



Electronic wallets in danger

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Abstract

The erratic development of electronic wallets (EW) illustrates the difficulties of their adoption by the general public and shopkeepers alike. With exceptions, such as Proton in Europe and Octopus in Asia, a lot of electronic wallets are likely to disappear in the next few years. Yet the key factors of success are known by banks which often choose to ignore them. However, the strategic change taken by some in order to bring a fresh start to electronic wallets like Moneo could reverse the tendency. Nevertheless, it will still be necessary to wait several years before seeing electronic wallets really impose themselves as a credible alternative to payments in cash.

Subheading

More than ten years after their release, few electronic wallets have been successful. The purpose of this article is on the one hand to provide an overview of e-wallets currently being used and of the different experiments that have started across the world, and on the other hand to identify key factors of success and development opportunities.

An electronic wallet is one of the instruments enabling payment with electronic money. It is designed as a smart card, whose memory is credited with a purchasing power resulting in a funds-deposit previously

registered in a specialized company. This deposit is debited at each purchase, regardless of the bank. The E-wallet has many advantages. It secures transactions, allows for micro payments, is easy to use, universal (as it has no link with the bank account during the payment process), and has several applications. It can be used for daily casual payments (POS) and other applications, as a smart card, as well as for internet payments. E-wallets can be compared to the *France Télécom "Télécarte"* smart card. This example and the many possible uses of smart cards show that opportunities to penetrate this market are enhanced by the possibility of crossing offers. (Transport ticketing coupled with e-wallet, phone card and e-wallet). Considering the mobile phone equipment rate, another solution could be to give incentives to mobile manufacturers to share applications on SIM cards. Some projects are already in operation.

In Europe, thirteen years after the first experiment of e-wallet in Denmark, most of the projects have been discontinued. Among the survivors, only Proton (released in Belgium by Banksys in 1998) is successful. More than 30% of card holders have activated the e-wallet function and realised 102 million operations in 2005, for an amount of € 486.6 million.

In Germany, the Geldkarte e-wallet is associated with 63 million credit cards in 2005, or 70% of all cards on the market, but generates only 4.5 million transactions, for an average amount of €25 a year and €2.4 per payment. This e-wallet capitalizes on high safety properties, such as triple DES cryptography, in order to expand across Europe. Its technical specifications have been selected for the first interoperable and cross-acceptance experiment between France, Germany and Luxembourg in operation since January 1st 2001.

The situation is similar in France where the *Moneo* ewallet was released in 1999. This e-wallet can be coupled with a credit card, or come as stand-alone instrument on a dedicated card. Refill can be achieved through readers available in Banks and post offices for a maximum amount of 100 euros, 20 euros at a time. Express refills are also possible at sales points for a fix amount of €30 (only if the remaining available balance is less than €10).

Currently, even though it is offered with most bank cards, *Moneo* is rarely activated by the holders. According to official figures from *BMS* (Billettique Monétique Services, the promoter of *Moneo*), only one million e-wallets have been activated, compared to the 51.2 million bank cards. Expectations were of 35 million by 2003. Moreover, the system generates 78 million payments a year for a network of 100,000 affiliated merchants that merely match the daily number of payments by card.

Although e-wallet was meant to be used with proximity merchants (fast foods, press), automatic vending machines, (drinks, sweets, photos, transportation tickets), large networks (Relay book shops, Paul bakeries) equipped all their stores in the "Ile-de-France" district, whereas small merchants do not use it as much as expected. Three major reasons are highlighted by potential-user interviews: high transaction costs, lack of security and anonymity.

The system is expensive for both sides. Merchants must bear the installation cost of the hardware as well as the transaction costs each time the system is used. Banks are currently charging 0.3% to 0.9% for each transaction. Card holders pay a €7 to €12 annual fee, whereas this system is free in most European countries. (Austria, Netherlands, Norway, Spain, Switzerland).

In order to differentiate their offer from their competitors, "*BNP Paribas*" and "*Credit Lyonnais*" banks give incentives to their customers to subscribe to bank cards coupled with *Moneo*, by charging them at a discounted rate. Banks wonder whether *Moneo* should have been launched as a free service for the holders and with more flexible pricing policies for merchants.

Tested as a free service in provincial areas in 2000, the system proved to be truly successful. In Brittany, the no-charge policy gained 300,000 holders who keep using it. The business model chosen by banks, where merchants and consumers bear the cost of the system, is hard to justify from an economic point of view, because, unlike cash that does not benefit banks, deposits originating from electronic purses can be invested and generate interest for banks. Based on the business model of free ISP (Internet Service Providers), these benefits enable banks to consider other business models: for instance, the model of the ISP "Free" relies 40% on e-commerce, 40% on repaying telecom operators, and 20% on advertising. These models are upstream on the competitive analysis. They describe the necessary but not sufficient conditions for an activity to be profitable in the long term. The analysis of the competitive advantage comes later. Obviously, if a firm adopts an original and effective model, it will benefit from strong competitive advantages. These are short term advantages as economic models are hard to protect and their diffusion is fast.

As for safety, the system barely provides more than a bank note. In order to reduce investment costs, its creators equipped it with a less secure and significantly cheaper chip than those used in bank cards. In the case of a fraudulent refill (which, according to the Federal Union of Consumers, is child's play), the client is exposed to a €100 loss, corresponding to the maximum storable amount completed by a 275 euros deductible and an additional 275 euros deductible if the refill has been operated via a bank card, leading to a total amount of €650.

Moreover, *Moneo* is not an anonymous means of payment as bankers can easily trace users' consumption habits.

Moneo's situation is getting more and more critical. Merchants who have already invested in the system are waiting for banks to solve the problems that prevent its development, and hope for a positive impulsion from banks to accelerate its diffusion. Merchants who have not yet adopted *Moneo* patiently observe the situation and won't get equipped unless the number of payments using *Moneo* increases strongly.

Currently, *Moneo*, in addition to the previously mentioned problems, faces the issue of network externalities that all new payment solutions have to face. Indeed, as long as a payment solution has not been adopted by numerous customers, there are few reasons for merchants to choose it.

Moneo is clearly at a decisive time. If its creators overcome the current obstacles, *Moneo* will be successful, if not its final fall will be a question of months. In order to respond to these worries, the height which main *BMS's* shareholders banks encountered many times throughout 2003 in order to examine all the potential paths for *Moneo*, including the discontinuing one. After having identified the initial strategic errors of *BMS*, consisting of signing a few contracts with big retail networks, and neglecting small merchants and potential users, banks have suggested that *Moneo* should target specific needs unsatisfied by the banking card system : under 18 year olds, and people excluded from the banking system.

It was only on September 2003 that the main shareholders took the decision to save *Moneo*. They took part in a conference and negotiations that in December 17 2003 resulted in a renewal of the shareholder's confidence in the project for the following three years. One of the main strategic orientations that have been taken, is to accelerate the diffusion of electronic wallets for automatic vending machines and to develop partnership cards, specifically with local councils in order to add services to electronic wallets (car park machines, public car park access, swimming pool cards, etc.). Moreover many banks decided to diminish the fees supported by electronic wallets holders.

However, the budget for 2005 was cut slightly (compared to 2003) to €20 million and might be insufficient to cover the financial needs of the project. Indeed, the two main firms supporting the project, *BMS exploitation* and *BMS development*, already had to proceed with capital increase in January and March 2004, amounting to a total of €18 million, that is to say the level of the losses that both societies faced by the end of 2002. Moreover, *BMS* still owe 14 million Euros to the previous societies that created the electronic wallet: *Seme* and *Modeus*, which turned into *Moneo*.

Will *Moneo* be saved and will the players of the project renew their confidence in the system? These questions will certainly be answered in a few months. The main point is that actions to save the system are to be undertaken. Believing that *Moneo* will meet the long awaited success is just a question of faith...

The delay of the USA and Canada concerning the use of smart cards explains the slower development of electronic wallets. Many experimental projects are in progress. In Canada particularly, there are currently no electronic wallets in use despite the 1997 and 2001 Mondex experimentations in Guelph (Ontario) and Sherbrooke (Quebec). These were clearly failures, despite the support of the main banks and a huge advertising campaign aimed to serve as an example for the spread in North America.

Since its release, this electronic wallet has been contested on several aspects such as security, life privacy protection, and monetary policy.

Although the second, produced in 1999, came with technical improvements (multi-purpose operating system, more powerful processor), the project was supported by a minority of banks. Finally, the project was discontinued in 2001.

In contrast, Asia is the most dynamic area for electronic payments with new multi-purpose electronic wallets. In 2005, the Octopus electronic wallet (contact-less card) is the most used in the world with 13

million cards of which 95% are regularly used in public transport, shops, restaurants etcâ€¦ This success is mainly due to its adoption by transport companies as early as 1997 and to the population density that facilitates the territory coverage for shops as well as for loading points. Another function of electronic wallet is the residential building access control.

The numerous failures and few successes seen during the launching phase of electronic purses emphasises the need to learn the lessons:

First, setting up a new payment solution is a slow process that involves the adaptation of technological and social players.

Then, the network effects plays a crucial role in the adoption of an electronic wallet, while the number of people using it increases, it becomes more and more useful.

The degree of acceptance of a kind of money is linked to the number of people retaining it. When all is said and done, it is the number of possible connexions between holders of the kind of money that makes its usefulness. It is through its paying function that the network effects of money are most noticeable. Indeed, a transaction must fulfil the obligation to gather the means of payment in itself and its acceptance by the beneficiary. If we take the example of bank smart card in France, it has been observed that the more numerous the card holders have been, the more the merchants got equipped with payment terminals.

However, when network effects exist, consumers do not take into account the network effects that they cause and that can lead to a lock-in for an inefficient technology.

This is a source of attractiveness for a technology and increases its probability of becoming essential. The release of a means of payment should be done following an economic guideline, and more precisely on the logic of network economics. Network effects give rise to increasing returns to adoption.

Means of payment for Internet are also subject to network effects. This can explain why the market is dominated by SSL despite its precarious security. Its ease of use and its integration to the main browser "Internet explorer" and "Netscape Navigator", provides it with an installed base of users with which other systems like SET cannot compete, even if they provide greater security. Shapiro and Varian (1999) suggest subsidising the development phase of the most efficient technology in order to build a large installed base, before increasing prices.

Lastly, the use of a payment system is based on confidence which depends on our social experience. If we predominantly use cash for payments it is because we have experienced that they are universally accepted.

In conclusion, factors of success of this means of payment are security, anonymity of transactions, costs of transactions as well as the availability of multiple functions (payment, transport ticket, building access, etcâ€¦). The knowledge of these factors that banks have gained from their experience with bank cards explains the development problems that face most electronic wallets. We must wait several years before the electronic purse become a real alternative to cash payments for proximity payments, and much more before they compete with Internet micro payment solutions.

Danmont (created in 1993) : <http://www.dcs.uni-siegen.de/~geuer-pollmann/publications/studienarbeit.pdf>

References

Articles

DEMAROLLES A., YEPES C., "La monnaie électronique aux Etats-Unis", *Problèmes économiques* n°2.553, 28 janvier 1998

GAZE P., "Le porte-monnaie électronique : quelques enjeux stratégiques pour l'industrie bancaire", *Revue d'Economie Financière* n°53, 3e trimestre 1999.

GAZE P., "La monnaie électronique", Monnaie et politique monétaire en Europe, *Les Cahiers Français*, n°297, juillet-août 2000.

NAKAYAMA Y., MORIBATAKE H., ABE M., & FUJISAKI E., "An electronic money scheme", *IMES discussion paper series*, Institutes for monetary and economic studies, Bank of Japan, 1998

QI M. & YANG S., "Forecasting consumer credit card adoption: what can we

learn about the utility function" International Journal of Forecasting, vol 19, January-March, pp71-85, 2003

SAHUT JM, "Les paiements électroniques sur Internet", Gestion 2000, n°2, mars-avril 2001

SCHMALENSSEE R., "Payment systems of interchange fees", Journal of Industrial Economics, juin, pp 103-122, 2002

SALZMAN C., "Les enjeux de la monnaie électronique", *Problèmes économiques*, n°2.524, juin 1997

SHAPIRO C. & Hal R. VARIAN, Economie de l'information, De Boeck Université, 1999

Web Sites

Marché de l'argent et des capitaux - marché de l'argent et organismes monétaires en Belgique - http://www.statbel.fgov.be/figures/d462_fr.asp

Groupe des Cartes Bancaires - <http://www.cartes-bancaires.com>

Geldkarte - <http://www.geldkarte.de/>

Moneo - <http://www.moneo.net/>

Octopus - <http://www.octopuscards.com/consumer/en/index.jsp>

Proton - <http://www.banksys.be/bkscomwt/NL/>