Why is use of cash persisting? Critical success factors for overcoming vested interests

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ABSTRACT

This paper examines the extent of cash usage and analyses the reasons for its continued success, indeed resilience, against modern — superficially more convincing — alternatives. While it is well known that cash handling causes significant financial and social burdens upon all economies, many of the incentives to each involved stakeholder group (government, central banks, retail, consumers) that keep cash alive are not so well known. Hence, critical success factors for at least partial displacement of cash — which must overcome all stakeholders' interests to make electronic alternatives a success — are developed. Technological innovations in different geographies are analysed to show possible future development of payment innovations that can add value and lead to a more efficient, less costly and more secure business and society.

Keywords: cash, innovations, online, mobile, payments

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BACKGROUND

Cash has been the most long lasting success story in payment history. Paper money was recognised as legal tender in Germany over 100 years ago and today over 75 per cent of retail payments are still made using cash.[1,2] In Europe, cash payments accounted for 78 per cent of the continent's 388 billion retail transactions in 2008.[3] In Eastern Europe, cash represents 93 per cent of payment volumes and is thus almost a monopoly. While in 1913 each person statistically carried only one

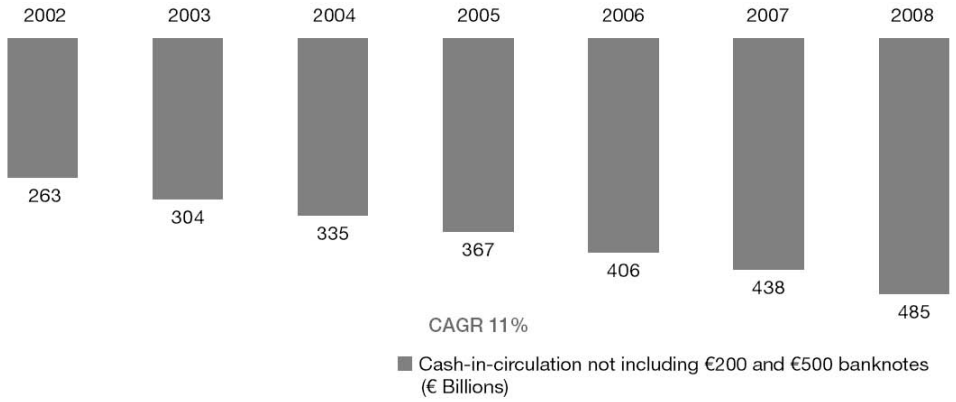


Figure 1 Cash in circulation increasing globally (only non-hoarding banknotes shown) despite increasing alternatives

Source: CapGemini World Payments Report (2010)

banknote, today on average 37 notes are carried per person — far more than the number of credit, debit or other cards carried. The volume of cashless payments in Europe grew by 62 per cent (CAGR 6.2 per cent) between 2000 and 2008[4] or even faster when considering normal payment bills in circulation (see Figure 1).

All this shows the unprecedented 'success' of cash (in the biological sense of proliferation, avoiding predators and spreading of its genes) in the worldwide payment ecosystem.

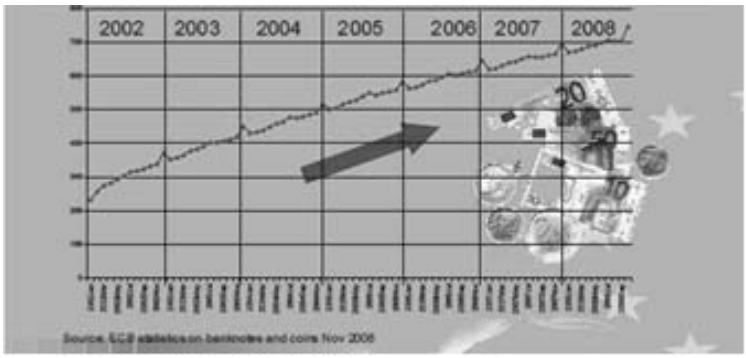
The financial inefficiencies of handling cash are also well known, however, and have been analysed in even more depth only recently.[5] The total cost of distributing, managing, handling, processing and recycling cash and of accepting cash payments within the borders of the Eurosystem was €84bn in 2008 — the equivalent of 0.6 per cent of Europe's GDP or €130 per person.[6] Worldwide cash handling costs total more than $300bn per year.[7] To put this into perspective, the illicit drug trade is estimated by the UN at US$320bn a year.[8]

Indeed, there are more parallels between cash and the drug trade, beyond representing similar sized monetary volumes. Cash is the basis for the underground economy (see below) and a solid majority of US bills are contaminated by cocaine (directly from drug users sniffing, indirectly by being spread through automated teller machines (ATMs)). It is also unhygienic: 94 per cent of dollar bills harbour staphylococcus (thus carrying more germs than a typical household toilet).[9] This is due to the fact that a paper bill being carried in a warm, possible moist, pocket is a hospitable environment for viruses and bacteria (which can live on most surfaces for about 48 hours, but live on paper money for up to 17 days). Thus, cash is not only primitive and costly, it is also unhealthy.

Focusing only on the cost aspect, it has been shown[10] that most of the cost occurs at the front end, where the single highest cost driver is personnel, accounting for 72 per cent of costs in retail stores and 61 per cent in banks. It is thus to front-end alternatives that one must look in order to reduce the costs of cash significantly.

The banking industry, whose share of the cash handling burden amounts to €25.6bn per year[11] has undertaken many initiatives to reduce this front-line cost. Online banking and payment cards offer more efficient ways of making payments. But optimising cash logistics (eg ATM cash pay-in, geographical optimisation of banknote distribution), while making the

Figure 2
Cash in Eurozone growing at 7–10 per cent a year



handling of cash more efficient is actually an example of the German saying '*Zementierung von Eselspfaden*' (casting mud tracks in concrete), which serves to perpetuate an inefficient instrument even longer — much like sending cheques by electronic image in the USA.[12]

Not only banks but also many regulatory interventions (in Europe on subjects such as SEPA, PSD, e-Money directives and e-invoicing) are expected to encourage a move towards electronic payments. The fact remains, however, that the value of cash in circulation in the eurozone is increasing, not diminishing (see Figure 2).

This 'healthy' growth rate of *ca* 10 per ent p.a. means that the Euro cash in circulation has almost doubled since its introdution in 2002.

In some areas, however, the 'war on cash' does seem to be successful: debit card spending recently overtook cash transactions for the first time in the UK.[13] Spending on debit cards reached £272bn in the 12 months to October 2010, while cash transactions stood at 'only' £269bn. Cash machine withdrawals also dropped during the period, as consumers used their cards (also for smaller value transactions) at point of sale (POS) in shops. Contrast this, however, with Germany, Italy and Spain, where debit cards are used primarily at ATMs — to withdraw cash.

This is an indication of a wider point that cash usage — like that of all payment instruments — differs widely by country.

Figure 3 shows that, while European economies tend to have a lower share of cash transactions (shown here per volume) than many in the developing world, several countries in Europe tend be ranked at best 'average' (Italy, Germany) in a field where even the champions (Nordics, France) have only managed to eliminate half their paper-based money.

The USA appears to be a cash-poor champion until one remembers that cheques are still incredibly prevalent (especially, surprisingly, in business to business (B2B) transactions), a paper-based payment method no better than cash. Analysts[14] estimate that 10.6bn B2B US cheque payments were made in 2009 compared with only 1.99bn B2B automated clearing house transactions. Even given the relatively low level of cash usage in the USA (where cash usage is already comparably lower and actually falling), even if the use of cash were to continue to decline by 17 per cent every five years (the current forecast[15]) the use of cash would not fall below US$1bn before the year 2205, roughly 200 years from now.

Broadly summarising the findings in this section, it has been established that, despite many valiant efforts of regulators

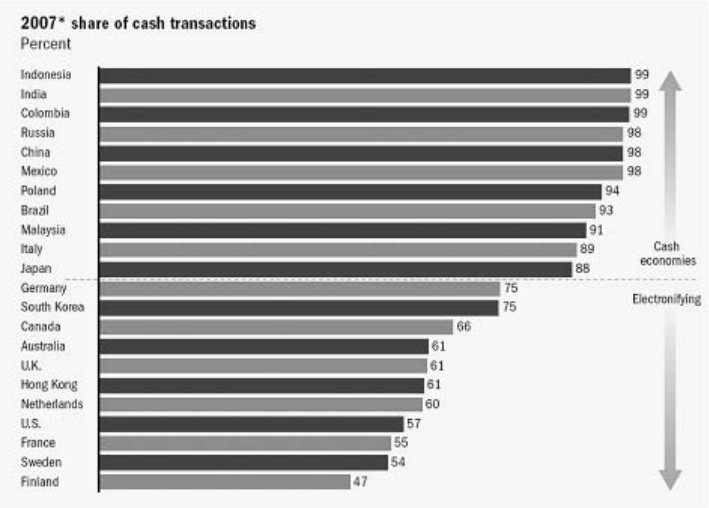


Figure 3 Cash remains important everywhere

Source: McKinsey Global Payments Map

and banks and despite winning the occasional tactical victory, cash will remain the predominant payment method for many years to come.

Indeed, the public seem to have a Mephistophelean pact with the devil that is cash. As Goethe made Faust say about banknotes in 1832: ''Twere hopeless now the flying leaves to stop/With lightning speed they spread through-out the land'.[16] Goethe, besides being a poet, was finance minister at the Court of Weimar, so he was well placed to comment on these developments, and his insights remain astonishingly relevant today.

ANALYSIS OF THE STATUS QUO

In order to understand the resilience of what appears to be such a primitive, slow, expensive and potentially even hazardous payment instrument, it is necessary to examine the interests of the key stakeholder groups invested in the cash business. These are primarily the retail banks, central banks, national governments, official businesses such as supermarkets, unofficial businesses in the shadow economy and consumers.

Banks

Looking at the stakeholders from the financial services sector, one can identify two main stakeholders: central banks and 'normal' banks servicing customers and merchants.

Central bank studies (performed since 2001 in Belgium, the Netherlands, Norway and Portugal) all concluded with the surprising result that cashless payments have a significantly higher unit cost than cash payments. This is due to the lower volumes and the high infrastructural and operational costs of electronic payments (eg POS terminals, networks, computer systems and fraud management).

The central bank studies all agreed, however, that the substitution of cash and paper-based payments by electronic account-based methods would reduce the societal cost of payments. But some of these central bank studies (Belgium, Netherlands) showed that the gross societal cost savings by realistic cash substitution were marginal at just 0.02 per cent of GDP.[17]

Another side of the 'coin' is that central banks benefit hugely from the large amount of cash in circulation. The

Eurosystem currently has 14,200,000,000 bank notes outstanding, a total value of €447bn.[18] All these notes and coins in circulation are not earning interest, thus saving the banking system tens of billions of euros per annum (eg 3 per cent p.a. of €447bn = €13bn p.a. savings).

It is thus apparent that central banks have a dual, heavily conflicting role: on the one hand, they have a mandate to foster the efficiency of payment systems; on the other hand, they are market participants as issuers (and heavy economic beneficiaries) of cash — the most inefficient payment system of all.[19]

Interestingly, the large denomination notes (€500, €200 — never seen in wallets) make up 40 per cent of the value of cash in 'circulation'. The large denomination bills in the eurozone far exceed the value available in other geographies (US$100 = €73, UK£50 = €58, ¥10,000 = €82, 5000 rubles = €120 as largest bills — all much less than €500). Since Europe has such significantly higher compact means of transporting money also in the shadow economy, the euro is in danger of becoming the currency of choice in the criminal underworld.[20] This has led to the suggestion that the most effective way to reduce money laundering — instead of current bureaucratic, administrative and technical measures — would be simply to abolish the €500 and €200 bills. For this very reason, Canada withdrew its C$1,000 note from circulation.

One innovative (if slightly eccentric) idea to allow the continued use of banknotes by law-abiding citizens while making life difficult for the shadow economy is to implant radio tags into banknotes.[21] This allows bills' storage and movement to be traced and makes it impossible for kidnappers to demand 'unmarked' bills. Unlike serial numbers or bar-codes these RFID tags can be read for a whole bundle at once and at a distance. The tracking and tracing of the bills clearly raises severe privacy issues — but that is the point: 'no more carrying suitcases full of cash to Switzerland'. The technology allows individual bills to be cancelled remotely — which is useful against ransom money but removes the fundamental property of 'fungibility' of cash. The proponents of the idea suggest, tongue-in-cheek one would hope, that this technology is also 'great for instantly taxing citizens', as the government can take the correct sum straight out of each taxpayer's pocket by cancelling banknotes. This may be a step against tax evasion that has gone too far however. But considering that of £250 billion estimated to have been laundered through the UK, of which the government has recovered a mere £46 million (ie 0.02 per cent), at a cost of £400 million,[22] we can see that drastic measures are necessary to combat the fraud inherent in cash and for which we all pay indirectly.

Many other means of curtailing the negative effects of banknotes have been suggested: restricting the number of ATMs, charging for cash withdrawals and replacing notes by high value (and heavy) coins. Explaining cost-based pricing to consumers is not easy however, and making cash more expensive is not going to win elections.

Turning now to 'normal' banks that deal with consumers and merchants, they suffer a high cost of cash. They are able to recuperate some of this from merchants (charging them cash withdrawal/deposit fees, coin issuance/counting services and all-night money deposit services). Also some banks make a good income with ATM cash services, especially from ATMs of banks that are not their own. But since cash is free by law to consumers and since European law is eroding the prices for ATM cash services, a large and growing burden of cash handling remains with the

banks. In order to compensate for this, banks are increasingly going some way towards optimising their cash handling at both the back end (cash centres) and the front end (ATM cash recycling). Beyond the financial burden of cash handling, one must also recognise the non-monetary interests that banks have in cash, such as the customer relationship, which is often based upon — especially elderly and wealthier — customers regularly getting their money personally at the branch.

Finally, both central and retail banks employ an extensive service industry as suppliers in the money industry (be it coins or bills) who also have a vested interest in the longevity of cash.

Shadow economy

The large denomination bills identified above are of particular advantage to the European underground economy, as a million dollars weigh 10 kg, whereas one million dollars in euros weigh about 1.6 kg. This is due to the fact that Europe has such large denomination bills, making cash transport much more compact (author's own calculation). The mafia, for example, therefore prefer these large bills, because they can transport larger amounts of cash in less space.[23]

Cash payments which — unlike card, cheques or account-based transfers — are anonymous represent the basis for about 90 per cent of all transactions in Italy, about 55 per cent in France and about 75 per cent in Germany. Italy has one of the largest underground economies in Europe, worth as much as 19 per cent of GDP in 2008 (€300bn) — showing the correlation between high cash usage and high activity of underground economy.[24] Even Norway's cash is largely (71 per cent) used for illegal purposes.[25]

The 566 million €500 notes in circulation outnumber the total population of the eurozone. There is a greater concentration of €500 notes per capita close to the borders of Switzerland and San Marino, where money-laundering regulations are less stringent.[26]

Thus the underground economy is a major stakeholder in cash and a major beneficiary from the high denomination euro notes.

National governments

Closely linked to central banks are national governments and their treasuries. These benefit from cash through seigniorage. The extent of the advantage is surprising, as illustrated by the following single example of many. The US treasury estimates that it has earned about US$4.6bn in seigniorage from issuing one coin collection alone, the '50 State' series of quarters. Each quarter costs the mint less than 10 cents to make for the 147 million people who collect these sets of 50 quarters (at a price of 25 cents per coin).

Of course, cash causes great expense, huge loss of tax revenues and immense societal costs to governments through the consequences of the activities of the shadow economy. But seen from the side of managing payment instrument alternatives, one can see a clear interest in maintaining high volumes of cash and coins.

There are also some anomalies in the legislations of most European countries which favour cash and hinder automation (eg Germany, where the Federal Court[27] forbids fees for cash withdrawal at a counter, but allows ATM fees — thus privileging the less automated variant and encouraging the use of cash).

Finally, national governments have benefited from the introduction of the euro notes and coins, since many people tend not to hand in their old currencies. In the Netherlands, only 50 per cent of the total produced 'guilder' coins since 1948 were cashed in and changed to euros and

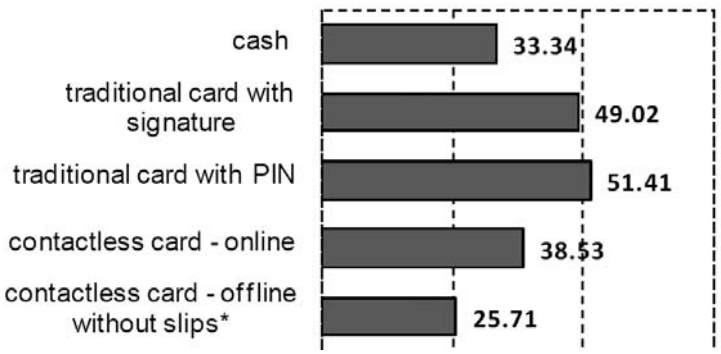


Figure 4 The average duration of a purchase transaction by payment methods in seconds — merchant perspective

cents.[28] Nine years after the introduction of the euro as valid tender, the German Bundesbank says that DM13.45bn are still outstanding.[29] These are again significant benefits to national governments.

Retail

A common understanding in the payments business is that electronic alternatives are faster and cheaper than manual, paper-based instruments.

Australian, Belgian and Dutch central bank studies, however, found that the tender time at the point of sale was significantly less for a cash payment than for a payment card.[30] Trained tellers, knowing what bill to expect, count out the change before customers have opened their wallets, whereas card payments involve remembering and entering PINs, getting the right cards the right way round, awaiting network connection and authorisation, perhaps signatures/PINs etc. Scott Thomson, director of QPQ, a payments adviser to retailers, showed in an empirical study that the difference in time to check out a customer paying by cash compared with another paying by card is at best 'marginal'. Figure 4, also based on real empirical evidence,[31] shows that cash is typically the fastest means of payment (until the advent of the contactless card, see later).

Knowing that large retailers consider that each second saved at the checkout adds another million euros in revenue per year, one can see that the speed of cash replacements can indeed have significant economic advantage to the retail industry: contactless cards save 8–12 seconds over cash per transaction.

Returning to cash and now looking not at speed but at comparative costs, the UK QPQ[32] study asserts that, in highly optimised large retail stores, cash is not only the fastest but also the cheapest payment method: £0.02 per cash transaction vs £0.08 per debit card transaction (not to mention the cost of credit cards). In order to understand this, one may look at the large supermarket chains who are able to optimise their in-house cash logistics by, for example, feeding money from tills into in-house ATMs, providing cash-payout services at tills, having automated cash and coin-counting sorting machines for optimised end-of-day reconciliation. This trend is spreading to other industries, eg petrol stations which are installing their own cash recycling mechanisms.

Large chains such as Metro actually explicitly encourage customers to bring in coins. Thus their counting machines are reused; the customer shows the receipt of the count at the checkout. Not only does this attract customers and make cash hand-

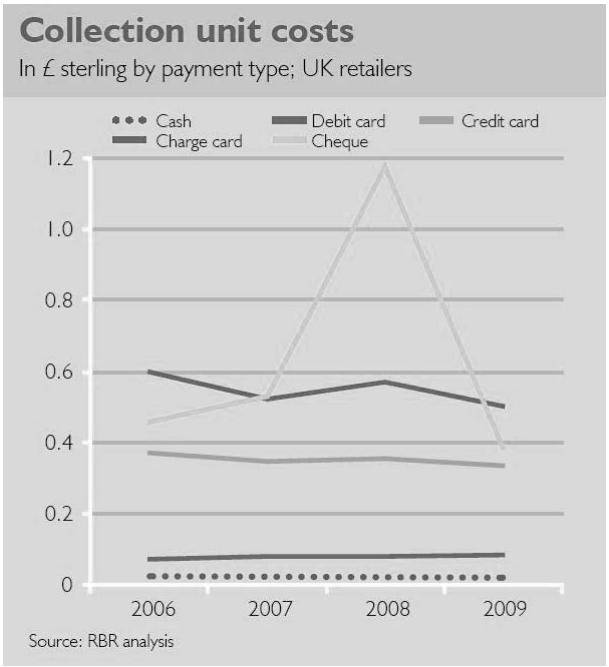


Figure 5
Collection costs per payment instrument of large UK retailers

ling easier, Metro also charges a fee for helping merchants to keep their small change topped up (using coins gathered) and thus not only saves cost on cash, but also generates income.

Even smaller retailers (eg corner shops) appear more than willing to accept cash both to meet customer demand and because they believe cash is cheaper than other payment methods. Signs such as 'Card payment only above €20' are ubiquitous. Even those retailers who have announced plans to stop accepting cash have done so for reasons such as security rather than cost and efficiency.

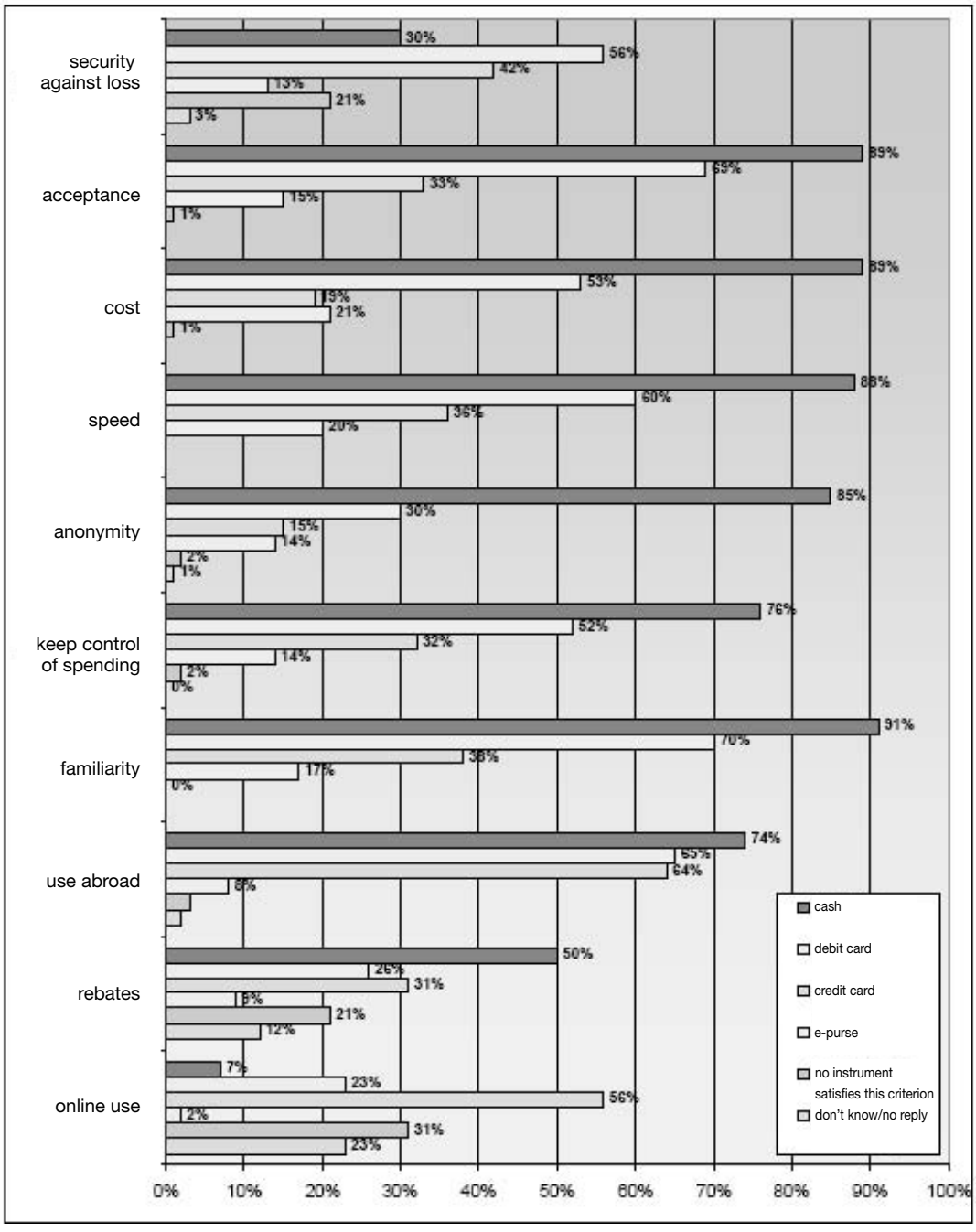
All retailers, large and small, suffer from expenses when using cards, owing to terminals (currently TA 7.0, EMV, PCI, etc.), updates of standards on terminals, bank/card charges, bad debt and fraud.[33] UK retailers thus argue that cash has 'easily the lowest collection cost of any payment method' (see Figure 5).

It should, of course, be noted that much of the 'cheapness' of cash is artificial and due to its subsidisation.

It will be shown below that real value — competing succesfully even against artificially subsidised paper instruments — can be gained by automating complete integrated value chains (eg electronic payment after self-scanning in retail sales, or electronic payment after electronic invoice in online and corporate sales). Just attempting to optimise a local individual problem (card instead of cash at checkout) will yield only limited success compared with a complete solution.

It is also shown that new technologies such as biometric payments and contactless payments will finally prove to be the unchallenged champions, in particular addressing the issues of checkout speed and convenience, thus invalidating many of the concerns above. This, together with integration with loyalty systems will open new and very important avenues, which can finally lead to significant inroads against cash.

Figure 6 Perceived advantage by German consumers of various retail payment instruments according to main criteria[34]



Consumers

Finally, examining the stakeholder group of consumers, it is clear that they consider cash to be a winning proposition. In all criteria for judging a payment instrument, cash scores highly (see Figure 6).

Not only is cash 'free' (since the actual societal costs of €130 per person are hidden and redistributed indirectly), it is accepted everywhere, users feel more in control, and it has become a strong habit.

Cash is also the only means of payment

for those who do not have a bank account. This is a very large share of the developing world (in Ghana, 95 per cent of population are unbanked), but is also a significant market in the developed economies. For example, about five million people in the UK (10 per cent of population) and ten million households in the USA (30 per cent) have no bank accounts and thus can only resort to cash.[35]

Worldwide, there are over two billion people for whom cash is the only means of payment,[36] and for most others cash is preferred for very understandable subjective and objective reasons.

For the unbanked population, new means of money transfer such as mobile payments (see, for example M-PESA in Kenya, where 6.5 million people have mobile phones but no bank accounts) are providing a very successful cashless solution — to the chagrin of banks, totally outside the financial services industry.

The local banks have been quick to make up lost ground however, now offering a bank-based savings solution (M-Kesha) on the basis of the mobile payment solution. More concern is rightly being voiced by the national regulator which now finds one third of the local economy being sustained by an unregulated payment system.

More importantly on the global scale is the observation that this success seems to be a singularity: the development of this solution everywhere, not even in neighbouring Tanzania has hardly been on the scale observed in Kenya. This is surprising, since billions of people in the world are unbanked, and thus — years after Kenya — this mobile payment solution should have spread rapidly around the world.

Many efforts are being made: MTN mobile money is being tried in Uganda, Ghana, Cameroon, Ivory Coast, Ruanda and Benin. AirTel Money, also known as ZapZap, impressed with a new distribution model for Coca Cola. In the Philippines — without much marketing and with a poor network of agents — one in ten unbanked mobile money users already stores an average of US$31 in his or her wallet. From Afghanistan to Zambia mobile network operators in developing countries are launching mobile money services at a rapid pace: to date 78 deployments have been launched and another 83 are being planned[37]. However none of these are anything like the success of M-PESA (see Figure 7).[38]

For the developed world, this third world solution would clearly never be an option (although, even in the USA, 56 million people do not have traditional bank accounts[39]), since regulation and demands on security are at a totally different level from sub-Saharan Africa. Indeed, for the developed world, a mobile solution which has a business case for banks is proving even more elusive, as discussed below.

But cash is also extremely successful in well-developed economies. Two countries whose cash holdings per capita are particularly high are Switzerland (Swiss francs equivalent to US$5245) and Japan (yen equivalent to US$6617).[40] The extraordinarily high prevalence of cash in Japan can be explained by the safe environment in everyday life, the common distrust of banks based upon recent history, the fact that deflation actually encourages keeping cash (since its value, unlike in inflationary Europe, increases over time and thus discourages spending) and also by the habit of rich individuals of keeping large stores of cash well secured in their home to avoid capital gains tax and inheritance tax. The advantages to the Yakusa (Japanese mafia) are as outlined above. Japan's highest denomination bank note, however, is the ¥10,000 bill (about €82) — much less compact than Europe's €500 bill, so the Japanese Mafia do not enjoy

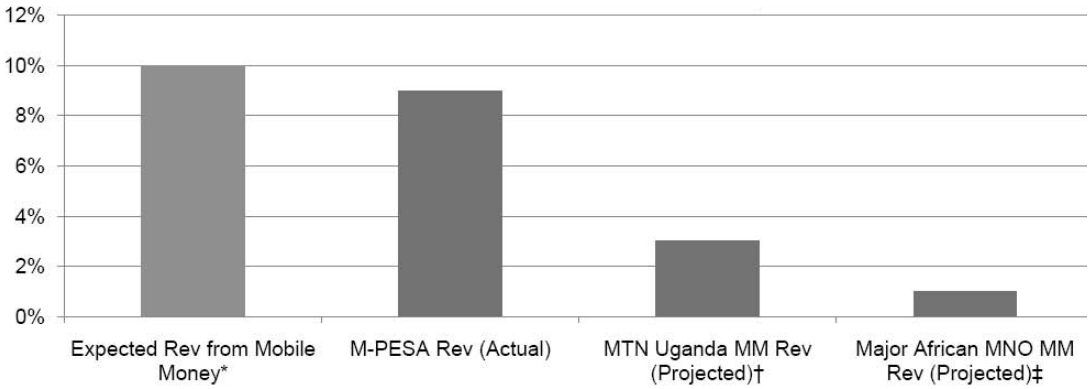


Figure 7 Mobile money revenue in the Third World compared with expectations

quite the 'privileges' accorded to European criminals.

Japan is, of course, one of the most developed and technologically aware countries in the world, so the success (or lack thereof) of Japanese payment innovations as possible cash substitutes is discussed below.

In America — a geography very heavy on paper-based payments, more on cheques than cash — some inroads against cash are being made. Predictions[41] are that Americans' use of cash will decline by 4 per cent a year between 2010 and 2015. Interestingly, some (30 per cent) of consumers are using less cash than they did two years ago, while others (20 per cent) claim to be using more. Even more surprisingly, the young 'Generation Y' (born from the mid-1970s on) — who are often particularly associated with new technology — are actually the only generation using old-fashioned notes and coins more than they did in 2008.

Broadly summarising the arguments in this section, there are many, and significant, stakeholders who have large interests in cash. There are huge economic advantages, some speed advantages, strongly emotionally felt advantages. Can these be overcome to provide a less paper-based, more efficient, less illegal economy?

CRITICAL SUCCESS FACTORS

Cash provides many objective and subjective advantages to all stakeholders. In order to determine what the 'best' alternatives by electronic means would be, these should be measured against those factors that currently speak for cash.

Some factors spring quickly to mind: a retail payment instrument should be easy to use, readily available and accepted, should impose no prohibitive financial burden on the merchant and user, and should offer an appropriate level of security.

Even with these uncontentious criteria, one can already see a potential conflict of interests: security can usually only be realised at the price of added complexity. In the internet payment space, a common request of 'a one-click payment which is totally secure' will be unattainable. So even in these simple criteria one can already see that a balance or judged trade-off must be made between conflicting interests.

To explore this example further: if the environment is for low value payments, the security criterion can be relaxed (it must simply be 'good enough'). By contrast, in the context of B2B treasury payments, only the highest levels of security are acceptable — which means that payments will only be authenticated with appropriately heavy mechanisms (eg mul-

- **common attributes**
  - — easy-to-use, secure, standardised, transaction based (ie clear when payment made — once only!), low complexity (eg no ecosystem of industries)

- **common attributes**
  - — cheap (71% want it free!)
  - — revocation option (62%)
  - — goods first, pay after (59%)
  - — reputable e-Payment provider/brand
  - — choice of underlying payment systems
  - — Integrates in user's workflow (eg use same payment method in web and real life) integrates in user's environment (eg no card reader or other special infrastructure)
  - — fast
  - — anonymous
  - — guaranteed delivery of service
  - — refund on failure
  - — allow access to good content/partners

- **for merchant**
  - — fast
  - — integrate in company's workflow
  - — integrate in company's environment
  - — cost-effective
  - — identify buyer in case of dispute
  - — guarantee of payment (cf end users want revocation!)
  - — multi-channel (uniform across POS, mobile web, TV, poster, ...)
  - — money asap
  - — binds client to merchant
  - — choose means of payment to be offered
  - — e-reconciliation
  - — liquidity mgmt: certain date of payment

- **for bank**
  - — revenue (unlike paper-based, DD, online CT)
  - — not excessive load on system
  - — integrate in bank's workflow
  - — integrate in bank's environment
  - — low dependence on other players (eg telcos)
  - — business case
  - — CRM with private and business customers
  - — customer satisfaction

Figure 8 EPC criteria for selection of online payment instruments

tiple signatures, secure chip cards, multi-factor authentication), which will necessarily reduce the ease of use. Thus, one sees that not only are there conflicts between criteria, but also the importance of the criteria themselves depends upon the usage scenario.

In an analysis by the European Payment Council (EPC — the decision-making body of the European payments industry) in preparation for selecting the 'best answer' from banks for e-commerce retail payments (currently dominated by solutions from non-traditional third parties such as PayPal), the criteria shown in Figure 8 were deemed relevant.[42]

The criteria of importance depend heavily on the stakeholder view. Only the minority of criteria are common to all stakeholders and, as seen above, already these can cause conflicts. In general, each stakeholder (user, merchant, bank) will have different — possibly conflicting — interests and hence conflicting criteria with which to measure the quality of a new payment instrument.

Clear conflicts are seen between the end user (who would prefer to have the payment free) and a bank (who wishes to derive some benefit from providing a convenient service). An example of a conflict of interest between banks and merchants is currently reflected in the MIF discussions. An example of a conflict between merchant and end user would be whether the payment can be reversed: the user will wish for a possibility of refund, whereas the merchant wishes for a guaranteed, irrevocable payment, especially if the virtual goods (film, software download) the merchant has delivered are immediately and irrevocably consumed by the end customer after payment. Thus, all stakeholders in the relationship are in a conflict of interests, which will lead to different preferred choices and weightings of payment criteria.

Thus, choosing a new payment instrument is not a matter of taking a few cri-

teria and optimising them. Instead, one is faced with a wealth of criteria which must be tuned to balance the interests of the conflicting parties. This is in every case a delicate business decision.

To exacerbate the matter further, the optimal criteria not only depend on which view one takes from which stakeholder, but also on the usage scenario. It has been shown above that the 'security vs ease of use' trade-off depends on the value of the transaction. More in-depth investigation will also show further trade-offs whose decision point depends upon the usage scenario. For example, 'anonymity vs fraud detection', where certain content will make it a priority for users not to identify themselves, but it will be necessary to supply (electronic or physical) addresses for delivery, and identification may also be necessary for fraud prevention and money laundering purposes.

In summary:

- Many attributes are relevant (easy, secure, cheap).
- They cannot be statically prioritised (order differs on usage scenario).
- Attributes within user group conflict (eg secure vs easy to use).
- Attributes between user groups conflict (eg consumer vs merchant demands on guarantee and anonymity).

This analysis leads to the understanding that a single payment solution (for example for all e-commerce) will not be sufficient. Depending upon scenarios, such as weights given to stakeholder concerns, different payment instruments will result.

This may explain why there are currently over 300 different e-payment solutions in Europe.[43]

This number of parallel solutions is clearly wasteful of investments, provides no critical mass and is confusing to the end-users and merchants. Instead, it is felt that a 'handful' of e-payment solutions will be sufficient to cover a large section of requirements and markets.

Examples would be:

(i) account based: PayPal (virtual account) and EPC ePayment (online-bank-account-based e-payment);
(ii) card based (online card payment with appropriate security measures against online fraud);
(iii) micropayment (for low value payments requiring less security, typically based on prepaid, wallets or mobile solutions).

It is felt that a portfolio of such solutions will be sufficient to cover the major market needs in the online payment space by providing a balanced set of criteria solutions.

INNOVATIONS

Selection of viable electronic payment instruments is not an easy task. Cash has been shown to score highly on almost all criteria, and thus electronic/straight-through processing (STP) alternatives must perform just as well — actually better — in all significant dimensions if cash is to be displaced.

That this can be achieved is shown by the example of the success of cards (see Figure 9).

Cards provide many very positive attributes (ease of use, acceptability worldwide, refund possibility, business case, speed) which make them serious competitors to cash. They come in so many forms (plastic, online, prepaid, contactless, and now even with personalised photo, interactive displays and scratch-and-smell) that all consumer preferences can be catered for.

But cards are one of the few examples where some inroads have successfully been made. Most other electronic payment

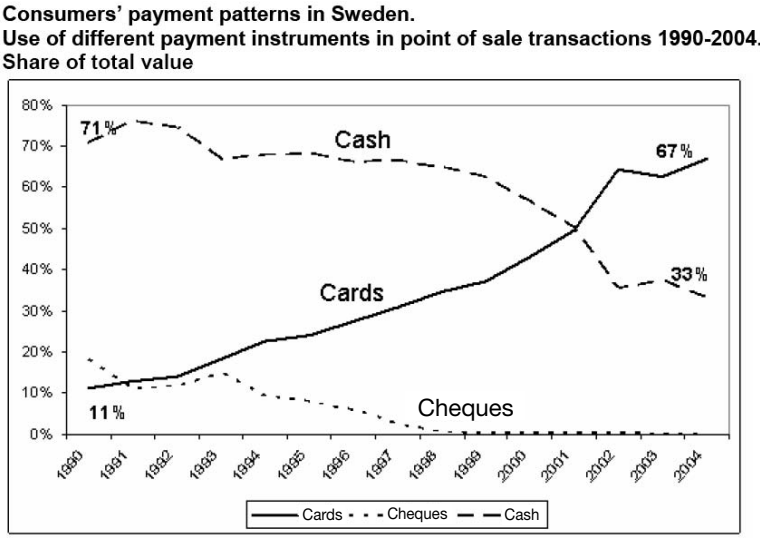


Figure 9
Displacement of paper-based payments by cards

Source: Swedish Central Bank (2007)

forms have not met with much success in displacing cash. Even a few of the otherwise so successful card-based payments have come to nothing (e-wallet cards and Mondex, to name but two).

Considering the above analysis of success criteria, the reason is not hard to identify. Looking just at the number of criteria that must be satisfied, how deeply invested the stakeholders are in cash and how difficult it is to set the parameters of each criterion, one can see that alternative electronic payment instruments will not come about by chance, but only by careful analysis, and that the total solution space, given these complex criteria, is severely bounded.

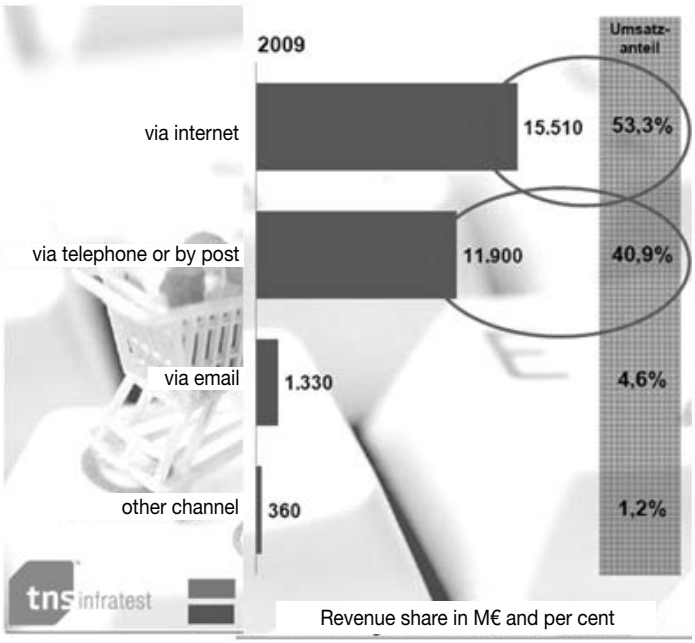
Abstracting from the concrete example of cards to the general case, success in displacing cash can be found in one of the following ways:

- substitution: providing cash alternatives that satisfy the criteria so much better than cash to motivate a switch by the stakeholders (an uphill fight, as shown above);
- online/mobile: to pursue payments where cash is not the competitor (in particular in the online space — where physical retail is being displaced by electronic shopping/gaming/etc., which is growing extremely fast and where cash has a natural disadvantage);
- integrated: to add value by solving complete problems (rather than just trying to replace an isolated step such as payment), so that an electronic payment is a natural part of a new, fully integrated electronic process which adds much more value than just exchanging one payment instrument for another.

Substitution

The first option — of trying to find something better than cash — has been explored at length above. Trying to wrest the stakeholders (especially consumers and underground economy) away from an instrument to which they are so very attached for very objective and habit-forming subjective reasons is probably the most difficult course. But there have been some successes, especially in closed loop

Figure 10 Non face-to-face sales in Germany by channel



niche markets and more generally by the fact that cash can be displaced by cards to some extent. Closed-loop environments such as canteens, sports arenas, festivals and ski passes show that cash can be displaced successfully by local card-based systems. This is simply a modern version of the plastic colourful beads which have been used for decades in the closed ClubMed environment as payment for drinks at the resort bar. Beyond closed environments, new technologies such as biometrics (eg pay by finger) and contactless cards will make very significant steps forward regarding convenience and speed of payment, allowing further significant progress. The euphoria about contactless cards, however, must be seen in the context of market reality. One of the most developed contactless markets in Europe (next to Turkey, Poland and beyond Europe in Japan, Hong Kong and Singapore) is the UK. Barclays' announcement of a 'milestone' of one million contactless UK payment transactions in 2010[44] is impressive until it is placed in context of the total UK card payment volumes in 2010, which was close to ten billion. In other words, three years after the high profile 'London Launch', and despite intense publicity on the part of both card schemes and banks, contactless payments still account for about 0.01 per cent of market share.

Thus, the conviction remains that this 'substitution' course of action remains the most challenging, and success must be measured in decades (see Figure 8, with the Swedish example 1990–2004).

Online/mobile

The second option — of focusing on payment scenarios where cash is already at a disadvantage — is already showing tremendous success. The online world is fast becoming the dominant sales channel in many industries (Figure 10).[45]

Double-digit growth rates have been sustained in the online economy over the years, despite all the crises in the 'real' economy. Payment solutions such as

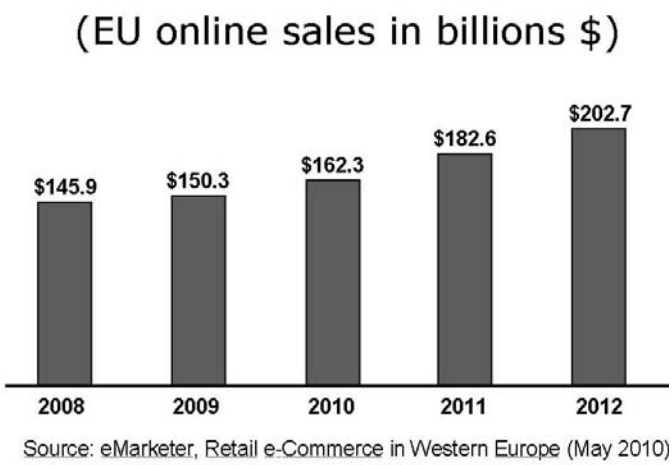


Figure 11 growth of online (NB retail only — B2B is about 10 × bigger)

PayPal (US$5bn revenue expected for 2011, one million new accounts each month, and only founded in December 1998) have shown that this is a winning path.[46] Previous catalogue and physical sellers, such as Neckermann, Argos, Carrefour, betting shops, etc., are now doing more business online than via their traditional (phone, catalogues and shop) channels. As the economy moves more from physical to virtual, so electronic payment instruments will be more successful, until they also become the dominant payment method. This is a trend one can see globally, and in Europe (see Figure 11).

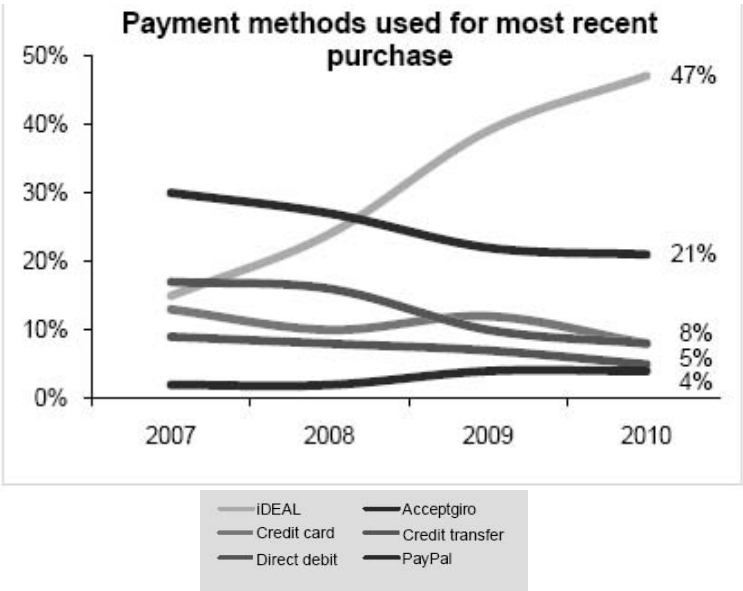
In the B2B world, electronic catalogues, electronic purchasing, electronic ordering, electronic billing are already the norm, and hence the volume of electronic B2B payments typically already exceeds electronic consumer payments by a factor of 10. Cash has already lost the battle in the online and B2B space, the economy of the future.

Good example: Online banking e-payment

Nowhere can one see the future better than in the Netherlands, where a bank-based online-payment method[47] has left all paper-based (cash on delivery/Acceptgiro) and even PayPal and online card payment behind (see Figure 12). This has become the dominant payment method for all online purchases in the Netherlands.[48]

This success in the business-to-customer (B2C) space was made through carefully observing the success criteria developed in the previous section. The EPC built on this by establishing the 'SEPA e-payment framework', which connects these European islands (iDeal in the Netherlands, giropay in Germany, eps in Austria, solo in the Nordic countries, Postfinance in Switzerland, and other countries with new schemes based upon the EPC model) to form a pan-European e-payment infrastructure, where customers in one European member state can pay seamlessly in another member state using their accustomed and secure online banking. Since online banking is a highly successful model — especially in Europe — and since this solution observes the necessary criteria for all stakeholders (ease of use, security, business case),[49] further success of this framework is to be expected. It is now being implemented by the ICPNO

Figure 12
Online-banking-based e-payment overtakes all



even beyond Europe, encompassing its members from USA, UK, Columbia and Canada (Figure 13).[50]

It is worth noting that this online-banking-based e-payment solution is not in competition with the already excellent and widespread card payments, but rather opens up new parallel customer bases to those (for whatever reason — consumer or merchant) who do not wish to use their cards on the internet. Everyone who has an online bank account has access to this safe and fast solution.

Bad example: Mobile payment in Japan

The nascent area of mobile payment is currently of such diversity and complexity that it warrants a paper of its own. Currently, one sees the success of mobile payments in less-developed countries where there is no competing banking infrastructure (eg M-PESA, an SMS-based solution) and much is expected from the advanced non-SMS contactless technology NFC (near field communication). The basic underlying NFC technology has been announced to be standard issue by almost all smartphone manufacturers (Nokia, Google, etc. — except Apple iPhone) starting from 2011 and has the potential to allow phone-to-phone communication (exchange of photos, business cards and payments) and phone-to-POS communication to serve many applications from ticketing, loyalty, membership, coupons and payment.

At present, this NFC space is severely dominated by technology discussions, media hype and lack of observance of the success criteria above (especially the business case for banks and dependence on other industries). The solutions are complex (involving a whole 'ecosystem' of providers), often do not really solve any problem, are not integrated into a wider solution, lack matching infrastructures (eg contactless POS for payment by contactless phone) and have thus met with limited commercial success. Despite this, a new NFC pilot was started every other day in 2010 somewhere in the world.

Also the basic underlying assumption that virtual cards (eg credit, debit, loyalty, transport) should be amalgamated onto

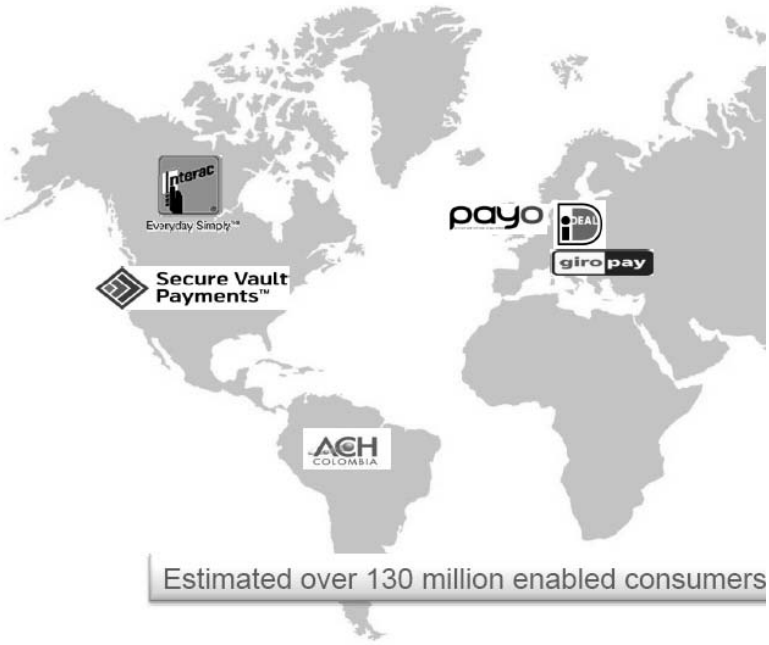


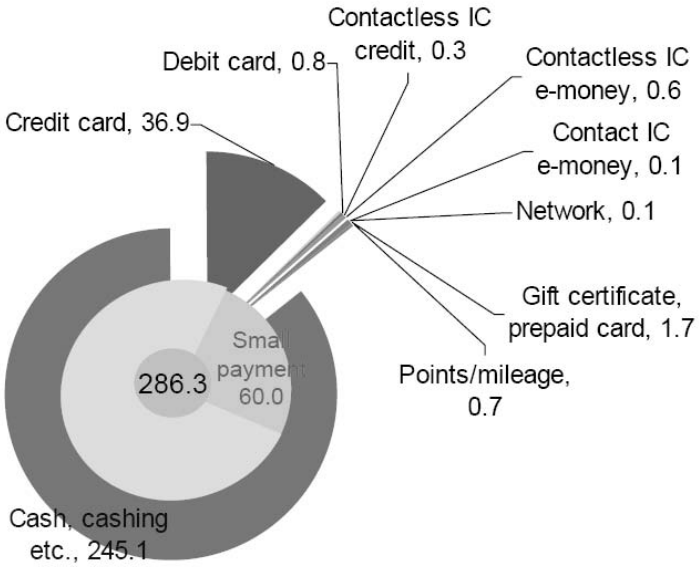
Figure 13 International cooperation to build bank-based online payment for end 2011

one device should be challenged. In a German Government project (Media@Kom), a major initiative was undertaken to reduce the 'stack' of cards that consumers carry around with them and provide a convenient single multi-function card. This, however, was neither accepted by the consumers (who actually love showing off their large stack of cards and wish to show their platinum credit cards in the disco, not a 'multi-function card') nor was it in the interests of merchants (who do not wish their exclusive banking brand to be shown along a cheap transport/retail marque, let alone for their branding to disappear entirely into a multi-function device; they also wished to retain autonomy in withdrawing their cards independent of shared ecosystems and saw no financial benefit in handling the complexity of a shared infrastructure). In short, the multi-function device (then card based) was not a success, despite major industry and government investment, and it remains to be shown why a multi-function device based upon a mobile is sufficiently better to avoid the disappointments above, where it was shown that this was wanted by neither supply side nor demand side.

It is clear, however, that just as everything is moving to online and this has become a very mature market, so everything will, over time, move to mobile. Thus, when the smart phone becomes life's remote control for everything from entertainment, to communication, to business, to holiday snaps (as it already has for an increasing segment of the population — not necessarily only the young, but more the affluent and techno-savvy of all ages), so mobile payment will by necessity be integrated into the world's mobile lifestyle and experience.

Some believe that the Japanese NTT DoCoMo's Osaifu-Keitai is a living example of the above multi-function model of the future, since it combines NFC tech-

Figure 14 Japan payment usage (trillions of yen)



Source: Yasuoka, H. (2009) 'Small Payments Business in Japan', available at: www.fsa.go.jp/frtc/kenkyu/event/20090331/11-4.pdf © Nomura Research Institute 2009

nology with smart phones in a region where the population is very technologically aware, and where there is very much cash to be displaced (twice as much as in Europe[51]). But although the Osaifu-Keitai functions are impressive (eg payment, travel and event ticketing, airline check-in, building access, coupons, membership, ID) and contactless cards and loyalty systems are used very heavily, although the number of devices and terminals is large (37.5 million subscribers in July 2010 enabled for the system, 60 million phones equipped with NFC), the actual usage and number of transactions of mobile phone contactless remains very limited.

According to Gartner analyst Kristin Moyer (18th March, 2010): 'The Japanese market is often cited as a success story by proponents of … mobile contactless solutions … Consumers make 1.8 contactless retail transactions per month per contactless device. This is not a success story.'

This is confirmed by a Japanese study which shows that 'contactless e-money' only amounts to a negligible fraction (0.6 of 286.3 = 0.2 per cent — the Bank of Japan report says that this is 0.11 per cent) of the payment services (see Figure 14).

Mobile contactless is again a negligible subset of this already tiny contactless fraction. Indeed, some serious commentators[52] note that the use of mobile proximity solutions for payments in Japan has actually fallen over the past year. There has also been a decrease in the number of people using the e-money system.

This surprising finding, that mobile payment is not a success in Japan — which is in stark contrast to what the West is being told by interested parties — is easily explained. The 'hassle' in downloading applications, configuring them, activating them on the phone (whose battery must be charged), holding it the right way round, pushing the appropriate menu buttons, simply in order to pay for a can of coke, stands in no relationship to the simple act of taking a contactless smart card (which one does not even need to take out of the wallet) and holding it in front of the vending machine.

Further arguments against payment by mobile phone raised by real Japanese consumers are the subjective feeling of security (the phone is 'known' and felt to be a very open platform — unlike a sealed bank card with chip) and that it fares rather worse than a plastic card when dropped on the ground or in the swimming pool.

Thus, although Western consultants consistently tout Japan as the promised land of mobile payment, on deeper investigation this turns out actually to be a bad case: the investments were made for an infrastructure of tens of millions of devices which are not amortised in any significant usage. Japan's 'model' of mobile payment is as bad as the German Geldkarte.

The only thing propping up the essentially untenable mobile payment business in Japan is coupons and loyalty. 'If it weren't for points or promotions, adoption would be drastically lower'.[53] Among the most popular service is 'Kazasu Coupon', a loyalty programme offered by McDonald's. Already 16 million Japanese have signed up for the web-based version, and 4.5 million subscribers use the mobile coupon version supported by DoCoMo. (Neither cooperation partner has released transaction figures, however.) The advantage of the mobile over the web or paper-based coupon service is that, instead of showing the physical voucher (or web printout) at the till and then paying with cash, customers can punch in their food and drink orders on the handsets while waiting in line or even before leaving home. They can also place their orders, redeem their coupons and pay the bill — all with just one or two taps of the phones. Thus, users have a clear advantage, not so much through mobile payment, but through the integrated use of coupons in a media-consistent process (and by saving time in the queue).[54] This success factor of having payments as an integrated (at best nearly invisible) element in an integrated solution is explored more in the following section.

Thus, one sees also in the advanced Japanese arena that, only when a problem is solved — indeed by a solution that is convincingly better than before, when there is a convincing business case for all stakeholders and when other important and relevant success criteria (see section above) are observed — will mobile payments be fully commercially successful. These appear to be very basic, not to say obvious, requirements.[55] In the enthusiasm for mobile technology, however, the usability and business rationale do often appear to have been forgotten.

Current initiatives which focus mainly on repackaging the contactless card in the shape of a phone do not satisfy these basic requirements. But employing some out-of-the-box creativity, convincing new solutions may be possible. Consider, for example, turning the classic NFC model (card embedded in phone to be touched on contactless POS terminal) on its head. Using a mobile as a card terminal (as opposed to a contactless card) opens up a huge new market of 'merchants' who previously had no cheap and easy means of accepting card payments: flower shop, corner shop, plumber, electrician, market/fair stall, swap meets, delivery, on-site consultant, taxi, tour guides, caterer, repay friend, anything cash, … These so-called Level 4 merchants all have a phone and — with a simple add-on — are provisioned with a card acceptance solution (eg see Square, Ogone, Telecash/First data, Verifone, Concardis). Just as the success of PayPal was largely based on allowing anyone to accept card payments online ('Everyone is a Merchant'), so will this mobile solution allow anyone to accept cards in the real world.

An area that should cause concern to banks is the potential cannibalisation of

existing terminal infrastructures and price erosion of card network services due to this development. It can be imagined what this may mean for banks' acquiring business and their card network services' revenue if a small free add-on to a standard phone can function as a card 'terminal', whose data is routed over the internet instead of closed banking networks.

This kind of solution also illustrates, however, that the security issue of the very open mobile platform remains a major issue. Even adding a 'secure element' into the mobile will only make an element of it secure — as the name implies. In order to have a really secure system, not only an element, but also the display, the keyboard, the memory and the network need to be secured. But then it becomes a so-called Class 3 card terminal (highly secure, certified, with protected display, keyboard, network connection), no longer a mobile phone.

While there may be some resistance by the underground economy (the tax evader who prefers cash payments) the solution of a mobile terminal has a huge potential (within given security constraints) to displace cash payments in the largest section of the European economy, that of the small and private merchant. Since one company (Square, launched by the founder of Twitter, now involving the ex-CFO of PayPal) which has been offering this solution for only a few months is now signing up 50,000–60,000 merchants per month, processes US$1m in credit card payments per day and is now worth US$240m and has recently been endorsed by VISA, one can assume that this solution offers a sufficiently convenient, cheap and secure solution also according to the criteria defined above. While Square currently accepts only magnetic stripe cards, we are beginning to see similar solutions (eg iZettle) for the European market that accept chip-based card and are EMV compliant. Thus the door to phone-based card acceptance by everybody (and severe competition to banks' card business by third parties) is almost open.

Integration

The third option — of examining the complete process, optimising this to include an STP payment as one integrated step in a larger process — is most likely the option that will add the most value. The experience of larger supermarket chains and small corner shops regarding non-cash payments has been mixed. In many situations and countries, little cash displacement has been possible, although some are doing pioneering work on encouraging non-cash payments. It is to be expected that, when even faster and more convenient means of payment are introduced, the tide will turn irrevocably away from cash and paper towards more efficient electronic means. Contactless payment cards and biometric (pay by finger-tap) are seen as particularly promising.

The break-through will come, however, when supermarkets gain significant added value by optimising the whole experience (and the payment optimisation rides along as an element in the complete STP solution):

- Ocado: the goods are selected online and sent home (and the payment deducted from a bank account).
- Self-scanning: customers' items are recognised as they are put in the shopping trolley in the supermarket. Special offers are notified by intelligent tags. When all shopping is done, the customer simply wheels the trolley out to the car park (passing a contactless scanner which reads the items and deducts the total from the pre-registered credit card).
- Complete experience: cooking clubs exchange recipes on Facebook, sugges-

tions are made interactively ('others who cooked this also cooked … '), coupons from past events cashed in, the date set in the joint online calendar, ingredients sent to the kitchen of the host (and payment made via Web 2.0 social network payment) and loyalty points gathered for the next event.

- Process streamlining: the various phases of the shopping experience such as ordering, loyalty/coupons, payment and checkout are part of an integrated holistic seamless process (see the above example of McDonald's in Japan) which is faster and more convenient and efficient for all.

While some of these may sound futuristic, at least components for all these solutions do exist and are firmly expected to become more prevalent. Even though details may differ by usage scenario, the point that a payment is an integrated (and probably not very visible) part of a retail experience (and not a stand-alone feature to be optimised alone) is of major importance to the stakeholders' success. One may think that an integrated scenario adds some complexity, but the integration of electronic payment into an already electronic purchasing process is often more natural, more efficient and easier (since purchase/invoice date can be transferred automatically into the payment authentication process) than the current media breaks between physical handling of goods and handling of different media (notably cash, cheques) in old manual scenarios.

A first step in this direction of regarding the financial value complete chain — rather than payment individually — is e-invoicing.

Examining the complete process from purchase, financing, price negotiation, fulfilment, invoicing, dispute resolution, payment, reconciliation, tax settlement and archiving, one may see that the payment is actually only a small part of the generic process.[56] This applies in principle both to B2B and B2C transactions, although the form of each process step may be different.

One can see in this example of invoicing in Figure 15 that a larger section of the financial value chain is addressed (and thus optimised through electronification) than by simply making payment cashless.

If the invoice is already composed from the information in an electronic catalogue and passed to the payer in electronic form, it will surely be less error prone, require less dispute resolution (and if so, it can be done by automatic reconciliation) and will surely be paid online too.[57]

Thus e-invoicing not only helps to electronify larger stretches of the economic process, but also leads to 'pay-by-click': customers see bills in their online banking and just click on the 'pay' button in pre-filled online credit transfer forms to settle them electronically from their online bank accounts (see 'Online-banking-based e-payment' above). In Finland, the banks already offer a further service whereby, if an electronic invoice comes in from a known payee (eg the monthly bill from the electricity company) and it is below a stated limit, it is paid automatically: a pre-authorised, e-invoice-triggered, automated credit transfer. This reduces administration for the business side (in this case the electricity company) and for the end customer (who does not have to worry about bills being paid on time and has an online record of all payments made), and both sides can avoid the complexities of direct debit. This is again an example of how, by looking at the wider picture, one can successfully turn previous individual, manual payment methods into value-adding STP electronic complete solutions.

One may extend this generic model successfully to specific industries (automobile, pharmacy, health)[58] to solve even more in-depth solutions integrating

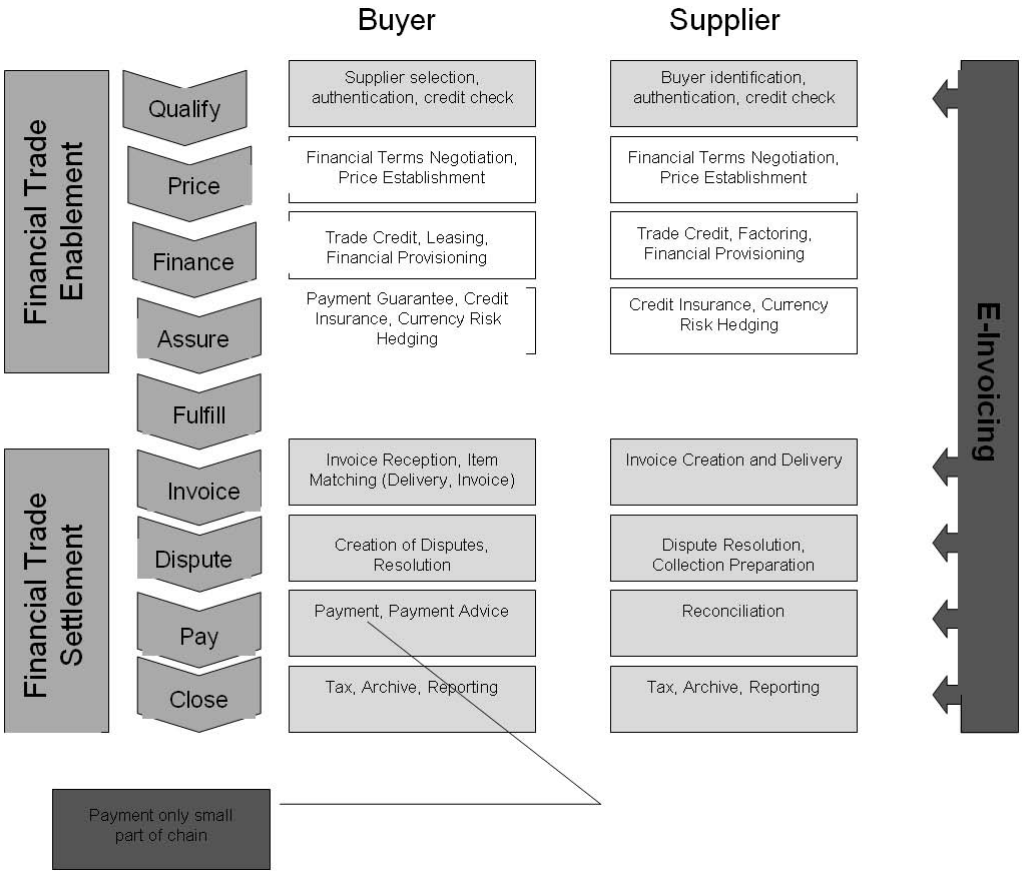


Figure 15
Financial value chain — positioning payment and e-invoicing

specifics of that industry into the value chain to yield a complete solution with the most added value.

THE FUTURE: EVOLUTION OR REVOLUTION?

A developed society without cash in the near future would seem to be an unattainable goal that only the naïve can pursue. Given the incredible effort and intelligence invested in alternative electronic payment solutions, however, surely a gradual, small displacement over time (as opposed to the current significant increase in cash) should be viable.

For this one must look not so much at technology, which is the focus of much of the discussions today: while secure elements, NFC and finger-vein recognition have their place, the key to success is in the business model.

Only when all involved stakeholders see an advantage, when the new electronic solution works better than what went before ('solves a problem') can a force be built up to overcome the resistance of habit that is so strong especially in consumer payments.

Indeed, it is hard to overemphasise the psychological dimension of the problem. Consumers are so 'used to' paying with paper and coins (free) that any alternative will have to offer really significant advantages: manually downloading payment apps on a smart phone and pushing but-

tons to start payment menus or just repackaging a card in the shape of a phone will not be helpful.

Also merchants, banks and, indeed, regulators will need to think closely about how to motivate themselves and other key stakeholders towards a change in behaviour.

This will probably take time. Despite all the technology, all the pilots, all the conferences, only a few solutions have convinced the market, despite decades of activity in the topic. This paper has pointed to a number of potentially convincing new solutions and the critical success factors that must be observed. Some successes seem clear (eg contactless cards, solutions that integrate loyalty). Some are still being heavily debated (eg biometrics), and some really new electronic developments might change the physical payment world much as PayPal has changed the online world: Can a mobile phone as a card payment terminal — enabling everybody to become a merchant — bring about such a paradigm shift?

A paradigm shift has already been caused by the online revolution, which has drastically changed how people entertain themselves, gather information, shop and work — how they live. Thus the biggest payment paradigm change is to be expected in online payment, especially when integrated into a complete experience and solution.

SUMMARY AND OUTLOOK

This paper has shown the extraordinary success of cash. Over 100 years its use has grown from strength to strength and, despite strong competition, is still growing in Europe today.

Cash has been shown to be expensive, primitive and even unhealthy and to be the underpinning of the underground economy. It has been attacked by technological creativity in an inestimable number of directions. This should all cause a major drive to eliminate cash.

But each and every stakeholder derives major financial and habit-forming benefits from cash, and this side of the argument is clearly winning. But new, efficient, convenient payment technologies are developing rapidly (contactless, biometric, to name only two), and some national examples have shown that serious displacement of cash is thus possible. This will be the future.

A few examples where electronic alternatives have thus successfully displaced cash were examined (eg card payments in the developed world) or where successful new payment infrastructures have been set up where no banking infrastructure previously existed (eg mobile payment in Kenya). These successes have not always translated to other countries (many — even highly developed — counties have poor card infrastructures and use of mobile payment has not swept the Third World), leading to the hypothesis that the many new solutions (of which there are more than 300 in Europe for online payment alone) do not offer significant and sufficient advantage.

This paper analysed the situation more rigorously and proposed a set of success criteria which must be satisfied for the stakeholders to accept new electronic payment methods. This is not an easy task and requires delicate business decisions to reconcile conflicts of interests between stakeholders and within stakeholder companies themselves.

This complex problem was reduced to a proposed small set of payment solutions in the example of online retail payment, where it is believed that a small handful will cover market demands.

Regarding the much discussed mobile payment solutions, it was observed that many of those currently being touted do

not satisfy even the basic success criteria (eg ease of use, lack of complexity, solving a problem, business case for all stakeholders). This may thus go towards explaining why this topic has remained in such a state of media hype and technical piloting — without (niches again excluded) significant commercial success — even in Japan.

But some surprising alternatives (such as mobile POS) were suggested, currently not so much the focus of discussions, which really do solve a problem and where a large section of the market is in need of a solution. So these are expected to bring a breakthrough in the replacement of cash acceptance — first inklings of the potential great future of this topic can already be seen in the first emerging solutions.

In general, it was proposed that payment in itself may be of limited interest and limited value. Payment ideally should be integrated as part of a more complete solution, taking into account the process at hand (travel, health, gambling, e-government). Further, the success of electronic payment may well be enhanced if as much as possible of the process is hidden. This model of hiding the payment from the user (successfully deployed by Apple/apps/iTunes) stands in stark contrast to most solutions currently proposed in the banking/payments industry, where all focus is on the payment, and little on where it is embedded.

Some further concrete examples for integrating payment seamlessly into a complete solution and experience were given in this paper (in the examples of shopping for food/cooking and for the all-important coupon/loyalty applications in Japan). More generally, e-invoicing was suggested to be a first step in this direction to bring the market towards electronic/STP right from payment initiation.

While some really convincing solutions may cause a paradigm change in certain niche markets (eg leapfrogging from no banking infrastructure in Africa to a mobile person-to-person payment solution), the adoption of new electronic payment solutions, especially in the developed world, is expected to be evolutionary. Given the time-frames usually encountered in this area, at best a gradual improvement is anticipated.

But even initially displacing only a small volume of paper-based transactions with electronic alternatives will yield — owing to the size of the cash market and the cost of its inefficiencies — very serious gains.

These must be pursued with all speed by market participants, encouraged by regulators to leverage the unique creativity and infrastructure in Europe and thus add value and lead to a more efficient, less costly and more secure business and society.

Author's Note

The views expressed in this paper represent the author's own opinion and do not necessarily reflect the views of his organisation or any affiliated entity or their staff and therefore no responsibility should be attributed to them.

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(47) iDeal, introduced in 2005.

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- The number of iDEAL transactions in 2010 increased by 52%
- The total sales made with iDEAL last year amounted to more than €5.2 billion
- 90% of Dutch webstores are offering iDEAL as a payment method
- iDEAL is preferred to all other payment methods (paypal, credit card etc.) online in NL
- in 'the Top 100 Indispensable Brands of 2010', conducted by EURIB, iDEAL took first place above all the other financial brands
- iDEAL is presently working on a model, together with similar systems in Austria and Germany, that is to lead to interoperability between the different countries' transaction systems in Europe and the World.

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