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Reversing the charges.

Could mobile payment at the point of sale ever pay for itself?

Foreword

The widespread view of payment industry experts is that the use of mobile payments (m-payments) at the point of sale is "inevitable".[1] The basis for this prediction is that the technology exists, is increasingly affordable and provides functionality that customers consistently value.

Yet, our research suggests that the substantial and growing investment in mobile POS payments is misjudged, at least in the United Kingdom. Despite the evident benefits, there is not yet a compelling business case for UK banks or mobile operators to invest in this new technology. Rather than chasing elusive returns, our research suggests investors in mobile payment technology should focus on the unique remote functionality of the phone, or on more far-reaching banking solutions abroad.

The mobile payment renaissance

After a few years of relative neglect, m-payments are once again a hot topic in the payments market. Much of this resurgence is down to the growing role of contactless payments. The 'tap and go' that is synonymous with Oyster card payments is now finding its way onto mobile handsets as near-field communication (NFC), making the dream of paying for retail goods with a wave of a mobile phone a viable proposition.

Pilot studies suggest that customers appreciate contactless mobile functionality, and in some markets considerable numbers have already adopted the technology to pay at the point of sale. DoCoMo in Japan now have over three million m-purse users (out of 15 million m-purse enabled handsets), and 1.5 million customers are using DoCoMo's phone-based contactless credit product.[2]

Contactless chips and readers are relatively cheap. Current estimates for the contactless card roll-out show that adding NFC technology to an existing point of sale terminal could cost less than £30. The client-side electronics for NFC mobile transactions costs only pennies. And projections from ABI Research are that by 2012, 30% of phones worldwide will include NFC.[3]

Combined with customers' growing acceptance of the mobile phone as a payment device (a third of Londoners now pay their congestion charge via SMS), it is understandable why some industry commentators are getting excited about the potential for mobile phones to become a mass market point of sale platform.

Another false dawn?

But while few would question the customer-friendliness of m-payments at the point of sale, it is not clear how economically valuable this functionality is. At present, UK customers do not pay explicit fees for payments made using cards or cash, while retailers are campaigning to reduce what they see as their excessive contributions to the current payment system. The introduction of new or increased tariffs on individual mobile transactions would run counter to prevailing trends. Banks or mobile operators may require more imaginative strategies for generating a positive return on investment in m-payments at the point of sale. This article looks closely at what those strategies could be.

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The business case for banks

Banks currently own the payments system. Including revenues from related accounts, UK financial services companies generate upwards of £12 billion in income from payments (see the section on the economics of payments). Banks have much to gain – and the most to lose – from a changing payments landscape.

Why banks might invest

There are a number of reasons why a bank might be tempted to invest in mobile NFC technology. These include:

- lower handling costs relative to cash and cheques;
- the potential to generate incremental customer or merchant revenues; and
- to capture or protect market share in current account or credit cards.

Phones are not the best way to reduce costs

The cost goal is ambitious, but the upside is significant. If you apply headcount to activities, UK banks spend about £2 billion on cash and cheque payments, mostly in the form of counter staff costs. Replacing cash and cheques with m-payments could allow headcount reductions or re-deployment of staff to revenue generative sales activity.

Making a dent in cash usage is no small task. Three quarters of all spontaneous payments are made in cash. Doubling the current usage of debit and credit cards would only take that down to 55%. It would take a long time for banks to get to a position where they could start fundamentally reshaping their cost base.

But that does not mean they should not try to replace cash. The challenge is why banks should invest in m-payments to perform this function. The case for m-payments is only compelling if it is cheaper, more effective or carries less risk than other non-cash payments. It is hard to see how this is the case.

Contactless cards have most of the speed and convenience of NFC mobile, and the replacement cycle for bank-issued cards is at least as fast and more easily controlled than the mass replacement of handsets. More importantly, establishing the mobile phone as a core payment device may result in mobile operators demanding, at a minimum, a fee for the use of their SIM 'real estate'. This would dilute any incremental returns banks would make on their investment.

Apart from this limited upside, banks must weigh the risk of potential disruption to their core business. If credit cards were to become a downloadable application on a mobile phone, issuers would lose the useful switching barrier that the physical card and delivery system provides. More worrying, if mobile handsets were to become the de facto means of making payments, it is hard to ignore the potential for mobile operators to come between banks and their customers. Most major operators have outlined plans at one time or another to open a banking subsidiary.

Contactless cards generate the same revenue uplift

Contactless cards are also an obstacle to the potential revenue upside from m-payments at the point of sale.

Supporters of m-payments often refer to the 'halo effect' new payment forms have on customer transaction behaviour as a potential source for positive returns. For example, recent MasterCard research showed increased spending of 19% on their contactless PayPass account, compared to magnetic-stripe cards.

It also indicated consumers with PayPass cards or fobs are using them 29% more often than those with non-PayPass cards.[4] While this upside in volume and value could help cover the costs of rolling out m-payments, the contactless cards to which this research refers will be in place well before a mass market, m-payment point of sale offer. According to a recent press release from APACS, by the end of 2008 UK banks will have issued over five million contactless cards which will be accepted in at least 100,000 merchant outlets.[5]

The incremental revenue from a mobile point of sale proposition would have to be over and above the uplift from the contactless card initiative. Ultimately it begs the question of just how much further consumers' disposable incomes can stretch to cover their new spending habits.

Contactless cards are also something of a spoiler for the more direct returns that a m-payments proposition could generate. If no other 'wave and pay' proposition was available, it is conceivable that customers would pay a small annual fee or a fee per transaction for the speed and convenience the technology affords. But cards are going to be offered that match this speed, and all the evidence so far is that they are going to be offered for free. Would customers really start paying for payment transactions just because using a phone is 'cooler' than cards or because carrying a wallet is so much hassle?

Limited threat from switching

While customers might not pay directly for a phone-based solution, they could potentially deliver value by switching current account or credit card provider if they got these extra benefits for free. After all, the economic analysis in table 1 shows that all the money in payments derives from accounts provision. At a minimum, banks might be expected to defend account share by investing in m-payment technology to prevent competitors stealing share by offering new mobile functionality.

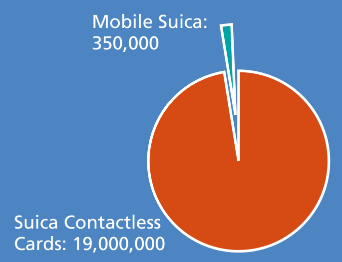
But if banks do choose to invest as a defensive measure they would be doing so in the face of current evidence. There have been no signs that customers would move on mass to mobile, even in mobile-centric environments like Japan. Over twelve months after launching Mobile Suica as an alternative to their contactless card offer, only 2% of JR East's customers have opted to move from a card-based solution to their mobile phone.

No compelling case for banks

With contactless cards offering the same upside as mobile, and with customers unlikely to switch or pay more fees for m-payment point of sale functionality, it is hard to see why banks should risk investing in a technology that encourages mobile operators to join the payments 'ecosystem'. If anything, banks have a strong disincentive to seeing m-payments take off.

But perhaps they will not be given this choice. Could mobile operators compete in this space without the banks assistance?

Penetration of Mobile Suica into Suica contactless cards base (Jan í06- Apr '07)



Lessons from Mobile Suica

- Customers resent re-registering for "the same" service
- Downloading applications to mobile takes time and is inconvenient
- Customers unwilling to change to "tied" credit card partner just to access mobile functionality
- Commuters happy to carry cards and favour the extension of their acceptance rather than their replacement

Source: Card technology, "Japan's Mobile Wallets Fail To Inspire – Yet" April 2007

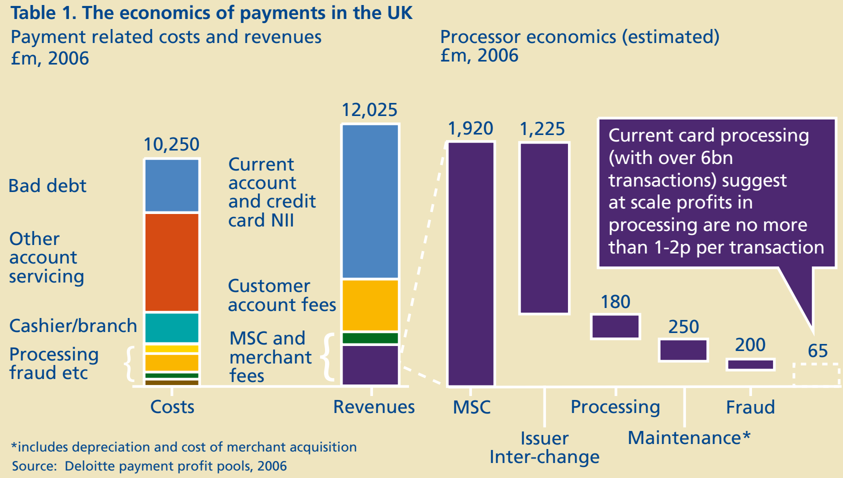
The economics of payments

The majority of bank revenues from the payments network come from the "premium" interest and fees/fines accrued in account management rather than payment provision. Few UK bank customers would equate the £10 billion of interest and fee payments outlined in this chart as "paying for payments". However, in sacrificing cheaper personal loan or mortgage debt, consumers pay some £8 billion a year (translating into £4 billion in Net Interest Revenue) for the convenience of linking their borrowing with their payments through credit cards and overdrafts. The public also forego some £3 billion in risk-free returns on the vast pools of liquidity that they provide to the banking industry through their current account deposits.

To that £2-£3 billion can be added, that the few generous institutions offer in the form of fees and charges for unauthorised overdrafts, bounced cheques and missed payments on credit cards.

On the payment provision side, of the 30 pence of merchant-generated revenues from an average card transaction in the UK, 20 pence goes to the issuer to cover the cost of distributing cards and providing the interest-free period on credit accounts. It costs between 2-3 pence to process each transaction, including an allocation of the costs of Visa and MasterCard. Depreciation and maintenance of the terminals is another 3-4 pence while the acquirer's share of the £450m of card fraud equates to another 3 pence per transaction. That leaves 1-2 pence of £60-£120m of profit for payment provision as a standalone activity.

Table 1. The economics of payments in the UK



*includes depreciation and cost of merchant acquisition
Source: Deloitte payment profit pools, 2006

Business case for mobile operators

To get a sense of just how much mobile operators value the potential for m-payments, it is worth looking to Japan. While hard numbers are not available, leading operator DoCoMo has invested vast sums in promoting m-payments. Not content with waiting for the banks to get their act together, this mobile giant has rolled out its own proprietary point of sale infrastructure. It embeds all its new handsets with payment functionality using Sony's proprietary FeliCa chip technology, and has subsidised merchants to put in place the $425 FeliCa point of sale readers.[6]

When the pre-paid business model failed to live up to expectations, DoCoMo bought a bank and began offering the DCMX credit 'card'. With disappointing merchant acceptance, it took another plunge and invested ¥9 billion buying a stake in a retailer, thereby increasing the acceptance of DoCoMo's mobile credit facility from 140 shops to 7,000.[7]

This level of commitment suggests operators see significant value in m-payments. Aside from the soft issues around technological leadership (which are particularly pronounced in Japan), there does appear to be a very real economic advantage in getting mobile customers to sign up to more complex applications. By our estimates, a reduction in attrition of just 0.1% a month would be worth £50m to a large UK operator. With current account attrition in the UK running at around 5% compared to 35% for mobile phones, it is not surprising that operators are interested in the extra 'stickiness' – customer loyalty – that m-payments might yield.

Wars of attrition?

However, placing retention at the core of the business case for mobile operators is a high risk approach. Balance attrition on credit cards is arguably a more accurate analogy than current accounts, and attrition levels (including dormancy) are comparable to those of mobile phones.

It is also reasonable to question just how many times that £50m retention benefit has been the justification for loss-leading propositions outside the core mobile business. The creation of an entire parallel banking system looks an expensive and somewhat obscure method of tackling the issue of customer loyalty. The retention effect should not be ignored, but its impact is difficult to isolate. M-payments at the point of sale should have standalone value, if operators are to invest heavily in this technology.

There are at least three opportunities for standalone value creation that a mobile operator could choose to target:

1. Taking a share of the £3 billion revenues from merchant service charges by providing the point of sale infrastructure and processing (merchant acquiring).

2. Taking a share of the £1 billion profit pool from credit cards.

3. Profiting from pre-pay accounts.

If a mobile operator in the UK followed the DoCoMo example and built a proprietary network, it could play the role that merchant acquirers (and processors) occupy in the current cards value chain. In return for providing and maintaining the infrastructure, and clearing and settling payments, acquirers capture around 0.4 % of the value of each customer credit card transaction.

Return on investment… tuppence worth, at best?

However, as noted in the section on payment economics, there is not a lot of value here. One of the key barriers that banks employ to protect their control of the payments network, is to keep the standalone returns from payment provision structurally low. (Regulators make doubly-sure it stays that way.) At best, the provision of card payment is worth one to two pence per transaction in profit. It would take time for a parallel network to reach that sort of scale. And the payback period, even assuming a low-cost roll out, would be well beyond the tolerance of any investor.

Lines of credit…

A major investment in payment infrastructure would require players to move into account management if they are to get a meaningful return on their investment in the foreseeable future.

In Korea, credit card issuer interchange forms the core of the business case for m-payments. Issuers are taking less than half their usual 2.5% cut of transaction value, with 1% going to subsidize the cost of the phones for customers, and 0.3% going to the telecommunications operators, which own the m-payment technology. The remaining income is still sufficient for the issuers, given the potential to grow volumes at the expense of cash.[8]

However, card economics are not that generous in the UK. Regulators have effectively capped credit interchange at 0.7%.

That means, including the acquiring revenues, a mobile proposition based on current credit card economics could expect to capture at best, 1.2% of transaction value.

1.2% still does not sound too bad, given that the average value of a credit card transaction is over £60 and the direct costs involved are just seven to ten pence a transaction.

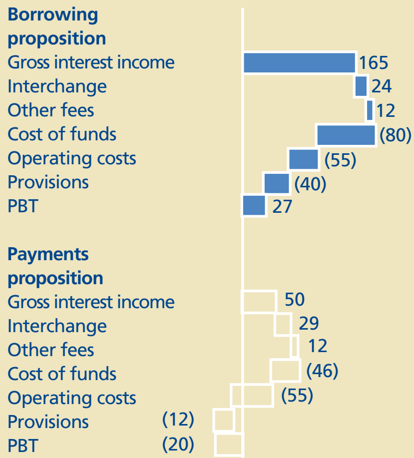
Funding the interest-free gap

But what is not well understood outside the credit card industry is that offering a credit facility is an expensive business; not just in terms of operating expense and credit risk, but notably in the opportunity cost of providing the initial interest-free period.

Merchants expect to be paid, at worst, a few days after a purchase has been made. Customers pay their credit card bills on a monthly basis. (The actual period between making a purchase and having to pay interest on it averages at 50 days.) The issuer therefore has to fund the period between purchase and customer repayment with its own cash.

The properly apportioned cost of facilitating the interest-free period is no small matter. If we take transactions on a debit card as reflective of a 'payments driven' credit card, the average annual transaction value would be around £3,600. With a 50-day interest-free period, at any one time an issuer could expect to be funding £500 of interest-free balance. Even assuming a cost of funds at the risk-free rate, the interest-free period costs £28 a year. Compare that to the interchange revenue of just £25 (£3,600 x 0.7%) and it is clear why credit card companies are not over-keen to offer rewards programmes at the moment.

Table 2. Per card economics – Payments vs Borrowing Propositions



Key drivers	Borrowing-led (£ per card)	Payments-led (£ per card)
Transactions p.a	50	90
Value per transaction	60	40
Annual transaction value	3,000	3,600
% transaction value in interest free period	14%	14%
Average interest-bearing balance	1,000	300
Total balance	1,420	800
Interest bearing balance as % of total balance	70%	38%

Source: Deloitte analysis, 2007

Getting the balances right

Where credit card players are focusing their attention, is on balances and the interest income that accrues when customers 'revolve' their balances (that is, keep an outstanding balance after the interest-free period). In the UK, this is worth some £3.5 billion in net interest income a year.

The issue that an m-payment offer would have here is that credit cards based on encouraging customers to use their card frequently (for example Goldfish), typically have far lower balances than those that encourage customers to borrow. The balance on a mobile-led payment proposition is likely to be closer to Goldfish's £300 than the market average of £1,000, and would be highly vulnerable to cherry-picking from more sophisticated lenders with cheaper funding costs.

It is hard to see how a mobile operator would support a higher revolving balance at profitable rates in current market conditions. Rather than gaining a share of the profits, our model suggests that even allowing for penalty fees and other charges, a typical mobile credit offer would lose in the region of £20 per customer.

Is pre-pay the answer?

With credit facilities loss making, and the cost of setting up and servicing current accounts prohibitive to even the largest mobile operators, pre-pay looks the most viable way of providing liquidity in a 'bank-less' system.

However, even with pre-pay, the economics are not very attractive. Customers have concerns over the amount of money they stand to lose should they misplace or have their card stolen. They also forego any interest that they would have received had their money been in a current or savings account. In combination, these factors restrict the size of balance that customers are likely to maintain on a pre-pay account (our research shows the typical average load on a pre-pay device is around £20). Operators can expect to make little money from balances of this size, particularly given restrictions on where float can be invested.

Low load also means low average ticket size (typical spend per transaction). This in turn means that interchange rates will have to be low, as retailers' margins on low value purchases are only a few pence to begin with. This could be offset by adding a fee to the card, either on opening or for topping up (or both). But customers are reluctant to pay for functionality they can receive elsewhere for free.

In the absence of upfront fees there is little revenue to play with; so propositions need to spread the high overhead costs of compliance, customer service and marketing over a very large customer base.

Banking on such success, particularly as contactless cards are getting the backing of the larger incumbents in a similar space, would be a significant gamble for all but the nimblest of operators.

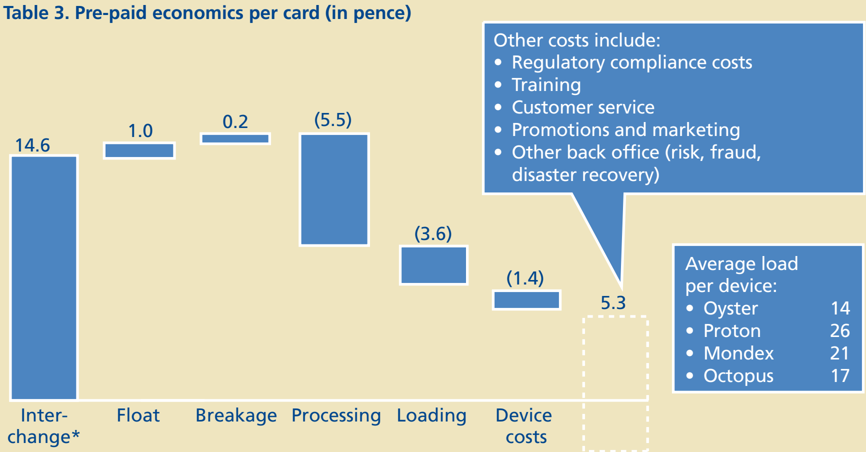
Regulatory and tax issues

As if the economics of credit and pre-paid cards were not sufficiently challenging, regulatory and tax issues would add further complexity and expense. Any move in the pre-pay or credit space by mobile operators would attract significant scrutiny from the Financial Services Authority.

Worse still, the VAT complexities are an expensive administrative minefield. Because financial services are VAT exempt, banks can not pass along the VAT costs of suppliers. As it is difficult to ring-fence investments related to financial services (it is the same handset and wireless infrastructure that supports payments and voice usage), mobile operators entering this arena could find themselves struggling to avoid absorbing these tax costs.

With the revenue model unclear, the expense of rolling out a proprietary network significant, and the complexities of regulation and tax considerable, UK mobile operators are unlikely to go it alone in the payments space. But given they pose little threat on their own, there is even less motivation for banks to consider partnering with operators to create a workable mobile point of sale payment proposition.

Table 3. Pre-paid economics per card (in pence)



Source: Deloitte analysis, 2007

Growing regulatory considerations

- The FSA is becoming more interested as m-money is becoming more significant.
- FSA rules set out stringent requirements for any e-money issuer:
  – Capital structure and liquidity: including whether debt can be used to fund the scheme and how companies can invest the "float"
  – Senior management team: strictly defined roles; must be appropriately trained and skilled; and personal liability
  – General systems and controls: focus on fraud, accurate reporting and security

The indirect tax minefield

- Financial services are exempt from VAT and therefore suffer significant irrecoverable VAT.
- Mobile businesses provide phone calls which are subject to VAT and therefore get all of their input VAT back.
- If mobile operators provide banking services, "related" expenditure would be irrecoverable.
- Ring-fencing banking activities would be extremely difficult for operators.
- The rules governing indirect tax as applied to e-purse schemes are complex and depend on a whole range of factors.

Source: Deloitte

The wider picture: mobile opportunities beyond the point of sale

The arguments outlined above suggest investments in m-payments at the point of sale are unlikely to generate significant returns in the UK. However, this should not be confused with a negative perception of mobile's potential capabilities in the wider payment space.

There are a number of niche applications where banks and operators (ideally working together) could generate incremental value. These include:

- **Ticketing and location identification.** The ability of mobile operators to locate customers in real-time is an opportunity to provide the kind of tailored cost-saving solutions that merchants are willing to pay for. Train and bus operators are an obvious segment to target with potential structures, including the one currently being piloted by Deutsche Bahn and Vodafone. Here, passengers touch chip-tags when they board and leave the train; their locations are registered and the phone sends the data over the network. The system then calculates the fare and incorporates the cost into monthly mobile bills.

- **Authentication.** As 'card-not-present' fraud is limiting the gains made by chip-and-pin, banks are moving to more expensive methods of establishing two-factor authentication systems. Barclays and The Royal Bank of Scotland have both gone down the route of distributing hand-held card readers for customers active in online transactions. Mobile phones offer an alternative method of generating the one-time codes required. So banks and telcos could happily share the value generated by **not** having to invest in the manufacture and distribution of new hardware.

- **Remittance and other Person to Person (P2P) propositions.** These play to the mobile handset's ability to accept as well as make payments, and are a significant opportunity given the healthy margins currently available in this fast-growing market.

  The main hurdle to adoption is establishing a practical currency for these transactions. Initial pilot schemes employed existing top-up systems to allow customers to make P2P payments in the form of 'airtime'. However, the limited acceptance of airtime as a currency in retail outlets limits its long-term potential.

  MasterCard and the GSM Association are now working on a more universal solution with users able to transfer money between participating banks and various card payment products, such as MasterCard's pre-pay cards.

Solutions for a developing world?

In addition to the above examples, there is the potential for a more comprehensive mobile banking proposition in less developed markets. That is, those which lack the ubiquity of bank accounts and the complex, opaque cross-subsidies seen in the UK.

Globally, three billion people have a mobile phone, while only one billion have a bank account. So, in markets where banking remains undeveloped, there is real potential to design a core banking structure around mobile. This could prove to be a more inclusive and cost efficient option than replicating the branch and ATM networks of developed markets.

In a recent article on m-payments in China, McKinsey & Co estimated that it would cost at least $2 billion to create a more comprehensive banking infrastructure based on adding 130 point of sale terminals and ATMs per million people. By contrast, they estimate a mobile solution would cost between $40m and $60m.[9]

Advancing new ideas

We are already seeing some of the most sophisticated global applications occurring in developing markets. For example, in the Philippines, some five million people are signed up to a service allowing them to make transfers and payments from person to person and at the point of sale by phone. It is estimated that the amount of money in CelPay accounts in the Congo is more than all deposits in the entire banking sector.[10]

The business case for developing market propositions may not be fully articulated yet, but there seems to be a happy marriage of a technology testing ground with very real economic and social benefits.

Conclusion: who picks up the bill?

There have been many impressive pilots demonstrating how a mobile phone could be used as a payment mechanism at the point of sale. Most such solutions are extremely customer friendly, and if offered for free, would probably see considerable uptake.

However, a compelling business case for how returns will be generated is still lacking. Most of the technology providers expect banks to pay because it will impress their customers. This analysis suggests the risk for banks outweigh the benefits. Some providers expect UK customers to pay for the functionality, but whilst some customers may do, the majority are unlikely to pay to use their mobile phones when every other payment form is free. The business case for operators to take share from banks through credit and pre-pay cards is misunderstood, and such initiatives would probably be value destructive. Consequently, investments in mobile point of sale technology in the UK market are unlikely to get much 'bang for the buck'.

The potential for mobile solutions outside the UK, notably in developing markets, seems altogether more attractive.
In particular, remittances act as a useful bridge between a long-term vision for mobile banking as a solution for under-banked populations and a short-term requirement for return on investment.
It is here where we expect many of our clients to focus their attention and investment spend, and this is where we will be directing our next m-payments point of view.

Notes

1 See for example: Dave Birch, Digital Money Blog, May 2007: "The Visa U.S.A. President John Philip Coghlan has said that wallet phones are 'inevitable'. And he's right, as I have consistently insisted."
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