Classifying m-payments – a user-centric model

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Keywords:
mobile payments, user-centric, categorization, mobile

Abstract
This study's objective was to develop a new model to classify mobile payment systems. Analysis of current classifying models revealed their lack of user's perspective. The new model proposed in this paper focuses on the consumer. The classification criteria have been derived from analyzing existing m-payment systems, and their distinct characteristics visible to the consumer. This new user-centric model will make is possible to discover more about consumers' motivations and preferences. Ultimately, key success factors leading to consumer's acceptance of a new m-payment system can be identified, and used to develop new successful systems.

1. INTRODUCTION

Mobile payments are still in an early stage of development. They have only been around for several years. However, there seem to be new systems appearing every month. Carat's (2002) analysis of the Electronic Payment Systems Observatory (ePSO) database revealed that in 2001 there were 34 systems that let consumers pay using their mobile phone; since then companies have launched many new offerings.

The existing solutions are extremely varied, employing different approaches and technologies. It is not unusual to see one company involved in several separate projects. Some systems have not even been deployed yet, as they are still in their design stage. A number of solutions have never progressed beyond the pilot stage. To add to the confusion, very few systems have been successful so far. To be able to make some sense of the current state of affairs in the m-payments field, researchers need classifying models that will organize the existing systems, and put some order in this chaos.

There have been several attempts to categorize m-payment systems. The existing models seem to focus on the underlying technologies, business models, and other characteristics that are important to providers. What is missing however is a model with a strong focus on the consumer, who is the key to acceptance of any new system. This paper proposes a new classifying model that aims to decompose the existing systems from the consumer's point of view. By classifying systems in this way, consumer's perception of each system can be analyzed. Researchers will be able to draw conclusions about which features make consumers accept the system, what their preferences are, which characteristics do not matter, and what should be avoided. Being able to classify systems from the consumer's perspective is the first step to further understanding of their motivations and expectations. The authors want to be able to identify the success factors leading to consumers' acceptance of new payment solutions.

Section 2 of this paper outlines the reasons for categorizing m-payments. Section 3 presents the methodology used in this research, while Section 4 analyzes existing categorizing models. A new user-centric model is proposed in Section 5, and its dimensions are described in Section 6. Section 7 provides

further details about each of the proposed criteria. The new model is used to classify some m-payment systems in Section 8. Finally, Section 9 gives an overview of future research based on the results of this study.

2. WHY CATEGORIZE M-PAYMENTS

Categorizing mobile payment systems lets researchers organize their knowledge. It put things into perspective, and reveals the big picture. It enables a better understanding of the current situation, and provides a summary of what is happening. Classifying reveals the current situation across many dimensions, so the view is complete.

A better understanding of the current situation is just a means to another objective. By understanding current solutions, system providers are able to analyze past mistakes, and learn from them. There have been many failures in the past. By categorizing systems it is easier to analyze those that failed because the characteristics they shared become visible. The same mistakes can be avoided.

Classifying m-payment systems not only lets researchers and practitioners learn from the past, but also predict future trends. Forces that drive the market can be observed. Without proper understanding of present systems and their distinct characteristics, there can be no success in the future. Drawing conclusions about what makes a successful system will not be possible without having some framework to divide the existing systems by. Through classifying systems, it will become visible which categories tend to be more successful than others, which work best in certain situations, and which are related to each other. The best practices can be identified.

Various systems can be compared easily if they are classified. It is best illustrated by Carat (2002) who cross-classifies data from the ePSO database. He finds out relations and trends, and is able to draw conclusions. The classification of systems in the ePSO database lets him find out answers to such questions as what percentage of various kinds of systems offer micropayments. Such meaningful comparisons may reveal opportunities and market niches to system providers.

3. METHODOLOGY

The focus of the initial literature review was on discovering existing classifying models of mobile payment systems. Academic databases were first used to search for papers that categorized m-payments. They did not return enough relevant results however, so the World Wide Web was used as a research vehicle to also identify industry developments.

Various m-payment portals including Cellular Online, ePaynews, and Mobile Payments World were consulted to find out about existing mobile payment systems. Official websites of these systems were then investigated. Online demos presented the systems as the user sees them. Distinct characteristics and features of various solutions were analyzed from the consumer's point of view. This led to the development of a set of criteria comprising a new classifying model. The model was tested using five existing m-payment systems, Paiement CB sur mobile, Mobipay, Vodafone m-pay bill, i-mode, and Paybox. The five systems were classified using the information found on their official websites.

4. CURRENT CATEGORIZING MODELS

There have been various attempts to categorize mobile payment systems. Some of them are based on very few criteria. The two categories of systems proposed by Seah et al. (2001) are devices with payment

applications, and devices without payment applications. Kountz's (2002) division is equally basic: by value of payments, settlement method, and content type. Schwiderski and Knospe (2002) only focus on one dimension: the whereabouts of the customer's money. The three groups include: electronic money stored on mobile device in file format (software-based), electronic money stored on smart card (hardware-based), and money kept on a background account. Because of such a small number of dimensions, such classifications are too limited to fully analyze the existing systems.

Buhan et al. (2002) propose a more detailed analysis. They believe that potential systems fall into the following categories: transaction settlement (pre-paid or post-paid), transaction type (pay per view, per unit, subscription), content type (ticketing, voting, digital goods, hard goods), and content value (micro or macro). To evaluate several current solutions the authors use a table where one more category is added: level of upgrade/customization needed (for consumer, merchant, PSP, or third party).

A more comprehensive view of the mobile payments market and its many dimensions is presented by Telecom Media Networks (2003). Systems are divided by means, size, seller/buyer origin, type of purchase, place of purchase, clearing or settlement method, type or transaction, time of payment, geography, and location of payer's account's details.

Ondrus (2003) reviews the existing classifications, and, as he finds them too restrictive, proposes a new multidimensional table. Its categories include: m-payment solution type (client-based, server-based, or hybrid), solution provider (MNO, financial, newcomer), relationship (B2C, P2P), location (F2F, remote), and payment time (pre, direct, or post). The system is not meant to be exhaustive; according to the author, it's meant to judge the flexibility and limitations of a system only.

A morphological box of mobile payment characteristics and instances is proposed by Kreyer et al. (2002). The characteristics they find necessary to classify in an m-payment solution are: payments scenarios, payment heights, involved parties, receiver of customer data, the need of pre-registration, technology required, basis of payment, payment frequency, deduction time, and method for settlement. While this categorization is more exhaustive than others, the authors admit that their system does not decompose existing systems into clusters and types. This makes drawing meaningful conclusions difficult.

Electronic Payment Systems Observatory attempted to create a database of all electronic payment systems (Carat, 2002). This includes internet payments, not just mobile payments. In 2001 they described 100 systems, 19 of which required a mobile phone. The inventory database categorizes each system as follows: initiated by (bank /near-bank, non-bank, mixed profile), status (pilot/announced/terminated), prepaid (smartcard based/software based/dedicated account), virtual accounts channeling systems, near bank (credit/debit), value (micro/macro), mobile payment or extended over mobile, cross border potential, user cost, loyalty scheme, real POS, virtual POS, and 'combined with electronic banking'. The categories do not seem to give a clear picture of each system. Many of them depend on the attributes of the preceding one. Some categories only require a cross in the table, whereas others list possible options. Still others include subcategories, which may or may not list further options.

5. USER-CENTRIC CLASSIFYING MODEL

The existing classifying systems focus on technological solutions, business requirements, and the like. The dimensions that seem to be repeated across the existing models include the location of customer's e-money, provider of settlement and clearing, technologies used, or involved parties. Few of these criteria are even apparent to the end user. If the classifying models are to help us find answers about mobile payments, they tell us little about the consumer's point of view. This is why a new classification model is

proposed here, and the focus on the consumer is what makes it different from the existing models. The dimensions are created from the user's point of view.

Why create such a user-centric model? Bradford (2003) points out that the most important component in mobile payments systems is the user. Any solution can only succeed if it provides the user with the right kinds of benefits. Usability of a new system is one of critical success factors in mobile commerce payments (Northstream, 2002). Usability determines whether consumers will start using an m-payment solution. Mobile usability tests (Duda et al.,2002) indicated that the leading determining factors for a general acceptance of mobile data services are the experienced utility and usability. The authors conclude that usability is therefore a strategic factor of success, as much as the benefit of the service for the user. Kreyer et al. (2002) support the statement that the consumer is the key for the acceptance of a new payment method by using credit cards example. They spread in Europe due to strong consumer demand, even though it forced merchants to pay 3-5% fees.

If eventually it is the consumer who decides whether or not a new system is accepted, it only seems logical to devise a classifying system from the consumer's point of view. There does not seem to be much focus on the user in the existing classifications. The location of consumer's e-money is crucial from the point of view of a provider. For the user however it may not matter much whether the information about their money is stored on a remote server, or inside their phone. What is more important to them is how easily they can access this money. Who provides clearing or settlement may be invisible to the user anyway. What they notice though is the brand of the system. Which technology is used to transfer data may be irrelevant to the consumer. They may care more whether they have to upgrade their phone to use the new technology.

The existing classifying systems are useful to find out about the possibilities and choices that system providers have to be aware of. But to find out more about the consumer's motivations, m-payment systems must be classified differently. If the focus is on the user while categorizing the existing solutions, system providers can discover what it is that the end-user wants. Only then will the providers be able to devise systems that are likely to be accepted by consumers.

Analysis of usability features in successful systems may reveal what the user acceptance factors are. The user's behavior and preferences can then be understood. Analyzing systems with the focus on the consumer will reveal which solutions appeal to users, and which make them accept or reject a system. After payment systems are categorized from their point of view, end-users' expectations can be understood better. Drawing conclusions about what makes consumers accept a system will not be possible without having some user-based classifying model to divide the existing systems by.

Such user-centric categorization will allow system providers to see how their systems are perceived by the consumer, comparing to those of their competitors. Some missing characteristics may be identified, and incorporated in the design. In the design stage this would allow to shape a new system better, and systems already deployed could be improved. For the user there is an obvious benefit of being able to compare various systems, and find out standards and trends.

Future research may lead to creating a user-centric framework of successful mobile payment systems. Clear identification of desired features in new systems will become possible.

6. DIMENSIONS OF THE NEW USER-CENTRIC CLASSIFYING MODEL

The new model proposes that m-payment systems are classified by a number of features apparent to the consumer. The dimensions chosen derive from the user's perspective. They represent the consumer's view of an m-payment system. The proposed dimensions include:

Change of phone requirement
Registration requirement
Available phone operating company to which the user has to subscribe
Available applications
Communication of consumer's number to start transaction
Communication of transaction details to user
Acceptance of transaction by user
Confirmation to customer
Payment occurrence
Brand visible to consumer
Value of payment
Registration fee (yearly)
Transaction cost for consumer
Time of transaction

Table 1. Proposed dimensions of the new user-centric classifying model

For each of the categories there is a set of possible options proposed. Some of the existing classifying systems presented in Section 4 leave the criteria open. The possible reason is that systems are so varied that it is too hard to find common characteristics. However, when one thinks about the purpose of such classifying models, which is to help analyze existing solutions, it makes more sense to use set criteria. Only then can systems be put into different groups and types, and common characteristics can be realized. Systems can be classified e.g. by "requiring WAP-enabled phone", "requiring new handset", or "not requiring a change of phone". Relations between various categories can be found. Not specifying available options would make it too difficult to find any common trends and characteristics later on. It is also much easier to complete the classification using the set options because it is only required to select one or many cells in the classifying table.

Another realization is that many new mobile payment solutions will appear in the future, so it is likely that new options will have to be added when they become available. This classifying model will have to evolve while new features of m-payment systems are invented.

7. DIMENSIONS AND AVAILABLE CRITERIA OF THE PROPOSED CLASSIFYING MODEL

7.1. Change of phone requirement
Some new solutions let consumers use their existing phones (e.g. Paybox, Simpay, or Mobipay). Their providers claim that such systems can be used from almost any mobile phone. Another option is that the consumer can keep using their existing phone, but only if it is WAP-enabled. When other new systems are introduced, they require the user to get a new handset that is able to handle the new kind of payment. New dual slot phones are required for Paiement CB sur mobile payments.

Classifying systems according to this dimension may reveal how the change of a device affects the consumer's acceptance of a new system. In some cases the new handset may provide benefits that will outweigh its initial cost. However, not having to purchase of a new mobile phone was rated as 'very important' or 'important' by 83% of respondents in Pousttchi's (2003) study on conditions for acceptance of m-payment procedures.

7.2. Registration requirement
In some cases the user does not have to register for a new system at all, and just use it when the need arises, for instance at a vending machine. Most solutions however require the user to register before they can use the system. There are various ways in which this can be done. Often the user can register online in minutes. Another option could be registering on the phone. mPark Australia offers the user both options, for example. Sometimes registration may be more demanding, requiring the presence of a new user.

The difference seems important since it may prove that the users would be more likely to use a system that does not require any registering and disclosing of their private details. On the other hand, this may be necessary to ensure the security of a transaction.

7.3. Available phone operating company to which the user has to subscribe
Some systems can only be used by the subscribers of a particular operator. To register for a Vodafone m-pay bill, one has to be a Vodafone customer, and provide existing Vodafone phone number. Some initiatives however are shared by several operators. Vodafone, Telefonica Mobiles, T-mobile, and Orange are creating Simpay system that will be interoperable across their networks. Mobipay in turn is supported by all Spanish mobile operators. Finally, it is also possible that the user's telephone operator is irrelevant, as is the case with Paybox.

7.4. Available applications
Payment systems differ considerably in the number of applications they offer. There may only be suited to one type of payment, or offer the whole range of possibilities. POS m-payment means that the user can pay using their mobile device while in a real store. Virtual POS is when they buy something online, whether it is on the fixed-line internet, or WAP. Mobile merchants are different than traditional stores because their location changes. This group includes taxi drivers. Some payment systems are designed specifically to facilitate paying for parking. Ordering tickets and reservations is another application. A payment system may only let the user pay for digital content on WAP-enabled sites, which includes ringtones, news, or songs (see Figure 1). .

Figure 1. Digital content offered by i-mode
(from i-mode demo at http://www.nttdocomo.com/corebiz/imode/try/imode.html)

A range of solutions offer payments at vending machines. Utility bills can be paid using some systems, while others let the consumer top up their pre-paid mobile account. One more application of m-payment systems is person-to-person transactions.

It could prove that a new system can only be successful if it offers a number of useful applications. An opposite scenario is possible however, where it may prove more beneficial to focus on one application best suited to m-payments.

7.5. Communication of consumer's number to start transaction

The customer often needs to communicate their mobile number to be able to pay. In some systems this step is not even required since the user initiates the transaction from their mobile phone, and their number is sent automatically (e.g. m-Pay Bill). In other cases the user may have to type in their number on the internet. The customer may need to communicate their number on the phone. They may even be able to scan or wave their handset at POS. Where this is not possible, they have to communicate their number verbally to the merchant (e.g. Mobipay). The division seems important since it affects the ease of use of a system.

7.6. Communication of transaction details to user

After the user has initiated the payment process, the details of the transaction are usually sent to them by SMS. In some cases however, their phone may ring requiring them to answer it, as is the case of Paybox. Some systems display the transaction details on the screen. Ease of use again is affected by the chosen solution.

7.7. Acceptance of transaction by customer

The user has to have a way of accepting the transaction details. This is usually done by using their PIN, which was selected during the registration process. Some systems also generate specific session codes sent to the user along with the transaction details. The customer has to provide this code along with their PIN.

Perceived security of the system is likely to be an important acceptance factor for the user. Their secret PIN can become the main assurance of security of the system to the user.

7.8. Confirmation to customer

A new system may not provide the user with any immediate confirmation that the payment has taken place. This could be especially true for very low-value payments. In some cases, a traditional receipt will be printed at POS. The most popular scenario seems to be the user getting an immediate confirmation by SMS, or displayed on the screen.

This is another feature that may increase the user's trust in the system. In Pousttchi's (2003) study, 89% of respondents indicated that confirmation of payment is important to them.

7.9. Payment occurrence

The paid amount could be deducted from the customer's prepaid account (e.g. M-Pay Bill or Simpay). In other cases it could be debited from their bank account, the details of which had to be provided during the registration (e.g. Paybox). In another scenario, the charge will only appear on the consumer's monthly phone bill. Yet another option is the transaction appearing on the user's credit card statement.

7.10. Brand visible to consumer

When the user performs the transaction, a brand of the system visible to them could be their financial institution. Some systems however provide an independent new brand, such as Simpay or Paybox. A brand could also be a phone operator company, such as Vodafone (see Figure 2).
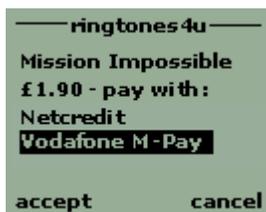
Figure 2. Consumer presented with a payment brand which is their mobile phone operator
(from Vodafone m-pay bill demo at http://mpay-bill.vodafone.co.uk/w_mpay.html)

The authors contend it would be worthwhile to find out what difference it makes to the user to see the familiar brand. The presence of trusted and familiar brand may increase perceived security of the system.

7.11. Value of payment
The division of payments into micro and macropayments has appeared in many existing classifications. Micropayments generally mean payments lower than $10. There are some systems however that can handle both low and high value transactions. Systems offering micropayments only are usually provided by mobile network operators.

7.12. Registration fee (yearly)
Some systems require the user to pay a registration fee (e.g. Paybox or i-mode). Even though some charge it monthly, the value presented here is yearly to be able to compare systems better. To be able to classify systems in groups, the possible options have been limited to below $15, and above $15.

7.13. Transaction cost for consumer
The registration fee is not the only cost consumers may incur. The user may be required to make a phone call to perform the transaction, and incur the cost of this call (e.g. mPark Australia). When the payment involves communicating the telephone number or PIN by SMS, the user may need to cover the cost of such messages. Some systems still impose separate fees for each transaction. It seems important to find out how much the user is prepared to pay to use a new system.

7.14. Time of transaction
An average cash transaction takes less than 10 seconds, while the average credit card transaction takes less than 30 seconds (Leung & Lieber, 2002). It seems logical to compare new m-payment systems to cash and credit card transactions, if they are to become a new alternative to the existing solutions. mPark in Australia claims that the payment process takes approximately 45 seconds. Some systems have a long average time of transaction, of over 1 minute.

8. CLASSIFICATION OF SOME EXISTING M-PAYMENT SYSTEMS

In order to test the viability of the proposed model, classification of several systems has been performed. Official company websites have been used to find out characteristics of the systems.

Proceedings of the Third International Conference on Mobile Business, M-Business 2004

Category	Criteria	Paiement CB sur mobile	Mobipay	Vodafone m-pay Bill	i-mode	Paybox
Change of phone requirement	None		X			X
	Any WAP-enabled			X		
	New handset	X			X	
Registration requirement	None					
	Online			X	X	X
	By phone					
	In person					
Available phone operating company to which the user has to subscribe	One			X	X	
	Several	X				
	All national operators		X			
	Any					X
Available applications	POS		X			X
	Virtual POS	X				X
	Mobile merchant		X			X
	Parking					
	Ticketing		X			
	Digital content			X	X	
	Vending machine		X			
	Utility bills	X				
	Pre-paid top-up	X				
	P2P		X			X
Communication of consumer's number to start transaction	N/A – initiated from the phone			X	X	
	Via internet	X				
	Phone call	X				
	Scan device		X			
	Tell merchant					X
Communication of transaction details to user	SMS	X				
	Voice call					
	Displayed on screen			X	X	
Acceptance of transaction by customer	PIN	X	X	X	X	X
	Session code					
	No special code required					
Confirmation to customer	None					
	Paper receipt					
	SMS	X	X			X
	Displayed on screen			X	X	
Payment occurrence	From pre-paid account		X			
	From bank account	X	X			
	On phone bill			X	X	
	On credit card statement	X				
Brand visible to consumer	Mobile operator			X	X	
	Financial institution					
	New brand	X	X			X
Value of payment	Micropayments		X	X	X	
	Macropayments	X				X
Registration fee (yearly)	None	X	X	X		
	<= $15				X	
	>$15					X
Transaction cost for consumer	None			X		
	Cost of phone call	X				
	Cost of SMS		X			
	Separate fee				X	X

Time of transaction	<average cash transaction (10 s)						
	<average credit transaction (30 s)			▓			
	30 sec – 1 min						▓
	over 1 minute						

Table 2. Classification of existing M-Payment systems

9. FUTURE RESEARCH

The researchers will aim to develop a framework, or a roadmap that will set out how to create a successful m-commerce payment system. A set of guidelines and best practices will be compiled. The new user-centric classifying model is the first step towards this goal since it makes it possible to analyze the existing systems from the consumer's point of view. Subsequently, it will enable the researcher to discover which features matter most to consumers, and what made some systems fail or succeed. User acceptance factors will be discovered. The findings could lead to the development of a prototype of an m-payment system that will incorporate all the recommended features.

REFERENCES

Bradford, A. 2003, *Consumers Need Local Reasons to Pay by Mobile,* Gartner. Available: http://www4.gartner.com/DisplayDocument?doc_cd=115603 [Accessed 15 April 2004].

Buhan, D., Cheong, Y. C. & Tan, C. 2002, *Mobile Payments in M-Commerce,* Telecom Media Networks. Available: http://www.capgemini.com/tme/pdf/ MobilePaymentsinMCommrce.pdf [Accessed 15 April 2004].

Carat, G. 2002, *ePayment Systems Database: Trends and Analysis,* Electronic Payment Systems Observatory (ePSO). Available: http://epso.jrc.es/Docs/Backgrnd-9.pdf [Accessed 15 April 2004].

DoCoMo Net – i-mode demo [Online]. Available: http://www.nttdocomo.com/corebiz/ imode/try/imode.html [Accessed 15 April 2004].

Duda, S., Schiessl, M. & Hess. J. M. 2002, *Mobile Usability,* Eye Square. Available: http://www.eye-square.de/dokumente/mobile-usability-eyesquare-english.pdf [Accessed 15 April 2004].

Hort, C., Gross, S. & Fleish, E. 2002, *Critical Success Factors of Mobile Payments,* M-Lab. Available: http://www.m-lab.ch/pubs/13_CriticalSuccess_MobilePayment.pdf [Accessed 15 April 2004].

Kountz, E. 2002, 'Mobile commerce: No cell, no sale?', *Card Technology, v*ol. 7, no. 9, pp. 20-22. Available: Proquest [Accessed 15 April 2004].

Kreyer, N., Pousttchi, K. & Turowski, K. 2002, *Standardized Payment Procedures as Key Enabling Factor for Mobile Commerce,* University of Augsburg. Available: http://www.forsip.de/download/publikationen/sipkis/wi-118.pdf [Accessed 15 April 2004].

Leung, S. & Lieber, R. 2002, 'Miles with your fries?', *Creditcardman.* Available: http://www.creditcardman.com/newsletter.html?nid=1247 [Accessed 15 April 2004].

Mobipay [Online]. Available: http://www.mobipay.com/en/home.htm [Accessed 15 April 2004].

mPark Australia [Online]. Available: http://www.mpark.com.au/mpark/index.jspx [Accessed 15 April 2004].

Northstream 2002, *Mobile Payments: Key Aspects for Launching Successful Service.* Available: http://www.northstream.se/download/mpayment.pdf [Accessed 15 April 2004].

Ondrus, J. 2003, *Mobile Payments: A Tool Kit for a Better Understanding of the Market,* University of Lausanne. Available: http://www.hec.unil.ch/jondrus/files/papers/ mpayment.pdf [Accessed 15 April 2004].

Paiement CB sur mobile, ePSO Inventory Database [Online]. Available: http://www.jrc.es/cfapp/invent/details.cfm?uid=13 [Accessed 15 April 2004].

Paybox [Online]. Available: http://www.paybox.net/demo/demo.html [Accessed 15 April 2004].

Pousttchi, K. 2003. *Conditions for acceptance and usage of mobile payment procedures, University of Augsburg.* Proceedings of M-Business 2003, Vienna, Austria.

Schwiderski-Groshe, S. & Knospe, H. 2002, *Secure M-commerce.* Available: http://www.isg.rhul.ac.uk/~scarlet/documents/Secure%20m-mommerce%20ECEJ.pdf [Accessed 15 April 2004].

Seah, W., Pilakkat, S., Shankar, P., Tan, S. K., Roy, A. G. & Ng, E. 2001, *The Future Mobile Payments Infrastructure- A Common Platform for Secure M-Payments,* Institute for Communications Research, Systems @Work Pte. Ltd. Available: http://www.itu.int/ITU-D/pdf/4597-13.3bis-en.pdf [Accessed 15 April 2004].

Simpay [Online]. Available: http://www.simpay.com [Accessed 15 April 2004]

Telecom Media Networks 2003, *Mobile Payments: Money in Your Hands.* Available: http://www.capgemini.com/tme/pdf/MobilePayments.pdf [Accessed 15 April 2004].

Vodafone m-pay bill [Online]. Available: http://mpay-bill.vodafone.co.uk/w_mpay.html [Accessed 15 April 2004].