



# The Market Difficulty for The Use of The Moneo Electronic Purse

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## Abstract

**Whether in other countries the introduction of electronic purse as a new means for micropayment has known a success (Belgium with Proton and Hong Kong with Octopus), in France the electronic purse, namely Moneo, meets at some problems preventing a widespread adoption and use by customers and merchants. Based on the two most highly successful schemes – Proton and Octopus - some potential solutions are proposed, dealing mainly with the technological and economic aspect, in order to help the adoption and the use of Moneo.**

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In the last decade the use of payment cards has grown rapidly throughout the world since the development of the 'chip', usually namely 'smart card', which provides more security than the magnetic stripe technology.

Whether debit/credit cards have known a success in their adoption, electronic purse schemes show clashing situation. Some are already disappeared such as Danmønt in Denmark and Multibanco in Portugal, or are likely to disappear in a very close future. Few electronic purses have been successful, such as Proton in Belgium and Octopus in Hong-Hong. And finally, others with limited success, as for instance Moneo in France, met at some problems preventing massive use and require undertaking substantial effort not to converge towards failure and so disappearance. In a recent empirical paper (M'Chirgui and Chanel, 2007) we have shown that the lack of security as well as relative advantage and the high level of costs, dealing with technological and economic factors, are the main obstacles to the adoption and the use of Moneo. We have also found that cardholders are satisfied with the Moneo and that enhancing the product visibility could influence its adoption. Finally, another major finding in this paper was that adopters in both side (retailers and customers) believe that the adoption and the diffusion of Moneo depend simultaneously on its adoption by retailers and customers, particularly since the product is an interactive innovation. This copes with the network externalities argument, since it is by now commonly accepted that card-based payments are subject to network externalities and are two-sided markets (Rochet and Tirole, 2003). The consumer's benefit depends directly on the number of merchants accepting the payment means and only indirectly on the number of the consumers who adopts it or uses it. Conversely, the merchant's benefit depends directly on the number of the

consumers using the electronic purse and only indirectly on the number of merchants accepting them.

As the degree of satisfaction is good, visibility of the electronic purse could be enhanced by revisiting the marketing policy. However, the two others factors - technological and economic - should be deeply studied. Therefore, from existing successful experiences as well as theoretical business model (M'Chirgui, 2006), in this paper we propose some solutions dealing with these factors which could help to reach the required critical mass and reverse the tendency.

Our empirical results in (M'Chirgui and Chanel, 2007) are in great part completely agree with conclusions drawn by Clark (2005), Sahut (2006) and Van Hove (2000). Sahut (2006) points out that security, anonymity, transaction costs as well as multi-application feature are the main factors of success of Moneo. Clark (2005) has reviewed six electronic purse schemes in Hong Kong (one, namely Octopus) and the United States (five). He found that the most successful among these programs tend to have the following characteristics: a captive audience that drives critical mass, such as those found in the transportation industry or government sector; an affordable cost structure relative to other payment instruments; compelling incentives to consumers and merchants; and a technology that is well tested and that addresses standard issues before the rollout. Van Hove (2000) has examined 16 electronic purse schemes and he found that 'multi-application' and 'electronic commerce' are two major ways in which electronic purse could know success. He also found that successful programs are in a relatively small, geographically countries, where already have compatible card-payment infrastructure (which refuses small-value payments), where major banks commit to and participate in the program; and where one or several applications dealing with public telephones, parking meters, vending machines, or public transportation, are combined with the electronic purse. Finally, when the product is adopted, frequency of use is one of the major keys to a successful electronic purse, because it becomes more valuable to consumers and merchants. The whole of these characteristics seems to be found in the two most successful electronics purse schemes: Proton in Belgium and Octopus in Hong Kong.

The Belgium electronic purse has known success mainly due to its technological and economic aspect. More than 30% of card holders have activated the e-wallet function and realised 102 million operations in 2005, for the total of € 486.6 million. From economic point of view, Proton does not support any fees for cardholders. The no-charge policy allowed to gain an important number of holders who keep using it. From technological point of view, while Proton is a contact smart card, the payment is rapid because the reader is directly connected to the cash-box. Merchants have to type out the price once, and consequently it is a one major ergonomic aspect. Finally, Proton cards can be used for public payphones<sup>[1]</sup> as well as in vending machines. This has greatly influenced the use of Proton. In brief, Proton is multi-application.

The success of Octopus can be summarized in these points. First, Octopus is multi-application. Octopus has taken benefit from the support of five transportation companies, which have successfully cooperated and coordinated their efforts, particularly to guarantee the interoperability. This is a major factor to achieve critical mass. Secondly, the system's technology, particularly the contactless (RFID technology) feature of the card, provides a great simplicity, speed, and convenience in use. Payment is registered in only 0.3 seconds. Thirdly, the proton system offers several incentives to consumers and merchants. For consumers, beyond the express payment, Octopus allows cardholders to make purchases up to a negative value of HK\$35 (US\$4), so long as the card contains a positive value of HK\$0.01 before the purchase. In addition Octopus offers loyalty programs and provides an automatic reload feature. For merchants, while information on hardware costs and merchant fees are confidential, it appears likely that merchants pay lower transactions fees on Octopus cards than on credit cards, which vary from 2 percent to 4.5 percent (Van hove, 2000). Finally, the overall cost is low enough compared with other payment alternatives.

After having emphasized the main keys factors in Proton and Octopus success, we return to our principal question that such factors or some of them are feasible or can be applied to Moneo? Our answer is yes.

As said above, the main problems with Moneo deal with the system's technology and the costs structure both for cardholders and merchants. **Technologically**, Moneo wastes more time than a cash payment because the reader is not directly connected to the cash-box, since merchants have to type

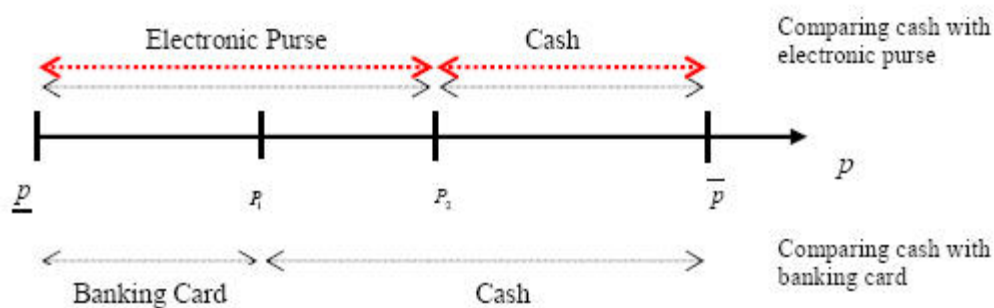
out the price twice. This problem did not appear in Proton because the reader is directly connected to the cash-box albeit Proton is a contact card as Moneo. Card must be coupled to the reader. Therefore, learning from Proton technology this problem could be surmounted. An alternative way is to learn from Octopus. Octopus use contactless technology, which is much better than contact technology. The contactless system takes only 0.3 seconds to register a payment, compared with one or two seconds for a contact card, not counting insertion and extraction time. This solution could be very interesting because in France, several big cities such as Paris, Rennes and so on, have already a contactless infrastructure for transport. The underlying idea (and as major studies have emphasized) is that a catalyst application may be an interesting solution to achieve critical mass and an impetus to use. For example, the area of Île-de-France (or Paris) only presents eight million transport users. Thus, combining electronic purse function with a ticketing function could contribute to the Moneo's success even in some areas this is not possible, because a perceived successful adoption in one area can influence the decision to adopt in other areas (Steyer and Zimmermann, 1998). In this line, Moneo will be multi-application and technologically more convenient like the case of Octopus. This of course, would require the organisation among different actors to cooperate in order to assure interoperability, especially since standards and specifications are already well set.

**Economically**, Moneo is expensive for both sides (consumers and merchants). Cardholders pay a €7 to €12 annual fee, whereas this system is free in most European countries (Austria, Belgium, Netherlands, Norway, Spain, Switzerland). Merchants pay the transaction costs or fees each time the system is used. Banks are currently charging 0.3 % to 0.9 % for each transaction. As an example, 0.9 % commission corresponds to 20 or 25 % of the margin realised on a newspaper, a stamp or a packet of cigarettes. Margins would be cut by a quarter, whereas there is no cost involved in handling cash. They also must bear the installation cost of the hardware. Retailers have to adapt their traditional smart card terminal / reader to the new payment device, which entails other expenditure (i.e. 100 to 120 euros per terminal, plus 15 euros per month for leasing). These substantial costs related to the new card reading terminals or to the change of existing terminals has been a major factor holding back the implementation of the Moneo system. Furthermore, banks do not plan to transfer a commission to retailers when a customer tops up his Moneo card in their shop. Yet, retailers point out that the "time" devoted to a transaction will increase since time will be required for a series of operations: the call made by the terminal to the bank, choosing between electronic purse payment or credit/debit card payment and the instant top up.

Regarding, Proton as well as Octopus schemes, merchants also support such cost and also found the transaction fees too high. But this idea comes only from retailers handling only cash or checks. However, the majority of merchants have already card-based payment system. Thus, comparing the overall cost of electronic purse system with other payment alternatives is a good exercise to see whether or not electronic purse is benefit to users. Based on a cost opportunity approach (Whitesell, 1992; Santomero and Seater, 1996) we have shown in a theoretical business model<sup>[2]</sup> (M'Chirgui, 2006) that the profitability of the Moneo use requires a probability of investment more than 65 % both for consumers and merchants. Such level of probability seems enough high for impeding massive use of electronic purse. As consequence, the lower the fee by transaction is, the more widespread the use of electronic purse is.

Moreover, we have found that the situations in which consumers prefer use Moneo are limited (Figure 1). However, this situation could completely change whether a no-charging policy is applied, at least until reach critical mass. In this case, Moneo will be always preferable than other payments means for small-value purchase. Therefore, the main conclusion we can draw from this theoretical framework on the one hand and experiences from the most successful schemes on the other hand is that in the case of Moneo, no-charging policy for consumers could be a major way to mass acceptance and reverse tendency, especially since this policy is adopted in most European countries. However, whether the technological and ergonomic aspect are enhanced and revised from the previously mentioned suggestion, changing the current cost infrastructure would not reverse and influence deeply the

tendency, because within all cases, costs supported by merchants are lower than other card-based payment systems. As argued by Van Hove (2001), merchants experience increased costs in the short term by supporting two separate infrastructures until a critical mass of electronic purse users is established. Overall, incentives such as security, speed and well-technology tested as well as an affordable cost structure are major keys factors to adopt Moneo for merchants.



**Figure 1: Use of payment means by consumers**

[1] In October 1999, one out of every four calls was paid for by using a Proton card (Van Hove, 2000).

[2] In this model we have compared the conditions of choice between mainly three payment instruments: electronic purse, banking card (credit/debit card), and cash. We have considered that the choice of a payment medium (in event here the cash) depends on the value of transaction (Whitesell, 1992) rather on the net convenience benefit perceived on the new payment instrument (Rochet and Tirole, 2002; Wright, 2003).

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