merchant. The feedback on the success of the payment is received instantly and the payment is guaranteed. The (successful) transactions can be directly processed in the merchant's back office process and the goods can be shipped immediately. This makes it a perfect payment method for online deliveries, provided the charged amounts are not too small (see processing costs).
– Mail order / telephone order (MOTO)	As this payment method is related to online banking, this method is not well suited for purchases in other channels, like telephone purchases. In order to apply this payment method (as it has a lot advantages related to ease of use and guaranteed payment) the merchant has to change from telephone channel to the online channel. This is possible when the merchant has or can get the e-mail address of the buyer. The e-mail address can very easily be captured when the buyer is on the phone. The merchant can now send for instance e-invoice via e-mail (e.g. with AcceptEmail) to the buyer. This e-mail contains all payment details and a link to pay with iDEAL.
Market reach	In the current stage the online banking based payment methods provide national coverage only. Provided it is a national, open standard adopted by most consumer banks, then the coverage within a country is huge. If it is a closed standard, related to specific bank or institution then coverage is limited by the condition that only those customers from the participating banks can be reached. Development of an open international standard is foreseen within the framework of SEPA. International within this framework relates to coverage within the Euro-zone countries. But with a lot of parties and interests involved, it is expected that this will not be realised on a short term.
User friendliness	As far as consumers are concerned the payment procedure is similar to filling in orders for Internet banking or electronic banking. This makes the procedure recognisable and easy to use. The main difference is that consumers no longer have to provide the payment data. Unlike credit card payments, transaction data is not exchanged via retailers or PSPs, which also makes it more secure for consumers.
Payment guarantee	A successful online banking based payment is irreversible. After the bank has received the payment the buyer cannot reverse the transfer. The merchant is not faced with a chargeback risk.
Time frame between payment - settlement	Settlement will take 1 or 2 days when buyer and retailer use different banks, and takes place immediately when they use the same bank

Processing Costs	In general one can state that the online banking based payment methods can be a lot cheaper than credit cards and offline payments, and that they offer guarantee for the merchant. This is in most cases valid for the fee per transaction, but the cost advantage really kicks in when considering operational costs around payment administration and shipment handling.
Additional information	iDEAL www.currence.nl Giropay www.giropay.de eDankort www.pbs.dk EPS www.stuzza.at Bancontact/Mistercash www.atosworldline.be BankAxess www.bankaxess.no Secure Vault Payments www.securevaultpayments.org Interac Online www.interac.ca POLi www.centricom.com DIRECTebanking.com www.payment-network.com Citadel Internet Banking www.citadelcommerce.com Inpay www.inpay.com PayEx Online Banking www.payex.com UseMyBank www.usemybank.com SafteyPay www.safetypay.com Mazooma www.mazooma.com and many mono-bank solutions See section 3.1 for additional information.

5.4.2 Credit Cards

From a global perspective credit cards are by far the most important payment method for Internet and telephone. In this section we will describe credit cards along the general structure of this report. We added the explanation of Dynamic Currency Conversion. Risk management and fraud prevention are elaborated in chapter 6.

General description	There are various card brands, of which Visa and MasterCard are best-known. Currently, the MasterCard brand name is used all over the world. As far as Visa is concerned there are a number of variations.
Varieties in the product:	
Application in channels:	
– Online	To authorise the payment, the buyer provides his own information and card data. These data are online controlled on validity and fraud risk. When the customer uses 3-D Secure (as yet not common in Europe), he needs to provide identification to his issuing bank with each payment, for instance with a password or token. These checks do not remove the risk of chargebacks for the merchant: see

	payment guarantee below.
– Mail order / telephone order (MOTO)	Paying with credit card per telephone is done by providing the personal information and card data during the call. The call centre employee can directly enter these data in their application to get these data controlled on validity and fraud risk. 3-D Secure cannot be applied in this situation, though the call centre might have its own control in place for caller identification. Also in this case these controls do not remove the risk of chargebacks for the merchant: see payment guarantee below.
Market reach	The Netherlands have over 5 million credit card holders: 3.2 million with a MasterCard and almost 2 million with a Visa Card. Germany has about 23 million credit card holders of which almost 49% are MasterCards and 43% are Visa Cards. In Europe there are 106 million MasterCards and 110 million Visa Cards. Worldwide there are 638 million MasterCards and over 640 million Visa Cards.
User friendliness	Using a credit card is a simple and easy process for the consumer. But because of this a lot of buyers are hesitant in sharing their credit card number online or via the phone. Schemes like 3-D Secure or the use of CVC do not overcome this hurdle.
Payment guarantee	Buyers have up to six months (the so-called chargeback period) after the payment to reverse credit card payments when there is no signature, and the retailer has to prove that the payment is correct or face the costs of the chargeback. A retailer can refund the credit card payment when it turns out that the complaint is justified and the buyer wasn't the actual card holder (e.g. in case of theft). 3-D Secure payments include an electronic signature in the form of a card holder authentication with every transaction. Identity of the card holder is ensured through the PIN-identification. When the transaction is executed with 3D Secure, the liability for chargebacks shifts from the acquirer to the card issuer. In daily business this means that the merchant is not longer fined for the chargeback. Chargebacks are also possible with 3-D Secure, e.g. when the card holder denies having received the shipment. So this remains an administrative burden for merchants
Acceptance requirements	To accept credit cards a retailer has to go through an application procedure with the credit card companies, for which he needs to submit a variety of documents and information. Part of the contract with credit card companies is the clause that stipulates that if the percentage of chargebacks is too high the retailer has to take additional measures, costs will be passed on and the contract can be terminated. Several PSPs apply a deposit, based on expected transaction numbers, average transaction value and average expected chargeback rate.
Time frame between payment - settlement	A retailer knows immediately (online) whether the payment is authorised and can elect to receive a series of authorisations at a later point. In many cases online authorisation is the best option. The moment the money is actually transferred depends on the agreement with the credit card organisation and, among other things, on the transaction volume. Daily or

	weekly transfers are possible.
Processing Costs	Monthly fee: applies when payment is accepted as part of Internet registered functionality. Commission percentages: vary between 1% and 5%. These percentages depend on the volume, the average transaction amounts, the sector and the acquirer. This commission is also known as the MSC (Merchant Service Commission or Merchant Service Charge). Other terms are: Merchant Discount or Merchant Disagio. Costs of chargeback: amount per chargeback, varies per PSP. In general between 10 and 20 euros per chargeback.
Information / Suppliers	Visa www.visa.com MasterCard www.mastercard .com

5.4.2.1 PCI Compliance

The Payment Card Industry Data Security Standard, or PCI, is a global standard for the protection of consumer data, based on the standards of Visa and MasterCard respectively. The standard has been created to prevent sensitive credit card information from falling into the wrong hands via processor's websites. The need for protection was underlined by the theft of 40 million credit card numbers from CardSystems Solutions (an American processor) in the spring of 2005. These included data from Dutch and German card holders.

In general, for smaller retailers the PCI-standard is a matter between acquirer and retailers. Larger retailers (> 20,000 transactions a year) and processors have to carry out quarterly data protection scans.

5.4.2.2 Implementation issues

It is possible to arrange a contract that only covers the acceptance of credit card payments via the Internet. This is called an 'e-commerce contract'. In other words, retailers do not need to sign a contract for the acceptance in the physical store itself.

An important condition of payment over the Internet is that the exchange of information between consumer and store and between store and credit card organisation has to be secure, through the use of encryption with, for example, SSL (Secure Socket Layer).

When choosing to use the services of a Payment Service Provider, it is important to know how chargebacks will be handled. To obtain more secure measures against false chargebacks, the customer can be asked for credentials and signature upon product delivery. Optionally, an insurance can be taken out against the risk of non-paying consumers, although this is often a costly affair.

5.4.2.3 Receiving different currencies

When a merchant is active in an international business environment, he may accept payments in currencies other than the Euro. Other European currencies include the English pound, the

Swiss franc and the Norwegian and Swedish Kroner. When turnover from these countries increases, it may useful to make special arrangements.

The costs of a Dutch merchant will usually be in euros, so he will prefer to be paid in euros as well. All other currencies have to be converted before payment in euros can take place. The international credit card companies have built-in provisions for this. A British card holder paying in euros in the Netherlands receives a statement in pounds from his issuing bank. At some point the currencies are converted – in this case by the various parties that process the credit card payment. Often a margin of a few percent is added to the transaction. Because payments will appear on the statement in another currency, it is only when he receives the statement that the card holder knows what the actual amount is.

5.4.2.4 The largest credit card brands

American Express	The 'AmEx' card is used a lot for business purposes and is both issued and acquired via the central American Express organisation. Unlike Visa and MasterCard, this organisation does not belong to banks. In many countries it is, after MasterCard and Visa, the third largest card in terms of numbers.
Diners Club	Diners Club, a part of Citibank, is one of the smaller players on the market. American card holders can often also go to Internet retailers that accept MasterCard.
Discover	Although this card is predominantly used in the United States (where it is in fourth position), Discover is also active in various other countries that attract a lot of American tourists, as well as in China. Not active in Europe.
JCB	Credit card of the Japanese Credit Bureau. In the rest of the world this card is mainly accepted in the Travel and Hospitality sectors.
Maestro	The debit card brand of MasterCard. Payments are deducted directly from the bank account (without a consolidated bill). Maestro cards can be used in a growing number of countries to pay with the use of a PIN code. Internet use is as yet limited. Most Dutch PIN cards carry the Maestro logo for use abroad.
MasterCard	Like Visa, MasterCard is an association of member banks, with roughly the same level of acceptance among retailers. In the Netherlands 4,2 million MasterCards are issued. In addition, MasterCard carries the Cirrus (ATM) and Maestro brands.
Visa	Worldwide Visa is the largest card issuer, with 1.3 billion cards accepted by millions of retailers in 150 countries. In many countries Visa is number one in terms of the number of cards issued, a position that is held by MasterCard in other countries.
Visa Electron	A special Visa Card, often marketed as a debit card. This means that transactions are deducted immediately from the card holder's bank account. This makes the card suitable for younger card holders or low-income card holders. Not issued in the Netherlands, where its purpose is served by the PIN card.
AirPlus	AirPlus is a large provider of business management services. This includes the issuing of corporate and personal credit cards directed at the business traveler. The credit card is associated with Visa and MasterCard for acceptance. As AirPlus is part of Lufthansa, this card is mainly used by German consumers.
Purchase cards	These are cards that are issued by companies for business-related purchases. The main feature is that during the transaction additional information (so-called 'Level 3 Data') is

	provided on the nature of the goods, which results in improved reporting and offers the possibility to make certain cards only suitable for certain purchases with certain Internet retailers. In addition, information is provided about the VAT and other issues that are important for automated billing. Purchase cards are issued by Visa and American Express.
Solo (UK)	English debit card aimed especially at youngsters, with a slightly less limited acceptance than Switch (Switch is disappeared brand name and is Maestro now, but is mentioned here for his large reach in the UK). Is also accepted on the Internet.
UATP	A payment card that is used in particular for business travel purposes, as far as Europe is concerned used predominantly by Lufthansa under the AirPlus brand.

Table 4: Overview of commonly used cards.

5.4.2.5 Dynamic Currency Conversion (DCC)

Dynamic Currency Conversion is a financial service with which a card holder can elect to pay in his own currency in cases where he would normally pay in a foreign currency, for example when a British consumer wants to pay for an airline ticket from a German airline company. The eventual price will be in euros, and the buyer will not know what the amount in pounds is until he sees his statement. Via DCC the British consumer can see the amount that will appear on his statement even before the order is confirmed.

The diagram presented below shows how DCC can work. The price of the ticket (€ 100 in the example) is converted into pounds (£ 68 in the example) at the card holder's request. This amount is based on the daily currency rate of the pound, plus a certain percentage (usually between 1% and 3%). The payment is then processed in pounds and paid in pounds to the retailer, or to the acquirer or DCC-provider. This is called a like-for-like settlement.

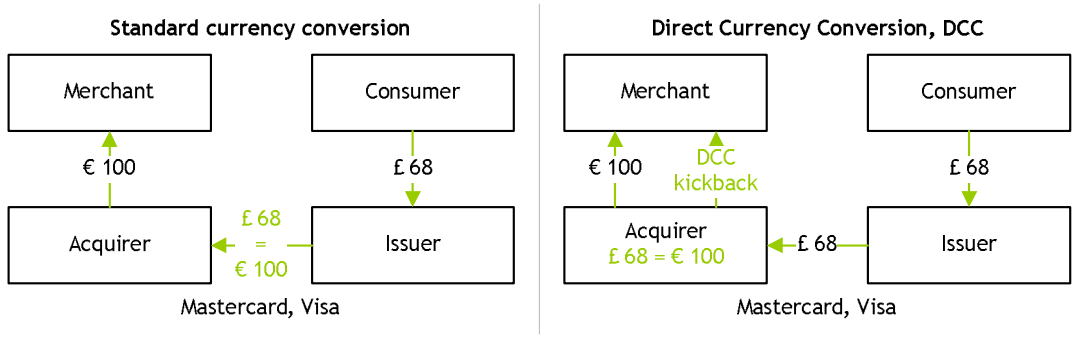

Figure 15: Direct Currency Conversion (DCC) with credit card transaction.

In this case the currency conversion no longer takes place in the Visa/MasterCard network, but is carried out by a separate currency trader. The credit card networks and the issuing banks lose commission as a consequence of this development. In the end the card holder still pays the mark-up on the currency.

Often this mark-up is divided between the acquirer and/or DCC-provider and the retailer. When a large share of your accepted payments takes place in foreign currencies, DCC allows you to save substantially on credit card payments. Examples of acquirers and DCC-providers are EuroConex, Fexco, GCX and RBS.

Websites

EuroConex: www.euroconex.com

Fexco: www.fexco.com

GCX: www.gcxcorp.com

RBS: www.rbsmarkets.com

5.4.3 Online e-wallets

General description	Online e-wallets are online accounts that can hold a stored credit-value. Buyers need to register with the e-wallet provider to create this account. In most cases the account is linked to the e-mail address of the buyer. Once an account is created the buyer has to upload money to his e-wallet. To make payments with the e-wallet occurs by entering the account username (like the email address) and a password, to confirm the consumer's identity. After that, the buyer can confirm a transaction and the amount is deducted from the online stored credit - provided the credit amount is sufficient.
Application in channels:	
– Online	This payment method is specially designed for online purchases. Originally online e-wallets were focused on micro payments. Over time several providers have grown in customer usage and customer trust and moved into the macro payments area. As most of these payment methods are also suitable for person-to-person payments this trend was fuelled by the tremendous growth of e-business on online market-places like eBay.com and marktplaats.nl. Nowadays buyers are more familiar with this kind of payment method and have less hesitation to pay larger amounts with it. Though, as this payment is direct and irreversible, the buyer faces the risk of non-delivery. While this is good news for the merchant, it might stop a buyer from buying. Because of its direct and irreversible nature, this payment method is very well suited for online / downloadable deliverables.
– Mail order / telephone order (MOTO)	Not applicable
Market reach	The registration and uploading of a credit-value (prior to a purchase) are major obstacles for consumers to use online e-wallets. This is especially the case when this method is not much used by web shops. This payment method strongly depends on the network effect: a large number of users on both sides is needed to make it a successful method for online payments.

User friendliness	The payment procedure is similar to filling in orders for Internet banking or electronic banking. Using e-wallets for online payments is easy, because most consumers are familiar with entering usernames and passwords. Security is a weak point in this kind of payment method, because username and password are static, and therefore prone to phishing.
Payment guarantee	The payment is direct and irreversible.
Time frame between payment - settlement	Settlement will take 1 or 2 days when consumer and retailer use different banks, and takes place immediately when they use the same bank
Processing Costs	Cost structure is based on a fee or percentage per transaction. Uploading money into the online e-wallet account is free, but withdrawing money is in some cases charged.
Information / Suppliers	PayPal www.paypal.com Moneybookers www.moneybookers.com Click2Pay www.click2pay.com Neteller www.neteller.com ClickandBuy www.clickandbuy.com PayEx Account www.payex.com myCitadel Wallet www.citadelcommerce.com WebMoney www.wmtransfer.com

5.5 Micro payment methods with unconditional reach

This area of payment methods is completely dominated by paid telephone services like premium SMS and 0900 pay-numbers. These services can be used by anyone with a (mobile) telephone, without having to register himself with the payment provider. This means that these methods have an unconditional reach.

Premium SMS and 0900 pay-numbers are suited best to facilitate micro payments, but cannot be used for macro payments.

5.5.1 Paynumbers 0900

General description	Paynumbers are telephone numbers starting with 0900 that have premium rates. These rates will be charged by the telecom operator via the bill of the customer. In general, this payment method is offered directly by the telecom operator. There are also several 0900 Service Providers. Some of the SMS Service Providers also provide a gateway to 0900 services.
Varieties in the product:	*Pay per call*. With the pay per call the buyer is charged a predefined amount with just one call. This format is suited to pay for downloadables or access to a site for a specific time period (e.g. monthly access to a membership site). *Pay per minute*. With this format the buyer is charged per minute. This is especially suited for situation where the service delivery happens while the

	customer is on the phone. This does not necessarily have to be related to service delivery over the phone.
Application in channels:	
Online	This payment method can be used for online purchases that require micro-payments, though it is especially useful when both payment and delivery of the service can be done over phone. For delivery of the service via the online channel, an online (micro-) payment method would be more suited.
Mail order / telephone order (MOTO)	Unlike premium SMS this payment method works both with fixed and mobile phones. In most cases payment and service delivery is in the same channel and directly related.
Market reach	Anyone with a telephone can use 0900 services.
User friendliness	Consumers do not have to sign up to use this payment method.
Payment guarantee	Payments cannot be reversed by the buyer. When a buyer fails to pay his telephone bill, for whatever, reason, it is up to the telecom operator to collect the money. VAT is paid by the telecom operators and always has to be paid by the merchant, even when a merchant is eligible for a lower or zero VAT rate.
Time frame between payment - settlement	Retailers have access via the service provider to information about the number of payments on a monthly basis. However, the service provider only pays out the retailer after the information and payment (kickback fee) of telecom operator has been received, which can take one or two months.
Processing Costs	The rate structure of telecom operators consists of an entry fee, a subscription fee and possibly costs with regard to specific phone number formats. The maximum rates that can be charged per minute or per call are often regulated on a national level and therefore will differ per country. The rate as charged by the merchant can be set by the merchant, depending on the service that the telecom operator or service provider offers. Here too payments are divided among a number of parties. After deduction of VAT, 45%-50% of the remaining amount reaches the retailer. Note that this compensation varies between the 0900 service providers.
Information / Suppliers	Telekom/ T-Pay www.tpay.de Pay123 www.pay123.com
Additional information	-

5.6 Micro-payment methods with conditional reach

In the area of micro-payments we find mostly online e-wallets. This is because they form an aggregated value that can easily be subtracted when the actual payment is done.

The core problem with micro payments is processing costs. Payments varying from a few eurocents to a few euros can be processed using conventional payment methods, but not in a cost-efficient way. This is to say, the costs will exceed the payment itself. This does not need to be a problem when it occurs from time to time, but for a working business model

surrounding micro payments aggregation almost always takes place, and the aggregated amount is then paid using a conventional payment method like a bank transfer or credit card transaction. Some of these e-wallets are charged by buying physical cards (vouchers) with a TAN and specific value.

Because of the large and unconditional coverage of premium SMS and 0900 numbers in the area of micro-payments, we do not see much mobile-based e-wallets for micro-payments. Mobile-based e-wallets are in a way forced to facilitate macro-payments as well in order to compete with premium SMS. For further information, see our 'Mobile payments 2010' report.

Some merchants selling micro-priced services, for instance music on the Internet (like Apple iTunes) also use aggregation to be able to collect micro payments efficiently with credit cards. Often when new clients sign up a pre-authorisation is carried out on their credit card for a small amount, for instance 1 Euro, to check the validity of the card. After that, records are kept of what the client uses, and he is billed periodically. Even in cases where music files cost only € 0.99 it can be interesting to use credit card transactions directly for these downloads. Most people will download more than one file and experience shows that the average amount may be somewhere between five and ten euros. This means that it is no longer necessary to use all kinds of e-wallets and other systems to support micro payments. The risk that some customers may buy and pay for a single song is acceptable.

Sometimes the subscription model is an alternative. In this model the user pays a fixed monthly fee for access to all kinds of information. These kinds of subscriptions can be linked to existing subscriptions (for instance a newspaper or magazine), or designed especially to be used on the Internet. However, customers generally do not like taking out paid subscriptions for all kinds of sites.

Common business sense and experience with the customer behavior and the average order size prevails over all kinds of specific micro payment methods, none of which has thus far proved a great success.

5.6.1 Online e-wallets

The generic information on online e-wallets is already described in section 5.4.3. This information is equally applicable for online e-wallets for micro payments. As said above, it might prove a bit hard to classify a payment method as solely suited for micro-payments or for macro-payments. There is a gradual difference between these two types.

5.7 Classifying payment instruments: a Matroesjka approach

In their paper which focuses on a different approach to online payment instruments, Leo Van Hove, Monika Hartmann from the ECB and Valerie-Anne Bleyen propose a model which consists of several nested layers, just as a Matroesjka doll.

The smallest doll defines the type of money used, while layer two points to the core payment mechanism. The next three layers contain the channels and networks involved; carrier and authentication device used and seven generic payment instruments. The sixth layer defines special cases including money transmitters, loyalty schemes and collection/billing services.

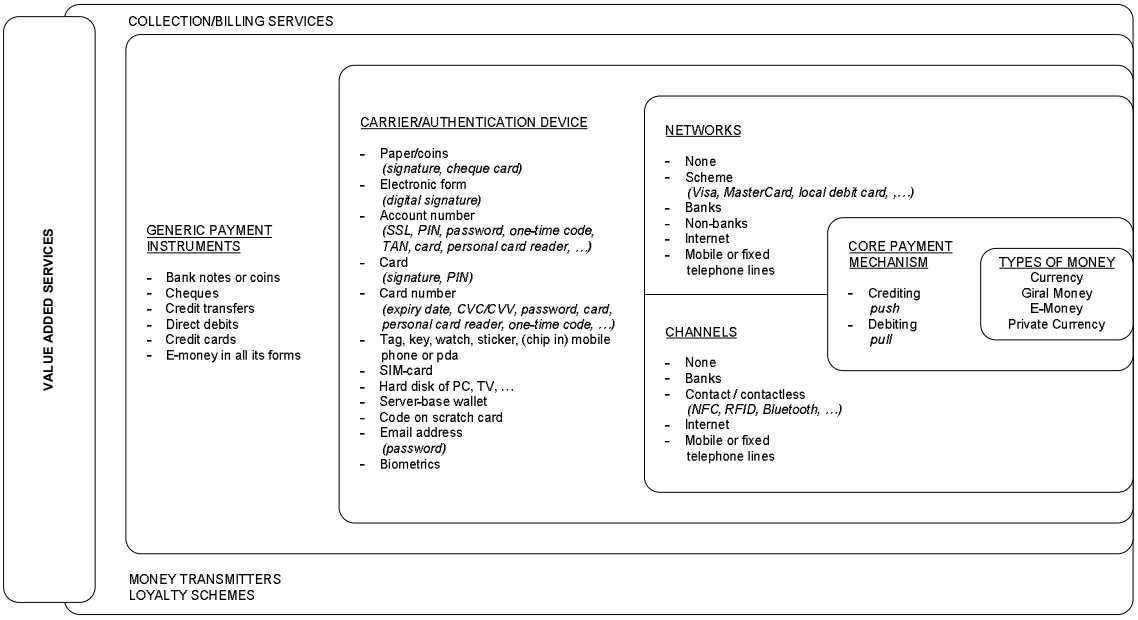

Figure 16: The Matroesjka model: an alternative model to classify payment methods (adjusted from source)[33].

The basis of such an approach is the idea that a certain combination of features from each of the five layers 'defines a concrete, real-life payment instrument'. The purpose of such a classification is to be a 'helpful tool' and to define payment instruments in the highly dynamic world of payments for parties that 'might very well encounter difficulties in obtaining a clear overview'. One shortcoming of such a classification is the fact that there does not seem to be a place for 'intermediary' organisations in the classification, meaning companies like PayPal or Directebanking which leverage existing payment infrastructure (a credit card scheme with PayPal or online banking portals for Directebanking). Also, when trying to classify Directebanking one gets an outcome very similar to that of iDEAL while there are very important differences between the two. There are further technical differences which have enormous implications for the reach, fee structure and the future success of the two.

[33] L. van Hove, M. Hartmann, V. Bleyen

6 Understanding payment behavior

In the past years we have gained insight in payment behavior of the various actors when transacting. In 2007 this work has been published[34] in a leading payments journal. In this report we will give a summary, since we believe it is valuable to have a better understanding of the factors driving the availability and development of new payment methods. It will also give additional considerations when implementing payments within an online environment.

6.1 Risk is the key driver for transactional behavior

When transacting in a commerce setting we distinguish:

- Two core actors: buyer and seller.
- Three core processes: agreement (A), payment (P) and delivery (D)

Risk and risk mitigation is at the heart of every transaction. It is the main driver for transactional behavior of both buyer and seller. Every single process contains a perceived level of risk which is balanced between buyer and seller:

- Agreement (R_A): the risk an agreement is not clear or is cancelled.
- Payment (R_P): the risk that the payment is not executed or guaranteed.
- Delivery (R_D): the risk that the delivery does not take place.

So the total perceived risk is affected by the three core processes of a transaction:

$R = f(R_A, R_P, R_D)$.

6.2 Evolution of risk

The amount of perceived risk is determined by the timing and location of the three processes. In traditional commerce the Agreement, Payment and Delivery take place on the same moment. This is typical a retail setting. The amount of risk between buyer and seller is distributed evenly: the buyer gets delivered when the seller is paid.

With the introduction of media (mail, telephone and Internet) things changed drastically. First there was the introduction of mail order in the middle of the previous century. Then came telephone order followed by Internet ordering. 'Distant commerce' made the processes asynchronous by decoupling time and place. The decoupling of the processes introduced

[34] 'Understanding buyer and seller behaviour for improved payment product development', C. Liezenberg, D. Lycklama, H. Smorenberg. *Journal of Payment Strategy & Systems*, April 2007

separate perceived risks per process: payment risk, delivery risk and agreement risk became issues of their own. Figure 17 shows this schematically.

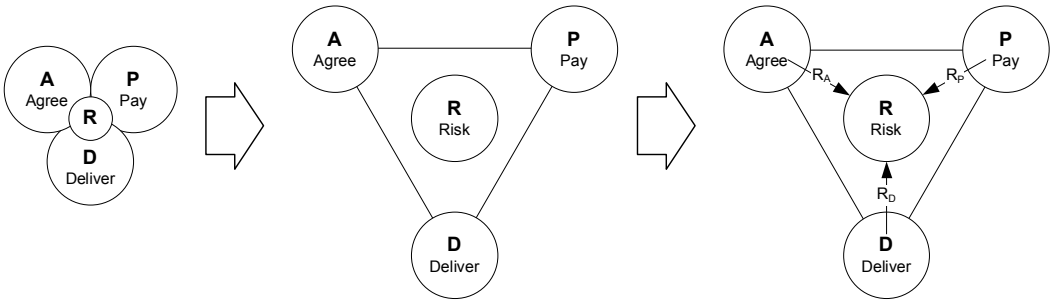

Figure 17: Three processes of a transaction: Agreement, Payment, Delivery affecting the Risk perceived.

When applying these concepts to e-commerce it is clear that minimising perceived risk is conditional for any success. A better understanding of these risks is required.

6.3 Perceived risk is determined by the 'transaction context'

The perceived risk by sellers and buyers is strongly determined by the so called 'transaction context'. The transaction context is the total of situational circumstances in which each of the three processes (agreement, payment and delivery) take place. From analysis and practical experience, it was found that four generic factors constitute the transaction context, which in effect determines the risk perceived by the actors in a transaction:

Timing (t). The timeline and order in which the processes are executed. Processes can be executed simultaneously or disconnected. In the latter case the order of Payment and Delivery can be swapped. This leads to three generic types of timings:

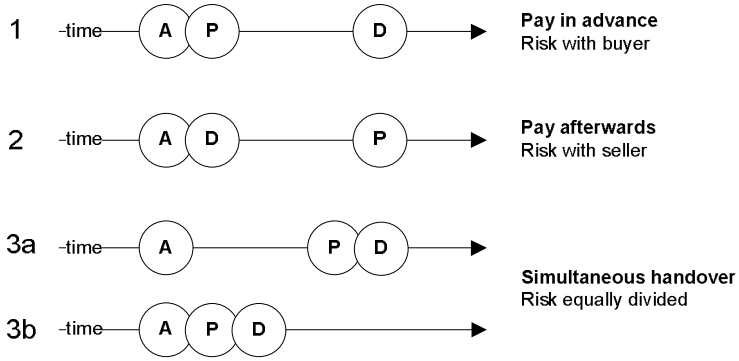

Figure 18: Different timing and order of transaction processes.

Location (l). The location of a transaction process, physical or virtual. Location can also be related to the geographical distance between buyer and seller. Examples of physical locations are shops, markets and vending machines. Virtual locations refer to 'channels', such as Internet, email, (mobile) telephone, SMS. Virtual and/or distanced locations of the actors transacting typically increase the Risk perceived.

Relation (r). The relation between buyer and seller. We distinguish three types: anonymous, known and trusted. The type of relation influences the perceived risk for both parties. This context factor is a dynamic one: over time the relation between buyer and seller changes, changing also the risk perceived. Repetitive transactions (e.g. subscriptions, rent) typically lead to a higher degree of trust than incidental transactions. With low trust, parties will seek more guarantees during the transaction process.

Product (p). The characteristics of the product delivered. Core characteristics are the value (high/low) and substance (virtual/physical). Especially the value of the product strongly determines risk perceived by both actors. High-value products require more guarantees than low-value products. Also the nature of the product influences the risk: e.g. small high value electronic products are an attractive fraud target. The substance of the product directly relates to the delivery channel. In case of electronic/digital products, these can be delivered through electronic channels. Physical products obviously cannot.

The context variables describe an endless collection of transaction situations. Table 5 gives examples of some of the most commons ones related to business to consumer Internet commerce.

No	Context example	Detailed description
1	Online purchase of a design clock	The location of the transaction is Internet. The relation is known: one can only buy after registering. Timing is before (pay before delivery). The product is physical and has a high value of € 199,00
2	Purchase of a CD in a shop	The location is the shop. The timing is simultaneous. The relation is irrelevant. Typical value is € 17,50.
3	Parking with a mobile phone	The location is the mobile phone channel through which the buyer keys in the parking details. The relation is known and the value is moderate (e.g. € 5,--). Timing is pay afterwards.
4	TV voting by SMS	The location is the TV channel (agreement) and mobile/SMS channel (payment). The relation is anonymous and the value is low (€ 0,75). Timing is pay in advance.
5	Pizza order via telephone	The channel is telephone. The product is physical and the relation is trusted when it is a regular customer. The value is moderate (€ 18,50). Timing is simultaneous.

Table 5: Examples of typical transaction contexts.

It can clearly be seen that every context has a different total risk, because the three transaction processes all have different risks per context. This is summarised in Figure 19. When considering Internet commerce a thorough understanding of the transaction context is crucial for the right decisions on shopping environment, payment and delivery solutions.

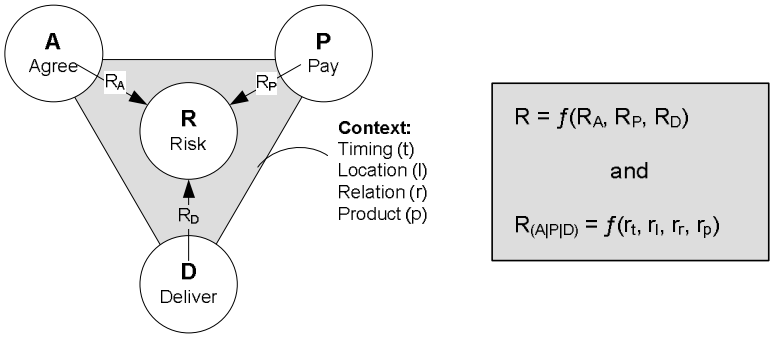

Figure 19: Total transaction risk determined by context.

6.4 Other behavioral aspects: ease of use and cost

In 1993 Prof. Dr. Betty Collis, a behavioral scientist in the Netherlands, introduced the '3P Model' (Practicability, Profit, Pleasure) to determine how an actor relates a (web)environment or (web)service to his own motives, emotions, experience. This also applies to how actors behave during transactions and the choices that they make. However, when looking specifically at payment services, we need to translate these criteria to match the characteristics of payment services:

- Usability (=Practicability): what is the (desired) usability for the user (e.g. interaction, speed).
- (Minimal) Cost (=Profit): what is the advantage for the user.
- (Minimal) Risk (=Pleasure): what drives recurring use.

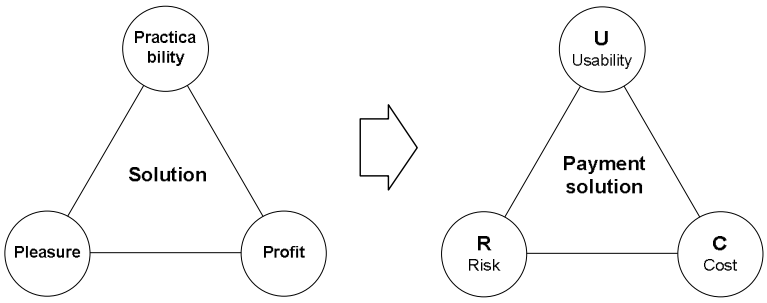

Figure 20: Criteria that affect use of a Payment solution: Usability, Cost, Risk.

Therefore a certain choice of payment solutions is an optimisation of Risk (R), Cost (C) and Usability (U) for both the seller and buyer.

In general we can say that payment solutions with low risk come at higher costs than non-guaranteed payment solutions and may require more complex interaction for both buyer and seller. Still, we believe that cost and usability considerations for buyer and seller are secondary to the risk assessment of the transaction, making (perceived) Risk the determining factor for the use of payment solutions.

Applying the 3P Model to the transaction context model provides a framework that shows how the behavior of the actors is affected: a balancing act occurs and both buyer and seller seek for optimal risk in relation to cost and usability. It is this framework that we can use to assess payment solutions in particular contexts.

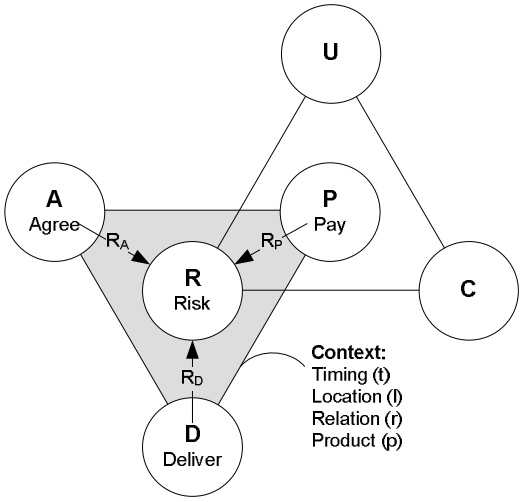

Figure 21: Framework: the 3P Model applied to the Innopay Transaction Context model.

Basically the following happens:

- The seller perceives a Risk as result of the Agreement, based primarily on Location, Relation and Product. The seller also has to take into account the Risk of losing the transaction all together, when no acceptable Payment and Delivery solutions are offered to the buyer.
- This results in Payment/Delivery solutions with specific Timing to minimise the Risk for the seller who now offers the Payment solutions to the buyer.
- The buyer perceives a Risk as a result of the Payment/Delivery solutions offered by the seller and selects the Payment and Delivery solution with his optimal balance between Risk, Usability and Cost.
- When a transaction happens (i.e. payment and delivery occur) then both buyer and seller have agreed a mutually acceptable balance for risk, cost and usability.

6.5 Applying the framework to payment methods

We have applied the framework to the context examples of Table 5 by setting off payment solutions against the behavioral criteria. We have limited the payment solutions per example to a few commonly used, just for illustration purposes.

Per context we score the payment solutions and see how context and behavioral factors can differ. We score the behavioral criteria with ++, +, 0, -, --. For Risk a higher score means lower Risk. For Cost a higher score means lower Cost. So the higher the score, the more attractive the attribute.

Behavioral criteria	Description
R_b: Risk of the buyer	Can the seller reverse the transaction? How well secured is the solution? How trustworthy is the seller in storing and maintaining the buyer's payment details?
R_s: Risk of the seller	Can the buyer reverse the transaction? Does the buyer have enough funds? Do the payment details exist?
C_b: Cost to the buyer	This differs per country. In this article we assume this cost to be part of the banking arrangement a buyer has, i.e. no additional cost per transaction.
C_s: Cost to the seller	The basic transaction costs are a cost component, but also the additional back office cost a seller has to make (e.g. in fraud management, reconciliation) in order to use such a payment solution.
U_b: usability for the buyer	Is the payment solution easy to use? Does the buyer need to authorise? Does he need to sign up?
U_s: usability for the seller	Can the seller use the solution easily? Is the process (STP) automated?

Table 6: Behavioral criteria for scoring.

1. Online purchase of a design clock	R_b	R_s	C_b	C_s	U_b	U_s
Bank transfer	--	++	+	++	--	--
Real time bank transfer	--	++	+	+	++	++
Credit card	+	--	+	--	++	+
Direct debit	++	--	+	++	++	++

Table 7: Score of payment methods in context 1.

In this example we clearly see the variation in behavioral criteria. Looking at Risk we see the difference between the guaranteed payment solutions (bank transfer) and non-guaranteed solutions (credit cards and direct debit). In terms of Cost, we see a favorable situation for the buyer, but even more for the seller, except for credit card which is regarded an expensive solution. Usability makes manual bank transfers stand out negatively, all other solutions have a good usability for both seller and buyer.

2. Purchase of a CD in a shop	R_b	R_s	C_b	C_s	U_b	U_s
Cash	+	-	+	-	+	-
Debit card	++	++	+	++	++	++
Credit card	++	++	-	--	++	++
Cheque	+	--	-	--	-	--

Table 8: Score of payment methods in context 2.

In the physical retail world cash is still the dominant payment solution. The analysis shows that cash is more favorable for buyers than for sellers. Sellers experience Risk (theft, loss), relatively high cost (mostly hidden costs) and a lower Usability due to the physical handling which is required. Cheques are the least preferred option but still applied in certain markets. Cards have a good score, with debit cards standing out on all aspects.

3. Parking with a mobile phone	R_b	R_s	C_b	C_s	U_b	U_s
Direct debit	++	--	+	++	++	++
Credit card	+	--	+	--	++	+
Reverse billed SMS	-	++	--	--	-	+

Table 9: Score of payment methods in context 3.

In this particular context the mobile phone is used for identification and authorisation. The actual payment is done afterwards via direct debit and credit card. Both payment solutions mean Risk for sellers (because of chargeback risk), but this is the most practical option. The Risk is mitigated through the sign up to the payment service, where the relation between buyer and seller becomes known. Another (less practical) solution could be reverse billed SMS, but this is not used. Most probably as a result of high costs for the seller and the limited usability for the buyer. It is very difficult to estimate the amount due for parking in advance. On top of that amounts for SMS are limited.

4. TV voting with SMS	R_b	R_s	C_b	C_s	U_b	U_s
Reverse billed SMS	-	++	--	--	++	+

Table 10: Score of payment methods in context 4.

No physical delivery takes place in this context. Reverse billed SMS is the only serious option because of the high penetration of this payment solution. There is a very low threshold for

buyers to use it. The costs are high but that is taken for granted by the sellers (TV stations), because of the lack of usable alternatives. This analysis unveils that there is most probably a business opportunity for alternative payment solutions.

5. Pizza order via telephone	R_b	R_s	C_b	C_s	U_b	U_s
Cash	+	-	+	-	+	-
Debit card	++	++	+	-	++	++
Credit card	++	++	-	--	++	++
Cheque	+	-	-	--	-	--

Table 11: Score of payment methods in context 5.

The order is placed by telephone but the delivery and payment is physical at the doorstep. Cash is again the most commonly used solution, but cards are also gaining momentum. Costs are high because there is a mobile terminal involved, which is not the case in regular physical retail. An alternative could be that the buyer gives his card number via telephone at the moment of ordering, but that is only possible (from a Risk perspective) when the relation is known or trusted. Often this is not the case with telephone order.

6.6 Conclusion on behavioral aspects of payments

We have seen that selection and usage of payment solutions strongly depends on situational factors defining the perceived risk. Also buyers make different judgments than sellers and therefore any payment solution balances risk mitigation, usability and cost between buyer and seller. A transaction occurs when both parties experience an acceptable balance between the three factors. Later in this report we will pay further attention to these behavioral aspects and provide a special section on risk management and an overview of payment methods and their characteristics.

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Annexes

Annex 1: Background information and references

The information in this report is likely to change because of many developments. Therefore we provide an overview of the sources we used in this chapter. This will provide background information that will help merchants organise their web shop and Internet payment system. In this chapter you will find information about studies into Internet usage, e-commerce and other related issues.

Studies on Internet usage

Statistical information on Internet usage can be found on the following sites:

http://ec.europa.eu/eurostat

www.Internetworldstats.com

Studies on e-commerce

Reliable, publicly available information on e-commerce behavior is hardly available. Some information can be extracted from: http://ec.europa.eu/eurostat

Dutch research agencies regularly publish summaries of the most important e-commerce research results. For more information visit the following websites:

Blauw Research: www.blauw.nl

Multiscope: www.multiscope.nl

TNS-NIPO: www.tns-nipo.com

E-Commerce Center of the University of Karlsruhe: www.ecc-handel.de

Research on e-commerce in Poland and other countries of Central and Eastern Europe can be found via: www.gemius.pl

Other research market organisations include:

www.innopay.com	Innopay
www.forrester.com	Forrester Research
www.gartner.com	Gartner
www.imrworld.org	IMR World
www.emarketer.com	E-Marketer
www.javelinstrategy.com	Javelin Strategy and Research
www.nilsonreport.com	The Nilson Report

Policy in the Netherlands

As part of government policy in the Netherlands, there are various activities aimed at promoting electronic commerce. The policy documents concerning the digital delta can be found on the following site:

www.minez.nl

Concrete information can be found with the 'the Netherlands goes digital' initiatives ('Nederland gaat digitaal'). Information on this subject can be found at: www.syntens.nl

E-commerce for the entrepreneur

A general website containing information about the business use of the Internet for sector and company is: www.zibb.nl

General information on the various aspects of doing business via the Internet can be found on the website of the Electronic Commerce Platform Netherlands: www.ecp-epn.nl

Information on quality marks can be found on the website of the Dutch quality mark institute:

www.keurmerk.nl

A Dutch initiative is the quality mark of Thuiswinkel Waarborg. Thuiswinkel is the Dutch branch organisation for web merchants. Visit:

www.thuiswinkel.org	Thuiswinkel.org

Other branch organisations are:

www.emota.org	EMOTA (Europe)
www.imrg.co.uk	IMRG (The UK)
www.versandhandel.org	Verbund des Deutschen Versandhandels (Germany)
www.vad.fr	Federation de Vente a Distance FEVAD (France)

Service of the German TÜV to provide for safer e-commerce

www.safer-shopping.de/

Service provider that certifies web shops

www.trustedshops.de/de/home/

For information on an international quality mark initiative, visit:

www.bbbonline.org/Business/

Payment-related service provision:

Specialised service providers in the area of debtor management:

www.intrum.com

www.maxcredible.com

www.infoscore.de/de/index.html

www.schufa.de

www.inkassofort.de

Information about payment products

General information about payment products is available on the website of the Bank for International Settlements:

www.bis.org/cpss/cpsspubl.htm

Specific information about the organisation of payment systems in the various countries of the European Union (the so-called Blue Book) can be found on the website of the European Central Bank:

www.ecb.int/paym/market/blue/html/index.en.html

The website of the ePayment System Observatory contains a database with information about payment products and background papers. The website is:

www.e-pso.info

Information on online Payment Service Providers (PSPs) can be found in the 'PSP Buyer's guide 2009' from Innopay:

www.innopay.com/publications

Annex 2: Glossary

3-D Secure

Common technological standard (3 Domain Secure) of Visa and MasterCard, set up to make online credit card payments more secure. For commercial reasons, Visa and MasterCard use different brand names: Verified by Visa and MasterCard SecureCode.

Authorisation

Online payments often involve direct authorisation from the bank of the consumer making the payment. This means that a check is carried out immediately to check whether the consumer is entitled and in a position to make the payment.

BSP (Bill Service Provider)

Provider of billing / invoicing services. See also: e-invoice.

Capture

With credit card payments an entrepreneur can decide not to submit a payment order to the bank or credit card company immediately, and wait until the order has been carried out completely. When that is the case, the authorisation and 'capture' are separated. Capture refers to the separate submission to a bank or credit card company of a certain payment order (that has been authorised earlier).

Chargeback

Reversal of a credit card payment. Chargeback is only possible after settlement to the merchant has taken place.

Chip & Pin

The name under which EMV (see EMV) was introduced in the United Kingdom.

CNP (Card Not Present)

Transaction type for credit cards where the card cannot be shown physically to the retailer, for instance in the case of e-commerce transactions and MOTO transactions. Is the opposite of Card Present (CP) transactions.

CoD

Card/Cash on Delivery. Payment method with which payment (cash or by card) takes place when goods are delivered. In Belgium, France and the Netherlands known as ‘rembours’ or ‘remboursement’.

CP (Card Present)

Transaction type for credit cards where the card is physically present during the transaction and can be read, via a magnetic stripe or chip. Distinction between unattended (for instance parking meters and vending machines) and attended (counter transactions where the retailer is physically present). Is used as opposite of Card non Present (CNP).

CVV and CVC (Card Verification Value/Code)

Three or four digit code printed on the credit card and often requested on the Internet for extra security.

E-invoice, E-invoicing

The electronic presentation of statements, bills, invoices and related information sent by a company to its customers, and corresponding payment for goods or services.

E-wallet

Prepaid wallet that allows consumers to maintain a credit that can be used for (micro) payments on the Internet. Most wallets can also contain information regarding the payment account and credit card, making it possible to ‘upload’ credit from these accounts. The wallet can also be used to pay for online purchases using the credit card information (stored on the wallet).

EBPP

EBPP stands for Electronic Bill Presentment & Payment. See E-invoice.

EIPP

EIPP stands for Electronic Invoice Presentment & Payment.

ELV (Elektronisches LastschriftVerfahren)

German Direct Debit system for online payment. Payment method which is very popular in Germany, although the payment is not guaranteed. ELV is a debit card, which in online transactions behaves like a credit card.

EMV

Is a standard for credit cards that contain a chip. By having this chip read by payment terminals more secure transactions are possible. The EMV chip will replace the signature on the sales slip of a credit card transaction.

Escrow payment

Payment that involves the services of an independent third party (Trusted Third Party, or TTP). The third party removes the distrust that may exist between parties by safeguarding the money (or delivery) until the other party has fulfilled his part of the deal.

HTML

HyperText Markup Language. A programming language (or rather lay-out language) that is used predominantly in designing Internet pages.

HTTP(S)

HyperText Transfer Protocol (Secure). Protocol developed by Enterprise Integration Technologies enabling secure communication over the Internet.

IBAN

International Bank Account Number.

Internet cash register

Virtual equivalent of a cash register that allows consumers to decide which payment method to use. The Internet cash register can be developed by the entrepreneur, including the connections to banks or credit card companies, or it can be leased from third parties. The cash register and payment provisions are then provided by Payment Service Providers.

Liability shift

A shift of liability from the acquirer towards the issuer in the case of credit card chargebacks. The authentication protocol of Verified by Visa (VbV) and MasterCard Secure Code (MCSC)

offers merchants 100% protection on all transactions processed under the VbV or MCSC program. Merchants who adopt this program are no longer liable for card-non-present (CNP) chargebacks resulting from transaction denials.

MCSC (MasterCard Secure Code)

Brand name used by MasterCard for its authentication method, based on 3D Secure technology.

Mobile payment terminal

Device that enables PIN and/or Chip card payments, not linked to a physical location. For example, for payments on a market or delivery at home.

Mobile commerce

Wireless electronic way of doing business, for instance via mobile telephone or wireless networks.

MOTO (Mail Order / Telephone Order)

Qualification of the channel by which the transaction is done. Transaction where the card holder provides his card details to the retailer via mail/fax or telephone. A third channel is the Internet channel.

MSC

Merchant Service Charge, the costs of payment processing for retailers. Often a percentage in the case of credit cards and a fixed fee for debit payments.

Multi-channel

Term that is often used to indicate that consumers can contact a company over the telephone, via the Internet and in a physical store. It is important to ensure that the information concerning those contacts is stored, to ensure a seamless service across all the various channels.

Payment method, payment product and payment tool

Payment method:

A generic way in which a payment is carried out, for instance by PIN card, credit card, Internet banking, COD, premium SMS.

When a payment method is not generic but specific, it is called a payment product.

Payment product

A specific version of a payment method used by a (commercial) provider, for instance Visa and MasterCard, the Internet banking product of a particular bank, TPG Post COD services, the premium SMS product of a provider, Mobile2Pay, Way2Pay, Rabo Direct Betalen, MiniTix.

In some cases a (specific) payment tool is used.

Payment tool

A tool that is used to carry out a payment with a payment product, for instance a card, random reader, money transfer form, ‘acceptgiro’, mobile telephone.

Payment Service Provider (PSP)

A company that offers service in the area of payments. These services consist of, for example, various payment modalities, Electronic Bill Presentment and Escrow services. A Payment Service Provider acts as intermediary between buyer and seller.

Phishing

Phishing is tricking people in giving confidential information to unauthorised people. This is especially useful when login credentials do not change over time. Gathered information can be used over and over again, in that case. Phishing can be done over the phone, by email, or by using a specially crafted program (Trojan horse), which records the requested information.

Plug-in

A piece of software that adds functionality to a program that can use plug-ins. An example of a plug-in is Realplayer, which allows movies and music to be played in the browser.

Premium SMS

An SMS text message sent at a higher rate, in return for a specific service. The charged rate is split between merchant and the provider of the premium SMS service.

Pre-paid

A payment that is made in advance for a service that has not yet been used. The ‘credit’ can be stored on a(n) (electronic) carrier.

PSD

Payment Services Directive. The European Parliament approved a new European legal framework for payments in 2007. The PSD has to be implemented in the national legislations by November 2009.

Reconciliation

This is the matching of orders done by (Internet)shoppers with incoming payments. Only after a successful reconciliation the merchant will start the delivery process. The extent to which Payment Service Providers carry out reconciliation and the way in which they do so (sending an e-mail, providing files) may vary.

Refund

Is a status in the credit card process. Is the refund of a transaction amount, done after (successful) communication between a web merchant and a consumer.

Reversal

Reversing a payment order. The term is often used to describe the situation in which consumers reverse an automatic collection.

Reverse billed SMS

A premium SMS service that involves payment for the messages that are received. Premium services with MO traffic are not yet supported by all operators.

Roaming

The exchange of traffic between the networks of different operators. Often there are roaming costs.

SEPA

'Single Euro Payments Area'. This is the vision, directive and goal of the European Commission which means that citizens and companies within the European Union have to be able to pay with a single set of payment instruments. This set is the combination of a bank account and instruments like money transfer, direct debit and cards. SEPA signifies the end of international payments within Europe.

SET

Secure Electronic Transaction. The protocol guarantees the safe transfer of data surrounding Internet payments. The identity of both parties exchanging information, for instance with the purchase of goods, is secured and safeguarded by a Trusted Third Party (TTP). SET is replaced by Verified by Visa (VbV) and MasterCard Secure Code (MCSC).

SSL

Secure Socket Layer. A method designed to ensure the safe exchange of Internet data between a website and your browser. The data are encrypted to ensure that nobody else can see or track them, for instance credit card data. As soon as you open a website with SSL, you are alerted by your browser, and a small key or padlock (depending on the type of browser you use) is visible as long as the security is operational. By clicking on the key or padlock you can check the authenticity of the provider.

USP

Unique Selling Point. Description of what makes a product / service different from others.

VbV (Verified by Visa)

Verified by Visa is the brand name that Visa uses for secure transactions based on 3D technology. In short, card holders are submitted an additional authentication check by their issuer to prove who they are. This authentication protocol offers merchants 100% protection on all transactions processed under the Verified by Visa (VbV) or Master Card Secure Code (MCSC) program. Merchants who adopt this program are no longer liable for card-non-present (CNP) chargebacks resulting from transaction denials.

WAP

Wireless Application Protocol, a technology that allows mobile Internet surfing. This is only possible with special WAP telephones, or WAP PDAs. Not every detail of an ordinary website can be shown on a small screen. That is why special WAP sites have been developed that can be recognised by the first three letters: MMM instead of WWW. Due to their low speed, current GSM networks are still an obstacle in this development.

Web shop

Internet shop, shop on the world wide web.

XML

eXtensible Markup Language. Using XML documents can be described that contain structured information. Structured information consists of content and indications concerning the meaning of that content.

Annex 3: Changes vs. 'Online payments 2009'

This edition has undergone important changes in the following areas:

- The geographical scope of the report has been expanded to include not only Europe but the world at large.
- The document has been divided into two parts: part 1 describes the most relevant developments and trends in online payments while part 2 provides background information on the main methods of online payment and on the payment process.
- To retain the focused nature of this report, the developments in e-identity, mobile payments, e-invoicing and detailed information on online Payment Service Providers have been removed from this report. Individual reports have been published for all these topics that can be downloaded for free from www.innopay.com.

Annex 4: About Innopay

About Innopay

Innopay is an independent full service consultancy firm specialised in payments and related transaction services.

Our key practices include online payment, e-invoicing, e-identity, mobile payment, cards and related regulation.

Given our independent position, we work for all players in the industry. We devote research time and investments to help peer professionals 'structure & understand' these topics and actively facilitate industry knowledge transfer, which we consider crucial for the further development of global e-business. Our leading industry reports can be downloaded for free.

With our in-depth knowledge and experience gained on both the demand side and the supply side, we are ideally positioned to help our clients determine the direction of their growth. This often results in new products and/or markets that we successively help to 'develop & manage' and bring to market in a controlled and effective way. We do this for single clients but also for groups of clients. Consequently, we have extensive experience in developing multi-party transaction schemes and accompanying messaging standards in diverse industries such as financial services, insurance and document exchange. On the other side, we help corporate users to 'choose & use' the transaction services that fit their specific business needs from the wide array of often industry tailored transaction services on offer. We use a multi-disciplinary approach covering commercial, operational and technical aspects.

Innopay is a member of the European Payments Consulting Association (EPCA) and the Payment Systems Market Expert Group (PSMEG) of the European Commission and an associate member of the Euro Banking Association (EBA).

For more information visit www.innopay.com or contact Chiel Liezenberg at chiel@innopay.com or +31 20 6580651.

About the editors

Chiel Liezenberg and Douwe Lycklama are the founders of Innopay, an independent consulting firm specialised in payments and related transaction services.

Chiel and Douwe are thought leaders in online en mobile payments, e-invoicing and e-identity, shaping breakthrough business and market innovations, schemes and standards. They regularly publish articles and reports on these fields of study and both are a frequent speaker at conferences.

Chiel holds an MA in Mechanical Engineering and Industrial Organisation, Douwe holds an MA in Electrical Engineering. Both from Delft University of Technology

About the authors

Remco Boer was a business analyst at Innopay. He is co-author of *Online payments 2009* and *Mobile payments 2010*. Remco holds an MA and an MPhil from Leiden University.

Cassandra Hensen was a business analyst at Innopay. Cassandra holds a Master degree in Innovation and Finance from the Erasmus University of Rotterdam.

Adriana Screpnic is news editor at The Paypers, the leading independent source of news and analysis for professionals in the global transaction services community.

Contact information

Innopay BV
Westelijke Randweg 43
1118 CR Amsterdam Airport
The Netherlands

PO Box 75643
1118 ZR Amsterdam Airport
The Netherlands

T: +31 20 6580651

E: info@innopay.com

W: www.innopay.com