

12-3-2011

Mobile Money and Payment: a literature review based on academic and practitioner - oriented publications (2001 - 2011)

Eduardo Henrique Diniz
FGV-SP, eduardo.diniz@fgv.br

João Porto de Albuquerque
University of Sao Paulo, jporto@icmc.usp.br

Adrian Kemmer Cernev
FGV, Adrian.Cernev@fgv.br

Follow this and additional works at: <http://aisel.aisnet.org/globdev2011>

Recommended Citation

Diniz, Eduardo Henrique; Porto de Albuquerque, João; and Cernev, Adrian Kemmer, "Mobile Money and Payment: a literature review based on academic and practitioner - oriented publications (2001 - 2011)" (2011). *GlobDev 2011*. 7.
<http://aisel.aisnet.org/globdev2011/7>

This material is brought to you by the Proceedings Annual Workshop of the AIS Special Interest Group for ICT in Global Development at AIS Electronic Library (AISeL). It has been accepted for inclusion in GlobDev 2011 by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Mobile Money and Payment: a literature review based on academic and practitioner-oriented publications (2001-2011)

By

Prof. Eduardo Henrique Diniz
eduardo.diniz@fgv.br
FGV-EAESP – Brazil
Fundação Getulio Vargas

Prof. João Porto de Albuquerque
jporto@icmc.usp.br
Department of Computer Systems (ICMC),
USP - Universidade de São Paulo, Brazil

Prof. Adrian Kemmer Cernev
adrian.cernev@fgv.br
FGV-EAESP – Brazil
Fundação Getulio Vargas

KEYWORDS: mobile money, mobile payment, financial inclusion, developing countries, literature review

ABSTRACT

The use of mobile technology has become widespread with astonishing speed all over the world, particularly among the poor. The more mobile phones go to the hands of people who formerly lacked access to financial services, the more the notions of mobile money, mobile payment and mobile banking become pervasive as a means of financial inclusion. Although there are more than 120 mobile money projects deployed in about 70 emerging markets (Beshouri et al. 2010), mobile payment has only taken off in a limited number of countries. This failure to disseminate a service with such a huge potential worldwide, shows that the reasons for the successful cases are not clearly understood, and as a result, are not being easily replicated. This paper seeks to fill this knowledge gap by providing a comprehensive literature review, which attempts to analyse significant experiences in this field, especially in developing countries. An investigation has been carried out of both academic, peer-reviewed articles and the available non-peer-reviewed practitioner-oriented publications, (a total of 196 papers – 94 peer-reviewed and 92 non-peer-reviewed – published in the period 2001-2011) to obtain information related to the actors and institutions involved in mobile money initiatives. In other words, the study addresses the

following questions: what is the driving-force behind these initiatives, what are the obstacles and the social and economic implications of their implementation. Thus, the aim of this review is to map out the existing knowledge on mobile money by pointing out the main sources of information on the subject, and defining the topics that are most frequently researched. In addition, it examines which locations most studies focus on, and which methodologies are being applied to these studies, as well as the determining factors and contexts of the published studies.

ACKNOWLEDGEMENTS

We would like to thank IDRC – International Development Research Centre for supporting this research, as well as our partners in this research project from STRO – Social Trade Organisation, for the inspiring discussions and helpful suggestions. Also, we thank Vithor Gomes Bertalan, Micheli Rogalski and Fábio Krauss Stabel who helped us on the searching and categorizing of the analyzed papers.

1. INTRODUCTION

The rapid rise in the growth of mobile technology throughout the world is a phenomenon that has been particularly remarkable among poor people, largely because of the prepaid model. As a result, all classes of society now have access to financial services as people become increasingly familiar with a mobile-money system.

In fact, mobile technology, viewed as a payment or banking channel, has the potential to allow two important questions to be addressed at the same time: on the demand side, it represents an opportunity for financial inclusion among a population that is underserved by traditional banking services. On the supply side, it opens up possibilities for financial institutions to deliver a great diversity of services at low cost to a large clientele of the poorest sections of society and people living in remote areas.

Although there are more than 120 mobile money projects being undertaken in about 70 emerging markets (Beshouri et al. 2010), mobile payment has only become a normal practice in a few countries, despite its huge potential. The lack of worldwide dissemination of a service with such a huge potential shows that successful cases are not clearly understood, and as a consequence, are not being easily replicated. This suggests that lessons are not being learnt from the places where the system has been successfully adopted. Furthermore, we suspect that the obstacles to its adoption in most countries are not being investigated deeply enough to allow implementation strategies to be employed on the basis of reliable business models. If these issues can be clarified, the potential social and economic impacts of mobile money can be more effectively measured and this can persuade policy-makers to create favourable regulatory environments for fostering the practice of digital payments.

In view of the importance of mobile money and payment initiatives, and the gaps in the current state of knowledge in the field, the objective of this paper is to provide a knowledge base on mobile money, based on a comprehensive literature review, and can be employed to identify significant experiences, together with the models being deployed around the world, especially in developing countries. Although there are literature reviews currently available both in the general context of mobile payment (Dahlberg et al., 2008) and in the field of mobile financing in developing countries (Duncombe and Boateng, 2009), the present work focuses on mobile payment/mobile money (as opposed to mobile financing in general) with a special stress on local

development (but not limited to works that deal with development or developing countries). This article also updates and substantially expands the existing literature reviews on the subject. While Dahlberg et al. analysed 73 peer-reviewed papers, and Duncombe and Boateng reviewed 43 research papers (17 peer-reviewed and 23 non-peer-reviewed), the present review examines a total of 196 papers (94 peer-reviewed and 92 non-peer-reviewed) published between 2001 and 2011.

The remainder of this paper is structured as follows: Section 2 outlines the theoretical background for this paper; Section 3 describes the methodology employed. Following this, the results are analysed in Section 4. Lastly, Section 5 discusses the results and makes some concluding remarks for the paper.

2. CONCEPTUAL BACKGROUND

Financial services provided through digital mobility technologies have multiple configurations, goals, and characteristics. Depending on the combination of agents, technologies and objectives, they may have banking features, which are known as mobile banking. They may also have transaction payment features, which are recognized as mobile payments. Finally, they may also replicate the concept of money with digital features, which is then called mobile money.

However the definitions of these concepts are not rigid and their delimitations are not very clear. In fact there is a considerable confusion with regard to the terms which are often used freely, regardless of their original meanings. This is the case with mobile payments: it may refer to bill payments, acquisition payments, or a transfer of financial resources or money between economic agents, and still come into the banking domain. In certain contexts, other concepts would be more appropriate, like mobile money, mobile transfer and/or mobile banking.

This confusion of terms is not restricted to mobile services, but also to their objectives. For example, the term “bankarization” has been used as a synonym for financial inclusion or even economic inclusion, although these concepts are quite distinct.

The wide use of these inaccurate definitions led us to establish an initial conceptual basis, to support the literature review. It should be stressed that the definitions given below are not the results of the review carried out in this paper, but was prepared as a preliminary phase on the basis of related work (Jenkins et al, 2008; Laukkanen et al., 2008; Shen, 2011).

Table 1: Definition of the main concepts employed in this research study

| Concept | Definition |
|-----------------------------------|---|
| <i>Mobile transactions</i> | This refers to transactions carried out through mobile technologies and devices. In addition to mobile payments, it includes every kind of mobile transaction offered by technology, whether it involves financial values or not. |
| <i>Mobile payments</i> | Mobile payments include payments made or enabled through digital mobility technologies, via handheld devices, with or without the use of mobile telecommunications networks. These payments are digital financial transactions, although not necessarily linked to financial institutions or banks. There are several models of mobile payments that are currently employed worldwide. |
| <i>Mobile banking</i> | Mobile banking can be understood as a set of mobile banking services, involving the use of portable devices connected to telecommunications networks that provide users with access to mobile payments, transactions and other banking and financial services linked to customer accounts, with or without the direct participation of traditional banking institutions. This concept can also be regarded as the banking channel through which the digital mobile services are provided by the institutions to their clients, i.e. by integrating the concepts of service and channel. |
| <i>Mobile money</i> | Electronic money – being essentially digital – has attributes related to mobility and portability, and is equivalent to mobile-money or mobile-cash. It can be differentiated from other means of electronic payment (such as credit cards, debit cards, smart cards, etc.) because of its ability to replicate the essential attributes of traditional money, such as: liquidity, acceptability and anonymity. Mobile money may be related to mobile wallet, which refers to a digital repository of electronic money developed and implemented on mobile devices, allowing peer-to-peer transactions (P2P) between mobile devices (M2M) from users of the same service. It is similar to a normal physical wallet and is able to store money and credit and debit cards. |

3. METHODOLOGY

This work is based on literature review, aiming to contribute to the progress of a specific substantive domain, as recommended by Bem (1995) and Webster and Watson (2002).

The first phase of the research consists of a comprehensive survey of the published literature on the question of “Mobile Money and Local Development”. The main objective is to map out the current state of knowledge on mobile means of payment and the bearing they have on social development, as reflected in relevant research publications. Since developments in this area have been greatly influenced by the activities of practitioners, in addition to traditional ‘academic’ sources (peer reviewed journals and conference papers), it is also important to take account of practitioner-oriented, non-peer reviewed sources (such as consultant’s reports, official reports, and other occasional and published papers) (cf. Duncombe and Boateng, 2009).

Hence, the aim of this mapping of the existing literature is to identify what has been published about the subject (i.e. different contexts and research results), how the research has been conducted (i.e. the methodological approaches employed), and why they have been produced (i.e. the underlying reasons and main objectives), as well as the question of where the studies are targeted (i.e. the geographical locations).

In the pursuit of this goal, the search for relevant publications was divided into two subgroups: (a) papers in peer-reviewed, indexed journals and conference proceedings; (b) publications from non-peer-reviewed, practitioner-oriented sources. The methodological procedures employed for each of these groups are correspondingly described in the following sections.

3.1 Peer-reviewed publications

In the case of the peer-reviewed publications, the strategy adopted to search for relevant publications was a keyword-based search in the most important academic reference and research indexes, databases, and digital libraries. As a first step, the terms "mobile money" and "mobile payment" were defined as keywords that might be present in the title or the abstract of relevant peer-reviewed journal and conference publications. The sources for this search, along with the corresponding number of papers found for each of the selected keywords, are shown in Table 2.

After examining the abstracts of the articles that resulted from the first stage of the search outlined above, only those articles were selected that came within the scope of the research - "the impact of mobile money on local development". Most of those articles contain the keywords, but have no direct relation to the scope of the research (e.g. they only mention the keywords being sought *en passant* whilst discussing a different topic). As the result of this filtering process, a list of 63 relevant articles was selected for closer examination.

After examining the abstracts of the articles that resulted from the first stage of the search outlined above, only those articles were selected that came within the scope of the research - "the impact of mobile money on local development". Most of those articles contain the keywords, but have no direct relation to the scope of the research (e.g. they only mention the keywords being sought *en passant* whilst discussing a different topic). As the result of this filtering process, a list of 63 relevant articles was selected for closer examination.

Table 2: Results of the first search for indexed peer-reviewed publications

| Source | Keyword | Results |
|--|----------------|--------------|
| ACM Digital Library | mobile money | 42 |
| | mobile payment | 346 |
| AIS Eletronic Library – AISEL | mobile money | 491 |
| | mobile payment | 403 |
| CAPES database ¹ | mobile money | 242 |
| | mobile payment | 240 |
| EBSCO Academic Search Premier | mobile money | 10 |
| | mobile payment | 49 |
| EBSCO ISTA | mobile money | 0 |
| | mobile payment | 2 |
| IEEEExplore | mobile money | 231 |
| | mobile payment | 449 |
| INFORMS - Information Systems Research | mobile money | 115 |
| | mobile payment | 17 |
| ISI Web of Knowledge | mobile money | 19 |
| | mobile payment | 442 |
| SCOPUS | mobile money | 7 |
| | mobile payment | 281 |
| Total | | 3386* |

* The total includes papers that are repeated in various sources and contain both keywords.

An initial analysis of the 63 selected articles revealed that most deal with the situation of developed countries and rarely address social and development issues. For this reason, a set of another 15 journals (listed in Table 3) was selected to cover sources that are not indexed in the databases referred to above, but are directly related to Information and Communication Technologies and Development, and thus could better address the project focus on local development.

A new search was undertaken in the journals from Table 3 using the same keywords “mobile payment” and “mobile money”, but also supplemented with the search string “(financial inclusion) AND mobile”, so as to maximize the coverage of development-related works. On the basis of this new search, 55 articles were found. The abstract of these articles was screened to select only those articles that would come within the scope of “the impact of mobile money on local development”, which resulted in 31 new articles being selected.

¹ CAPES [Federal Agency for Support of Post-graduate Education] is a department of the Brazilian Ministry of Education that is responsible for post-graduate education programmes. It currently keeps a database of more than 29 thousand journals, the complete papers of which are available for all public higher education institutions (<http://periodicos.capes.gov.br>).

Together with the 63 articles selected in the previous stage, a final set of 94 articles was selected for more detailed analysis, as explained in the following section. The complete list of peer-reviewed papers analysed can be found in Annex 1.

Table 3: Journals with a specific focus on ICT for development

| | Journal Title |
|----|---|
| 1 | African Journal of Information & Communication Technology |
| 2 | African Journal of Information and Communication |
| 3 | African Journal of Information Systems |
| 4 | Asian Journal of Communication |
| 5 | Asian Journal of Information Management |
| 6 | Asian Journal of Information Technology |
| 7 | Electronic Journal of Information Systems in Developing Countries |
| 8 | Information Development |
| 9 | Information Technologies and International Development |
| 10 | Information Technology for Development |
| 11 | International Journal of Education and Development Using Information and Communication Technology |
| 12 | International Journal of Information Communication Technologies and Human Development |
| 13 | International Journal on Advances in ICT for Emerging Regions |
| 14 | Journal of Health Informatics in Developing Countries |
| 15 | South African Journal of Information Management |

3.2 Non-peer-reviewed publications

The choice of the sources for non-peer-reviewed publications was made in two stages: first, the researchers listed the available publications in the web portals of the organizations that are directly related to the topic “Mobile Money” and which were already known to the researchers. During the analysis of the articles carried out in this first stage, the additional research sources that were referenced in the articles were selected for a second stage of the analysis, in which a search using Google Scholar search engine (<http://scholar.google.com>) was conducted, that led to other articles that have not yet been analysed.

Since many of these sources have a large knowledge base with an associated keyword-based search mechanism, the same keywords were used that had been defined for the peer-reviewed publications (see Section 3.1). In this manner, more than 530 articles were identified and ordered in degrees of importance and in accordance with an initial evaluation. The search for articles and materials was pursued until the researchers could not find any further publications that could be linked to the project goal.

In the CGAP knowledge base, the articles were analysed in the order in which they appear in the search engine's response until the 100th position. In each of these articles, other relevant features were found and analysed, such as hyperlinks to CGAP (both internal and external). Each article contained from zero to five other relevant references. Thus, more than 200 articles were effectively analysed in the CGAP database during this stage of the work.

Table 4: Results of the search for non-peer-reviewed publications

| Source | Number of articles |
|-------------------------------|--------------------|
| CGAP | 200 |
| Gartner Group | 40 |
| GSM Association | 50 |
| Google Scholar (mobile money) | 100 |
| Google Scholar (e-money) | 100 |
| Others | 40 |
| Total | 530 |

There is no search engine inside the GSMA portal that is effective enough to allow us to, replicate the method described above. Thus, the content (web pages showing cases and discussing the subject) was analysed during the visits to each relevant section. As a result, nearly 50 articles were identified and analysed in this portal. The number of analysed articles in each source, as a result of this procedure, is shown in Table 4. Out of these 530 publications (including articles, white papers, webpages and multimedia content), 92 were selected to form the non-peer-reviewed corpus. The complete list of non-peer-reviewed papers can be found in Annex 2.

3.3 Analytical Procedures

For a detailed analysis of the *corpus* of 94 selected articles, the first step was to define the dimensions of the analysis, i.e. the dimensions through which each of the articles would be classified. The initial set of dimensions was drawn from a list contained in the project, which in

turn was obtained from a 'brainstorming' session by the researchers in the planning stage. This initial list was subjected to a validation test in which three different researchers read each of three papers from the corpus and tried to classify them in accordance with the dimensions. Following this, the results were shared and the suitability of the dimensions was discussed at a meeting; this led to a final set of 17 dimensions, listed in Table 5.

Table 5: List of Dimensions from the Analysis

| | Dimension | Meaning |
|----|--------------------------------|---|
| 1 | Title | Title of the article |
| 2 | Author(s) | Authors of the article |
| 3 | Institution(s) | Institutions of the authors |
| 4 | Year of Publication | Year of publication |
| 5 | Source Title | Title of the Journal or Conference in which the paper appears |
| 6 | Type of Paper | Journal/Conference |
| 7 | Location | Geographical location of the object of study |
| 8 | Motivation/Objective | Main goal of the article |
| 9 | Actors | Most important groups of actors/institutions mentioned |
| 10 | Inter-organizational Processes | Main processes that link the actors together |
| 11 | Technological Infrastructure | Statements about the technological infrastructure of the MM initiatives |
| 12 | Services | Services offered in an MM initiative |
| 13 | Socioeconomical Implications | Socioeconomical Implications of MM |
| 14 | Legal Factors | Regulations and legal factors involved |
| 15 | Obstacles to Implementation | Obstacles to the implementation of MM |
| 16 | Methodology | Methodology employed in the study |
| 17 | Relevant Results | Summary of the most relevant results |

Each paper in the corpus was analysed by a researcher and tabulated in each of the 17 analytical dimensions listed in Table 5. This tabulation was conducted by picking quotations from the corresponding paper that matched a certain dimension and/or adding the researchers' own comments. The only dimensions that were filled in were those in which the paper made significant contributions.

The final stage consisted of an analysis of the resulting tabulation with the aim of identifying common features and groups of similar articles in the different dimensions. As a result, the five dimensions listed in Table 6 were selected for categorization. In Table 6, the first item includes the reference dimensions, i.e. the dimensions that are used to identify each paper: who wrote it (author), when (year), where it was produced (institution), and where it appears (source title and

type of publication). The criterion for the selection of the remaining dimensions (2 to 5) was the prospect they offered of producing significant groupings, i.e. dimensions in which the papers could be put into subgroups that contained more than five similar papers. Each of these subgroups was then identified by a category name, which was inductively defined from the analysis of the tabulation.

Finally, each peer-reviewed paper in the corpus was coded by means of the categories in Table 6. The final codification was thus used as a basis for producing the graphics and for drawing the conclusions outlined in Section 4. During the final stage of the analysis, i.e. the categorization, the researchers realized that the categories inductively defined for the peer-reviewed *corpus* were not very applicable to the non-peer-reviewed publications. Hence, there is a need for a new categorization, which is planned for further work in the future. Furthermore, while undertaking the literature review, we also detected that there are a significant number of papers that deal with the topics on mobile payment/ money but use the term “mobile banking”, and thus had been left out of the current review. This variation in terminology should also be taken into account in any future work.

Table 6: List of dimensions and corresponding categories

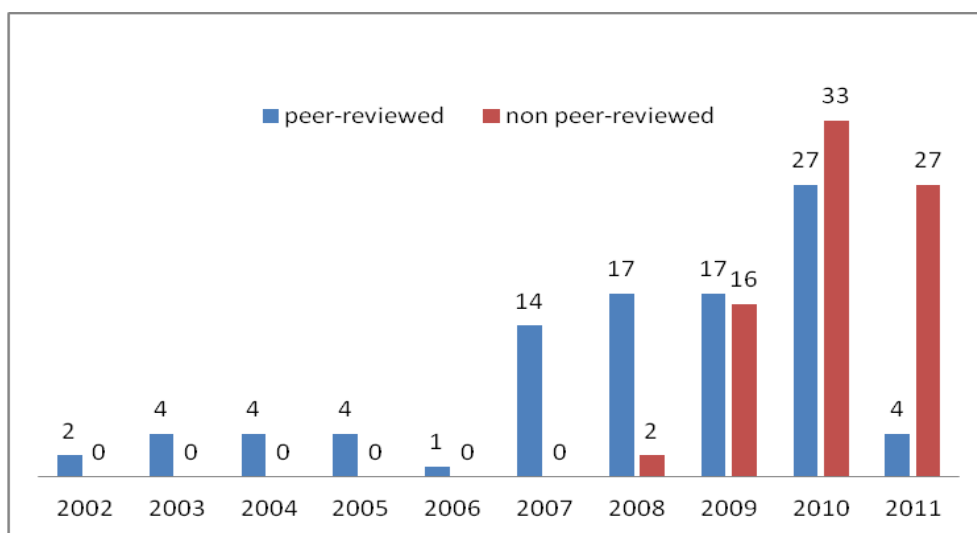
| | |
|---|---|
| <p>1. Author(s), Institution(s), Year of Publication, Source Title, Type of Publication: reference dimensions</p> <p>2. Location:</p> <p>2.1 USA, Europe and Japan</p> <p>2.2 Africa</p> <p>2.3 Latin America</p> <p>2.4 China and India</p> <p>2.5 Other Asian/Oceania Countries</p> <p>3. Application Context</p> <p>3.1 Consumer adoption</p> <p>3.2 Merchant adoption</p> <p>3.3 Market analysis</p> <p>3.4 Technical frameworks/approaches</p> <p>3.5 Technological factors</p> <p>3.6 Analysis of failures</p> <p>3.7 MM for the BoP</p> | <p>4. Methodology</p> <p>4.1 Case study: empirical research</p> <p>4.2 Case study: based on secondary data</p> <p>4.3 Survey</p> <p>4.4 Experiment</p> <p>4.5 Focus groups</p> <p>4.6 Research design: development of new technology/processes</p> <p>4.7 Theoretical essay</p> <p>4.8 Review of existing research</p> <p>5. Barriers to implementation</p> <p>5.1 Technological/security/limitations of user interface</p> <p>5.2 Lack of Infrastructure (electricity, mobile coverage etc.)</p> <p>5.3 Unwillingness of consumers and merchants to adopt / Lack of trust</p> <p>5.4 Lack of Standards / interoperability</p> <p>5.5 Regulations / Legal framework</p> <p>5.6 Problems of Scale / Network Effect</p> <p>5.7 High Costs / Overhead</p> <p>5.8 Lack of cooperation between market players</p> <p>5.9 Lack of knowledge of m-money/m-payment</p> <p>5.10 Low Levels of Literacy and Financial Education</p> |
|---|---|

Especially for the analyses of the non-peer-reviewed articles, we also used the "Tag Clouds" method. It was mainly used to allow an analysis to be conducted of the items for which we could not find a reasonable categorization. A Tag Cloud is a graphical representation of words and terms, and is used to draw attention to a feature that is more expressive than others, and also to facilitate access to related content, by providing a visual summary of the contents of the database (Sinclair & Cardew-Hall, 2008). In our case, the criterion for the relative highlighting of terms was the frequency with which the terms appear in the chosen quotations for a certain analytical dimension, so that the generated Tag Clouds allow us to become familiarized with the main issues dealt with in the analysed articles.

4. RESULTS

Figure 1 shows the distribution of the papers that were analysed for this review in the period from 2002 until the first half of 2011 (although the timeframe defined for the review was 2001-2011, the search results did not include any paper published in 2001). It clearly shows that mobile payment/money is a recent phenomenon, a fact that is borne out by the significant and continuous increase in the number of publications since 2007. It should be noted that although the review was only able to cover the first half of 2011 (the current point in time), there has already been a large number of papers on the subject published this year, especially from practitioner-oriented sources.

Figure 1: Distribution of the analysed papers over a period of time



In addition, the analysis of non-peer-reviewed publications only began in 2008. This can be explained, on the one hand, by the fact that the sources for these publications were mostly web sites, which tend to focus on updated, recent articles rather than on historical records of past publications. On the other hand, the selection process we used for non-peer-reviewed publications (see Sect. 3.2) may also have prioritized more recent publications, since they are usually ranked higher in the web search engines used.

4.1 Peer-reviewed papers

The analysis of the selected peer-reviewed papers offers some interesting insights as regards the location of the studies published in the reviewed papers. On the top of the list is Kenya with 10 papers, which should not come as a surprise in the light of the success of the paradigmatic M-PESA case. China is second in the ranking, with 9 papers, which can be explained by the large number of Chinese institutions publishing in the area. The list of countries analysed in 5 or 4 papers of the corpus includes Finland, India, the Philippines, South Africa, and USA. The Philippines and South Africa are most likely included because of their recent initiatives in mobile money /payment, while Finland, India and USA provide the context of the studies carried out by the prolific number of their institutions in the field. It should be pointed out that our attribution of location to a paper is not exclusive – i.e. it can handle two or more location categories at the same time; conversely, not all the papers can be attributed to a location category but only those that mention a specific country/region as their object of study.

Table 7: Location of studies in peer-reviewed papers (categorized)

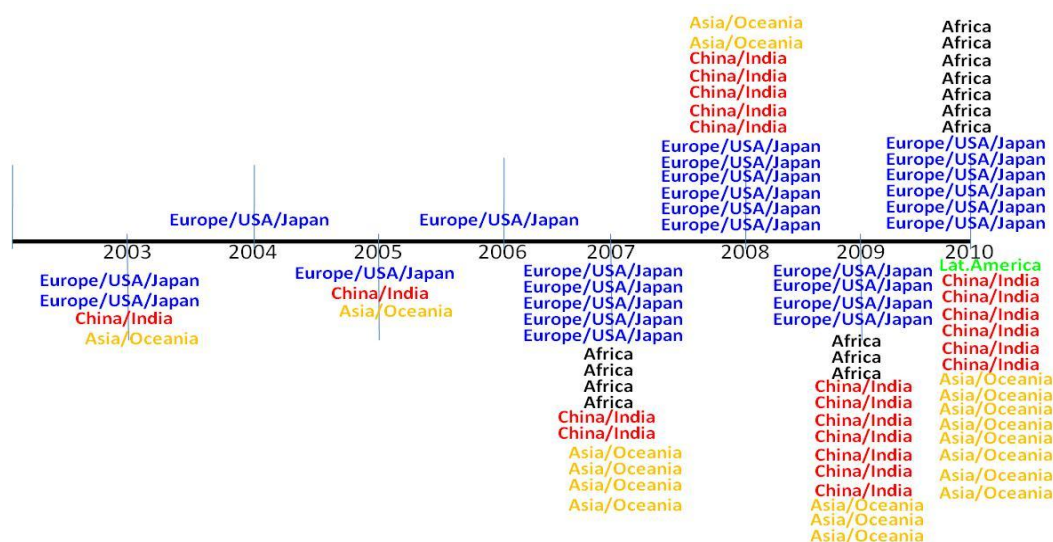
| Location | Papers |
|-------------------------------|--------|
| USA, Europe and Japan | 26 |
| Africa | 14 |
| Latin America | 1 |
| China and India | 22 |
| Other Asian/Oceania Countries | 21 |

By analyzing the location of the studies grouped into categories (Figure 2 and Table 7), it can be seen that what is mainly addressed is the situation of developed countries (in the category of countries like Europe/USA/Japan) with 26 papers, followed by a significant number of articles (22) that address today's two largest emerging economies (China and India); additionally, 21 papers study many other different countries in Asia and Oceania. As for the situation of

developing countries, African countries are cited in 14 papers, while – quite surprisingly – only one of the analysed papers was targeted at Latin America.

Figure 2 shows the distribution of the location of the studies in the analysed papers of the specific period, and makes clear that the growing number of studies since 2007 (already referred to above) was accompanied by a trend which sought to broaden the spectrum of countries addressed, including more studies on China/India, and other Asian/Oceania countries. One of the most notably difficult is, Africa which has been included as an object of study in mobile payment/money articles since 2007, probably due to the spread of knowledge about the success of individual cases like Kenya.

Figure 2: Peer-reviewed papers: location of studies



With regard to the methodology employed (Table 8), most of the peer-reviewed articles that were analysed, consist of essays (i.e. articles that set out and/or analyze a situation in a theoretical manner, without a more extensive discussion of specific cases and/or undertaking of other types of empirical research). Other methods that are used by many of the analysed articles include surveys (27 articles) and case studies (24 articles). The latter are subdivided into analyses based on self- conducted empirical research (13 articles) and case studies relying upon secondary data (11 articles). In this context, the term case study is broadly used to cover all kinds of analyses of specific cases (that are mostly countries), but do not always entail rigorous methods. In future work, it would be worth refining the analysis of these cases to evaluate the rigor of the research methods used, and to allow a more satisfactory estimate to be made of the power and extent of their conclusions.

Table 8: Peer-reviewed papers: methodology of studies

| Methodology | papers | % |
|--|--------|-----|
| Case study: empirical research | 13 | 14% |
| Case study: based on secondary data | 11 | 12% |
| Essay | 32 | 34% |
| Experiment | 1 | 1% |
| Focus groups | 2 | 2% |
| Research design: development of new technology / processes | 3 | 3% |
| Review of existing research | 5 | 5% |
| Survey | 27 | 29% |

Table 9 makes a cross analysis between the methodology employed by the peer-reviewed papers analysed versus the location of their objects of study. Here, it is evident that most case studies, whether based on secondary data or on empirical research, were conducted in developed countries (9 in USA/Europe/Japan), although Africa also appears as a frequent location for case studies with 8 papers. As for China/India and Other Asian/Oceania countries, although in total the number of papers that deal with them is closer to USA/Europe/Japan (see Table 7), in terms of methodology they are distributed in a different way, since there are relatively fewer case studies on China/India (6 articles) and other countries in Asia/Oceania (5 articles) – in these two latter categories, surveys are most often relied on as the methodology. The complete absence of empirical studies of any kind on Latin America or Arab countries is remarkable.

Table 9: Peer-reviewed papers: methodology vs. location

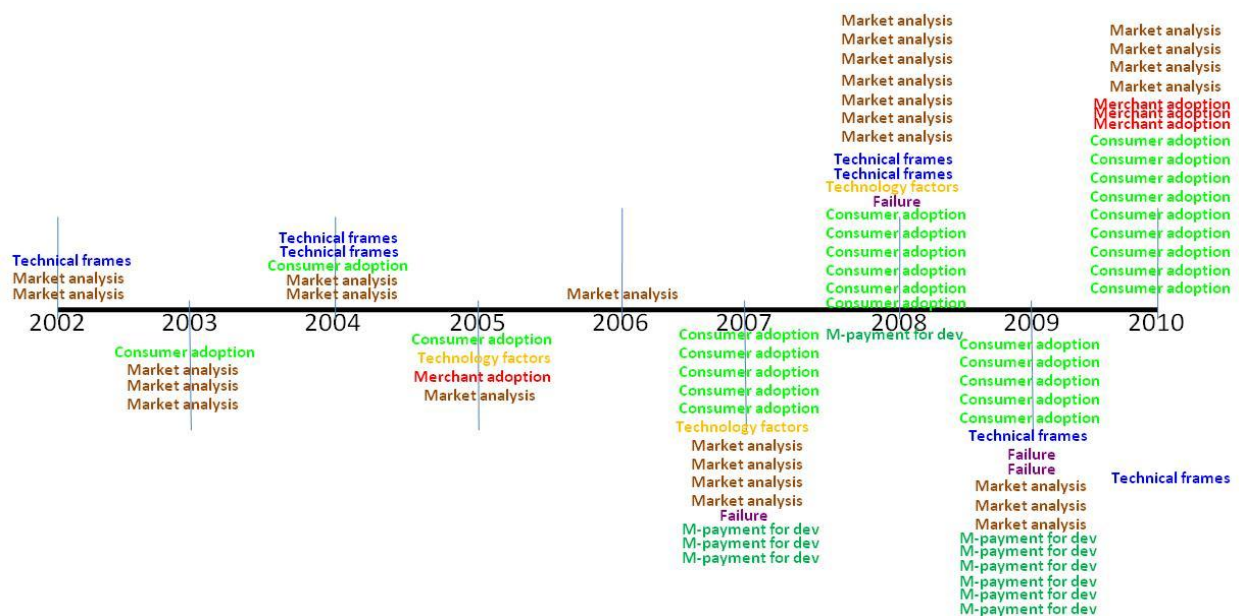
| Methodology | USA/Europe /Japan | Africa | Latin America | China/ India | Asia/ Oceania |
|---|-------------------|--------|---------------|--------------|---------------|
| Case study: empirical research | 7 | 4 | 0 | 5 | 3 |
| Case study: based on secondary data | 2 | 4 | 0 | 1 | 2 |
| Essay | 7 | 4 | 0 | 6 | 2 |
| Experiment | 0 | 0 | 0 | 0 | 1 |
| Focus groups | 2 | 0 | 0 | 0 | 1 |
| Design research: develop. of new technology | 0 | 0 | 0 | 1 | 0 |
| Essay | 7 | 4 | 0 | 6 | 2 |
| Review of existing research | 0 | 2 | 1 | 1 | 2 |
| Survey | 6 | 3 | 0 | 8 | 10 |

With regard to the main areas investigated by the surveyed studies, consumer adoption, market analysis and mobile money and payment for the poor are the most common issues addressed (see Table 10). Many of the consumer adoption studies commonly use theoretical models on ‘technology acceptance’ like TAM (Technology Acceptance Model) and its succeeding variations, to identify the factors that may influence the adoption of mobile money/payment technology. As for Market Analysis, this is a label that covers a wide range of studies that, in some ways, discuss the prospects and, forms of the mobile money/payment market and/or obstacles to it.

Table 10: Peer-reviewed papers: Key focus themes

| Context | papers | % |
|-----------------------------------|--------|-----|
| Consumer adoption | 29 | 30% |
| Market analysis | 27 | 28% |
| MM for the BoP | 23 | 24% |
| Technical frameworks / approaches | 7 | 7% |
| Merchant adoption | 4 | 4% |
| Analysis of failures | 4 | 4% |
| Technological factors | 3 | 3% |

Figure 3: Peer-reviewed papers: Key focus themes



By analyzing the distribution over a period of time in Figure 3, it is clear that the way Mobile Money / Mobile Payment reaches the Bottom of the Pyramid (or is used for development) has been established as a serious issue since 2007, and coincides with the point in time at which research studies began covering typical developing countries (e.g. Africa, see Fig. 5) – a fact that may also be due to the widespread knowledge of the Kenyan case.

Only half of the analysed papers mention any obstacles to the implementation of mobile payment initiatives. The main drawbacks that are mentioned concern technological issues (e.g. security, interface design) and the unwillingness to adopt them (by consumers or merchants), each of them mentioned in 16 papers (Table 11). The lack of acceptable standards leading to interoperability problems, and a lack of knowledge of mobile payment are mentioned by 10 papers.

Table 11: Peer-reviewed papers: obstacles to implementation

| Obstacles to implementation | papers | % |
|---|--------|-----|
| Technological/security / user interface limitations | 16 | 18% |
| Lack of Infrastructure (electricity, mobile coverage etc.) | 5 | 6% |
| Unwillingness of consumers and merchants to adopt / Lack of trust | 16 | 18% |
| Lack of Standards / interoperability | 10 | 11% |
| Regulations / Legal framework | 7 | 8% |
| Problems of Scale / Network Effect | 6 | 7% |
| High Costs / Overhead | 8 | 9% |
| Lack of cooperation between market players | 4 | 5% |
| Lack of knowledge of m-money / m-payment | 10 | 11% |
| Low Levels of Literacy and Financial Education | 3 | 3% |
| Other | 2 | 2% |

A cross-analysis between obstacles to implementation and location of studies is shown in Table 12. An interesting - albeit understandable - result is that whereas in developed countries technological limitations and the unwillingness of consumers and/or merchants to adopt are mostly cited, in the case of African countries, regulations and high costs appear as the most important obstacles to implementation.

With regard to socioeconomic implications, the high degree of dispersion of the topics mentioned in the analysed papers, did not allow us to make a significant categorization. For this reason, we decided to offer a visual presentation of the socioeconomic implications in the form of a tag cloud generated from key phrases taken from the analysed publications (Fig. 4).

One of the curious findings is that the word "success" is given prominence. This may mean that those articles cover cases of success or initiatives related to the subject "mobile money", although few articles analyze the documented initiatives in a critical way.

When it comes to the obstacles to the implementation and success of the mobile money services, the non-peer-reviewed articles show that the key constraints mainly apply to the following categories:

- *Users*: user adoption and experience, mainly related to security, privacy, trust, fraud and risk perception. It also includes psychological inhibitions caused by the technology and new services.
- *Business Models*: business model problems arising from, restrictions and complexity, including obstacles to adoption and the need for an ecosystem with multiple operators and relations. This category also includes the remuneration and commissions of agents paid to resellers (the problem may be either the large or small amount of commission paid).
- *Suppliers*: lack of infrastructure and service coverage (availability and capillarity); need for new skills on the part of the agents; competition with traditional (formal and informal) service providers; and lack of banking expertise.
- *Price/Cost*: on the user side, the constraint may be the cost and price of devices and services; on the supplier side, the problem is the financial sustainability of the initiatives. This category also includes the difficulties of remaining price competitive for low-value transactions.
- *Regulation*: the need for public regulation, especially to enable innovative business models in highly regulated environments.

Other restrictions and obstacles were also identified, such as: conservatism (opportunities for new services, different from traditional banking services); economic constraints; and a specific market context.

It is also worth noting that the female dimension was often discussed and highlighted, because of its important role in social development strategies.

The “results of mobile money” (initiatives, concepts, and business cases) have been discussed in non-peer reviewed articles. However, although many articles stated that "mobile money" is a reality in several contexts and countries – and usually mentioned the M-PESA case in Kenya –

most of them still viewed "mobile money" as an opportunity or prospect for the future. In other words, despite the potential of mobile money, it will not be achieved immediately.

Mobile money has been considered to be an important MNO strategy, mainly on account of its churn reduction, but also because it offers a potential new source of revenue for the MNOs. Thus, even though mobile money is a small fraction of the total MNO revenue today, it may be a long-term opportunity if some of the profitability issues can be solved.

In addition to the obstacles and restrictions discussed earlier, the results also mentioned the following: the lack of effective marketing efforts; the profitability of the mobile money business models (including consumer pricing, cost reduction strategies for customers; financial sustainability; and the way that the services are priced and perceived by the users); liquidity factor for agents; public regulations; and the need to reach scale. For many authors, mobile money is still a very complex service, which must be simplified before it may become a useful financial service for mass users.

Whether viewed as an obstacle or an opportunity, the results show that consumer trust is an essential attribute for the adoption and effective use of mobile money services, and its construction may involve various measures from simple marketing initiatives to profound changes in business models.

5. DISCUSSION AND CONCLUSION

This paper has extensively analysed academic and non-academic papers related to the important topic of mobile money. After searching significant sources to identify who (researchers and institutions) is publishing what (the related topics) and where (the countries studied, journals and databases), this paper has attempted to provide a comprehensive picture of the knowledge production and dissemination of mobile for payments around the world.

By examining peer-reviewed and non-peer-reviewed papers from relevant academic and non-academic sources, we sought for information related to mobile money and payment that could help us to understand the following dimensions: the interactions between the different actors involved in these initiatives; the factors that impeded or encouraged their adoption; the main services delivered; the effects on local flows of money; legal and regulatory environments as well as the role of authorities; and related issues of gender behaviour.

Although a fairly extensive search was carried out on almost two hundred papers, which can be considered to be very representative of the publications on mobile money and payment, we found that little attention had been paid to the dimensions we searched for. This gap in the literature helps to explain why a service with such a huge potential has not been disseminated worldwide. This failure includes the following factors: the fact that successful cases are not clearly understood, and as a result, are not being easily replicated; the problem that obstacles and unsuccessful cases are, in most countries, not being investigated in sufficient depth to allow implementation strategies to be based on reliable business models; and the fact that the potential social and economic effects are not being assessed properly with the result that the policy makers are not convinced of the need to invest heavily in fostering favourable regulatory environments for digital payment.

At the same time, the literature review revealed the most important issues currently being investigated by specialists in the field with regard to mobile money and payment, and thus allowed us to understand the main contribution they can make to this area of study. This information can act as a starting- point for drawing up a research agenda that can be adopted by academics, policy makers and practitioners concerned with the subject of mobile payments.

Furthermore, some clear gaps in our knowledge of mobile payments were discovered by the research and analysis. Some of these gaps represent important issues that can be explored in future research in the field. Similarly to Duncombe and Boateng (2009), the present literature review confirms the same gaps pointed to by those authors (geographical, methodological and conceptual), even analyzing a more comprehensive sample. It was confirmed the existence of an important theoretical gap related to the central themes of study in the analysed articles: an expressive portion of them focuses on issues such as adoption or market analysis, neglecting other relevant themes, such as regulation and effective socio-economic impacts. Even among the studies focused on consumer adoption, there is a significant concentration on a few theories: many of them use theoretical models like TAM (Technology Acceptance Model) and its variations, aiming to identify the factors that may influence the adoption of mobile money and payment, denoting another theoretical gap.

In addition, the studies are concentrated in a few cases/countries, with emphasis on Kenya and the Philippines, although there are experiences in dozens of other countries (Beshouri et al. 2010). Thus, an important geographic gap is evidenced, because although there are emerging

mobile money/payments initiatives worldwide, academic and non-academic production does not cover them adequately, as is the case of emerging initiatives in Latin American countries. On the peer-reviewed papers side, this situation might be attributed to the relative absence of Latin American researchers in the mainstream of academic journals, which are largely dominated by researchers from developed countries. On the other hand, the emergence of studies in Africa and Asia is a striking feature and suggests that the experiences in these countries have attracted more interest from researchers in developed countries. As other non-academic research institutions and consultancy firms have embarked on their publishing activities on this subject later than the academic institutions, the influence of such cases in Africa, for example, has become dominant. The low economic and social importance attached to mobile payment experiences in the region – such as the case of Daviplata, in Colombia and Paggo, in Brazil, for example – might also be related to the limited ability of banks, MNOs and regulators to understand regional peculiarities concerning mobile payment models. This situation opens up opportunities for researchers to turn their attention to this issue and carry out in-depth investigations in the region.

As an example of track research that can also be followed by researchers, current experiences of financial inclusion can point to correspondent banking networks, which had been successful in developing alternative payment channels for the poor in countries like Brazil, Colombia and Peru, for example, long before mobile payment models became a part of the international agenda (Diniz et. al. 2011; Mas 2009; Kumar et. al. 2006). Although different in many ways from one another, the correspondent and mobile payment systems require a complex web of relationships among a wide range of actors to deliver financial services to an underserved part of the population, which is at the same time supported by a strong regulatory environment. Understanding the process of building such a complex network of relationships could be helpful to mobile money researchers in at least two ways: first to encourage an analysis to be conducted of the actors' interactions that made it possible for this complex network to grow in countries in the region; and second to seek opportunities to include the use of mobile devices in the correspondent model, since it is still based on a system of cash payments, which is clearly an inefficient method that must be superseded.

Another important gap that was identified in the published literature related to mobile money is the relative absence of an analysis of the economic or social impact. Most studies, in particular non-academic ones, take social and economic impacts for granted or just give them a cursory mention, without further investigation or corroborative analysis. To improve research in this area,

studies related to microfinance could be inspirational, since in this field the emergence of randomized studies and other techniques have led to this system being widely adopted. This follows many years of numerous superficial investigations but few in-depth research-based studies that can be used to provide evidence of the real impact of microfinance practices on alleviating poverty at micro (household), meso (community) and macro (regional or country) levels. It is understandable that the effects of these studies in social sciences are still to be felt, in view of the unsuitable conditions for carrying out experiments and isolating variables (because of the sheer number involved and the difficulty of making precise measurements) in order to make comparisons, either geographically or over a period of time. Despite the challenge, it is essential for this area of studies to be sponsored by research institutions.

Among the many questions in the area of mobile payment studies that require answers, the following should be highlighted: the typology of business models, the legal issues involved in the implementations (whether successful or unsuccessful), the kinds of technology associated with the particular business models adopted, cultural and demand conditions for a model being disseminated, an analysis of the telecommunications and banking market, obstacles to its adoption, gender issues and services. What is now apparent is a scenario that can be regarded as the dawn of an investigation into mobile money and payment. In view of the recent history of this subject-area, this can be expected. Similarly, answers to these questions must be found to ensure that mobile money and payment really takes off, as everybody involved in this market believes it is bound to happen in the near future, and money as we know it today will be largely handled by electronic devices. Moreover, this trend should be welcomed for the sake of social and economic development and to benefit the majority of the population, including the poor.

6. REFERENCES

BEM, Daryl J. (1995). Writing a Review Article for Psychological Bulletin, *Psychological Bulletin*, 1995, vol. 118, no. 2, p. 172-177.

BESHOURI, Chris; CHAIA, Alberto; COBER, Beth; GRAVRÅK, Jon (2010). Banking on mobile to deliver financial services to the poor. *Global Financial Inclusion*. McKinsey & Company's Social Sector office.

DAHLBERG, T, N MALLAT, J ONDRUS, and A ZMIJEWSKA (2008). "Past, present and future of mobile payments research: A literature review." *Electronic Commerce Research and Applications* 7 (2): 165-181.

DINIZ, E.; BIROCHI, R.; POZZEBON, M. (2011) Triggers and barriers to financial inclusion: The use of ICT-based branchless banking in an Amazon county. *Electronic Commerce Research and Applications*, ISSN 1567-4223, 10.1016/j.elerap.2011.07.006. Available online 16/Aug/2011: <http://www.sciencedirect.com/science/article/pii/S1567422311000433>

DUNCOMBE, Richard; BOATENG, Richard (2009). *Mobile Phones and Financial Services in Developing Countries: A Review Of Concepts, Methods, Issues, Evidence And Future Research Directions*, *Third World Quarterly*, 30 (7): 1237-1258.

JENKINGS, Beth (2008). *Developing Mobile Money Ecosystems*. Washington, DC: IFC and the Harvard Kennedy School, 2008.

KUMAR, A., NAIR, A., PARSONS, A., and URDAPILLETA, E. (2006). *Expanding bank outreach through 1071 retail partnerships: Correspondent banking in Brazil*. World Bank Working 1072 Paper 85, Washington, DC, 2006.

LAUKKANEN, Tommi [et alii] (2008). Segmenting bank customers by resistance to mobile banking. *International Journal of Mobile Communications*, vol. 6, no. 3, p. 309-320, 2008.

MAS, I. (2009). The economics of branchless banking. *Innovations: Technology, Governance, 1082 Globalization*, 4, 2, 2009, 57–75.

SHEN, Sandy (2011). *Hype Cycle for Consumer Services and Mobile Applications 2011*. [Stamford]: Gartner, Inc., July 27, 2011.

SINCLAIR, James; CARDEW-HALL, Michael (2008). The folksonomy tag cloud: when is it useful? *Journal of Information Science*, 2008, Vol. 34 Issue 1, p15-29, 15p.

WEBSTER, Jane; WATSON, Richard T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, June 2002, vol. 26, no. 2, p. xiii-xxiii.

ANNEX 1 – Peer-reviewed literature analysed

| # | Name | Author(s) | Year of Publication | Journal / Conference |
|----|--|---|---------------------|--|
| 1 | Toward an understanding of the behavioral intention to use mobile banking | Luarn, P; Lin, H | 2005 | Computers in Human Behavior |
| 2 | The Role of Technological and Social Factors on the Adoption of Mobile Payment Technologies on the Adoption of Mobile Payment Technologies | Lee, Cheon-pyo; Warkentin, Merrill | 2004 | MIS Quarterly |
| 3 | Mobile Payment Industry :Toward a Comprehensive Research Model | Amoroso, Donald L | 2010 | Annual Conference of Japan Society for Management Information 2010 Autumn |
| 4 | A comparison of mobile payment procedures in Finnish and Chinese markets | Zhong, Junying | 2009 | Proceeding of the 22nd Bled eConference eEnablement |
| 5 | Information capability and value creation strategy: advancing revenue management through mobile ticketing technologies | Li, Ting; van Heck, Eric; Vervest, Peter | 2009 | European Journal of Information Systems |
| 6 | Customer Satisfaction with Cell Phone Banking in South Africa | Brown, Irwin; Licker, Paul | 2010 | AMCIS 2010 Proceedings |
| 7 | Evaluating the Role of Trust in Consumer Adoption of Mobile Payment Systems: An Empirical Analysis | Chandra, Shalini; Srivastava, S.C.; Theng, Y.L. | 2010 | Communications of the Association for Information Systems |
| 8 | Exploring consumer adoption of mobile payments – A qualitative study | Mallat, N | 2007 | The Journal of Strategic Information Systems |
| 9 | Why Mobile Payments Fail ? Towards a Dynamic and Multi-perspective Explanation | Ondrus, Jan; Lyytinen, Kalle; Pigneur, Yves | 2009 | 42nd Hawaii International Conference on System Sciences |
| 10 | Incorporating M-Commerce into Organizational Strategy: A Case Study in the Tourism Sector | Srivastra, A.; Tassabehji, Rana; Wallace, D.J. | 2007 | AMCIS 2007 Proceedings |
| 11 | Intention to Use Mobile Commerce: A Demographic Analysis of the Chinese Market | Dai, Hua; Singh, Rahul; Iyer, Lakshmi | 2007 | AMCIS 2007 Proceedings |
| 12 | Agent enabled composition of Services Bundles for M-Commerce Applications | Leary, Thomas | 2004 | AMCIS 2004 Proceedings |
| 13 | A Risk Assessment Framework for Mobile Payments | Clark, Roger | 2008 | BLED 2008 Proceedings |
| 14 | Lost Opportunity Why Has Dominant Design Failed to Emerge for the Mobile Payment Services Market in Finland? | Dahlberg, Tomi; Huurros, Milla; Ainamo, Antti | 2008 | Proceedings of the 41st Annual Hawaii International Conference on System Sciences (HICSS 2008) |
| 15 | Understanding changes in consumer payment habits-do mobile payments and electronic invoices attract consumers? | Dahlberg, Tomi; Oorni, A. | 2007 | System Sciences, 2007. HICSS 2007. 40th Annual Hawaii International Conference on |
| 16 | The industry chain of mobile payment and its future development mode | Zexi, A.; Xuecheng, Y.; Tong, W. | 2010 | Communication Systems, Networks and Applications (ICCSNA), 2010 Second International Conference on |
| 17 | The Importance of Trust and Risk in M-Commerce: A South African Perspective | Joubert, Janine; Van Belle, J.P. | 2009 | Pacific Asia Conference on Information Systems |
| 18 | Current mobile payment procedures on the German market from the view of customer requirements | Pousttchi, K.; Zenker, M. | 2003 | 14th International Workshop on Database and Expert Systems Applications, 2003. Proceedings. |

| | | | | |
|----|--|--|------|---|
| 19 | Merchant Adoption of Mobile Payment Systems | Mallat, N.; Tuunainen, V.K. | 2005 | International Conference on Mobile Business (ICMB'05) |
| 20 | An Exploratory Study of Information Systems Resistance : The Case of Mobile Banking Systems in Korea and Finland | Lee, Cheon-pyo; Mattila, Minna; Shim, J P | 2007 | AMCIS 2007 Proceedings |
| 21 | Empirical research of mobile payment user behavior based on perceived risk | Xianfeng, Wu; Jihong, F. | 2010 | Communication Systems, Networks and Applications (ICCSNA), 2010 Second International Conference on |
| 22 | User Acceptance Testing of Mobile Payment in Various Scenarios | Ho, Henry; Fong, Simon; Yan, Zhuang | 2008 | 2008 IEEE International Conference on e-Business Engineering |
| 23 | Research on Mobile Payment in the E-Commerce | Li, Yunhong; Luo, Siwen | 2008 | 2008 International Conference on Management of e-Commerce and e-Government |
| 24 | A Proposal for a Multi-Perspective Analysis of the Mobile Payment Environment | Ondrus, J.; Camponovo, G.; Pigneur, Y. | 2005 | International Conference on Mobile Business (ICMB'05) |
| 25 | Analyzing the Elements of the Business Model for Mobile Payment Service Provision | Pousttchi, Key; Schiessler, Max; Wiedemann, Dietmar G. | 2007 | International Conference on the Management of Mobile Business (ICMB 2007) |
| 26 | Mobile Payment Applications: An Exploratory Analysis of the Italian Diffusion Process | Balocco, Raffaello; Ghezzi, Antonio; Bonometti, Giuseppe; Renga, Filippo | 2008 | 2008 7th International Conference on Mobile Business |
| 27 | A Study of Mobile Payment Mode in U-Commerce | Qiang, Yan; Lu, T. | 2008 | Wireless Communications, Networking and Mobile Computing, 2008. WiCOM'08. 4th International Conference on |
| 28 | A study of major Mobile payment systems' functionality in Europe | Mohammadi, Shahriyar; Jahanshahi, Hediye | 2008 | 2008 11th International Conference on Computer and Information Technology |
| 29 | Research on the Influence of Mobile Payment and Its Industry Chain on Customer Value | Lu, Xiang; Shu, H. | 2009 | Management and Service Science, 2009. MASS'09. International Conference on |
| 30 | Mobile payment: A journey through existing procedures and standardization initiatives | Karnouskos, S.; | 2004 | Communications Surveys & Tutorials, IEEE |
| 31 | Consumer acceptance of mobile payments: An empirical study | Suhuai, L.; Peter, S. | 2010 | New Trends in Information Science and Service Science (NISS), 2010 4th International Conference on |
| 32 | Mobile Payment: An Exploratory Study of Customer Attitudes | Petrova, Krassie; Mehra, Ridhima | 2010 | 2010 6th International Conference on Wireless and Mobile Communications |
| 33 | Are Mobile Payment and Banking the Killer Apps for Mobile Commerce? | Hu, Xianpei; Li, Wenli; Hu, Qing | 2008 | Proceedings of the 41st Annual Hawaii International Conference on System Sciences (HICSS 2008) |
| 34 | Study of Mobile Payments System | Zheng, Xiaolin | 2003 | Proceedings of the IEEE International Conference on E-Commerce (CEC'03) |
| 35 | Issues in Mobile E-Commerce | Tarasewich, Peter; Nickerson, R.C.; Warkentin, Merrill | 2002 | Communications of the Association for Information Systems (Volume 8, 2002) |
| 36 | M-PESA: Mobile Money for the "Unbanked" Turning Cellphones into 24-Hour Tellers in Kenya | Hughes, Nick; Lonie, Susie | 2007 | Innovations: Technology, Governance, Globalization |
| 37 | The failure of mobile payment: evidence from quasi-experimentations | Rouibah, Kamel | 2009 | Proceedings of the 2009 Euro American Conference on Telematics and Information Systems: New Opportunities to increase Digital Citizenship |
| 38 | Mobile Money Transfer Services: The Next Phase in the Evolution in Person-to-Person Payments | Merritt, Cynthia | 2010 | Retail Payments Risk Forum |

| | | | | |
|----|---|--|------|--|
| 39 | Comparative Study on M-Commerce Applications in Various Scenarios | Fong, Simon; Yan, Zhuang | 2008 | 2008 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology |
| 40 | A Scenario-Based Analysis of Mobile Payment Acceptance | Goeke, Laura; Pousttchi, Key | 2010 | 2010 Ninth International Conference on Mobile Business and 2010 Ninth Global Mobility Roundtable (ICMB-GMR) |
| 41 | A study on the success potential of multiple mobile payment technologies | Mathew, Mary; Balakrishnan, N.; Pratheeba, S. | 2010 | Technology Management for Global Economic Growth (PICMET), 2010 Proceedings of PICMET'10: |
| 42 | Developing an Analytical Framework for Mobile Payments Adoption in Retailing: A Supply-Side Perspective | Lai, P.M.; Chuah, K.B. | 2010 | 2010 International Conference on Management of e-Commerce and e-Government |
| 43 | Mobile banking services | Mallat, Niina; Rossi, Matti; Tuunainen, Virpi Kristiina | 2004 | Communications of the ACM |
| 44 | Mobile commerce at crossroads | Jarvenpaa, S.L.; Lang, K.R.; Takeda, Y. Tuunainen, V.K. | 2003 | Communications of the ACM |
| 45 | Ranking secure technologies in security provision financial transactions mobile commerce | Saghafi, Fatemeh; NasserEslami, Fatemeh; Esmaili, Maryam | 2009 | Proceedings of the 2nd International Conference on Interaction Sciences Information Technology, Culture and Human - ICIS '09 |
| 46 | Study on consumer demands and merchant participation motives of mobile payment services in China | Xinyan, Zhao; Wei, Ge; Tingjie, Lu | 2009 | Proceedings of the 2nd International Conference on Interaction Sciences Information Technology, Culture and Human - ICIS '09 |
| 47 | Mobile commerce adoption in China and the United States: a cross-cultural study | Dai, Hua; Palvi, P.C. | 2009 | ACM SIGMIS Database |
| 48 | Mobile Payments at the Retail Point of Sale in the United States: Prospects for Adoption | Crowe, Marianne; Rysman, Marc; Stavins, Joanna | 2010 | Review of Network Economics |
| 49 | An empirical examination of factors influencing the intention to use mobile payment | Kim, Changsu; Mirusmonov, Mirsobit; Lee, In | 2010 | Computers in Human Behavior |
| 50 | Inter-consortia battles in mobile payments standardisation | Lim, a | 2008 | Electronic Commerce Research and Applications |
| 51 | A modeling approach and reference models for the analysis of mobile payment use cases | Pousttchi, K | 2008 | Electronic Commerce Research and Applications |
| 52 | A Game Analysis of the Relationship among Government, Mobile Operator and Finance Organization in China Mobile Payment Industry Chain | Ou, Haiying; Lv, Tingjie; Chen, Xia | 2009 | 2009 International Conference on Business Intelligence and Financial Engineering |
| 53 | Towards a holistic analysis of mobile payments: A multiple perspectives approach | Ondrus, J; Pigneur, Y | 2006 | Electronic Commerce Research and Applications |
| 54 | Understanding consumer acceptance of mobile payment services: An empirical analysis | Schierz, Paul Gerhardt; Schilke, Oliver; Wirtz, Bernd W. | 2010 | Electronic Commerce Research and Applications |
| 55 | Towards an understanding of the consumer acceptance of mobile wallet | Shin, Dong-Hee | 2009 | Computers in Human Behavior |
| 56 | Mobile Payment Procedures: Scope and Characteristics | Kreyer, Nina; Pousttchi, Key; Turowski, Klaus | 2003 | e-Service Journal |
| 57 | Standardized payment procedures as key enabling factor for mobile commerce | Kreyer, N.; Pousttchi, K.; Turowski, K. | 2002 | E-Commerce and Web Technologies |
| 58 | A model of consumer acceptance of mobile payment | Chen, Lei Da | 2008 | International Journal of Mobile Communications |

| | | | | |
|----|--|--|------|--|
| 59 | Mobile banking services in the bank area | Shirali-Shahreza, Mohammad; Shirali-Shahreza, M. Hassan | 2007 | SICE Annual Conference 2007 |
| 60 | Diffusion of Mobile Commerce Application in the Market | Huang, Hao; Liu, Lu; Wang, Jianjun | 2007 | Second International Conference on Innovative Computing, Informatio and Control (ICIC 2007) |
| 61 | Factors influencing the adoption behavior of mobile banking: a South Korean perspective | Lee, KS; Lee, HS | 2007 | Journal of Internet Banking and Commerce |
| 62 | A Contextual Acceptance Model of Mobile Commerce Based on TAM | Xu, Zhengchuan; Zhang, Chenghong; Ling, Hong | 2008 | 2008 The Third International Multi-Conference on Computing in the Global Information Technology (iccgi 2008) |
| 63 | Design and Evaluation of M-Commerce Applications | Wang, J.J.; Song, Z.; Lei, P.; Sheriff, R.E. | 2005 | 2005 Asia-Pacific Conference on Communications |
| 64 | Study on Trust in Mobile Commerce Adoption - A Conceptual Model | Meng, Decai; Min, Qingfei; Li, Yuping | 2008 | 2008 International Symposium on Electronic Commerce and Security |
| 65 | Assessing the Mobile Banking Adoption Based on the Decomposed Theory of Planned Behaviour | Beiginia, A.R.; Besheli, A.S.; Soluklu, M.E.; Ahmadi, M. | 2011 | European Journal of Economics, Finance and Administrative Sciences |
| 66 | What is the Influence of Context and Incentive on Mobile Commerce Adoption? A Case study of a GPS-based Taxi Dispatching System | Xu, Zhengchuan; Yuan, Yufei | 2007 | International Conference on the Management of Mobile Business (ICMB 2007) |
| 67 | Innovations to Make Markets More Inclusive for the Poor | Mendoza, Ronald U.; Thelen, Nina | 2008 | Development Policy Review |
| 68 | Mobile banking and economic development: Linking adoption, impact, and use | Donner, J.; Tellez, C. | 2008 | Asian Journal of Communication |
| 69 | M-Commerce implementation in Nigeria: Trends and issues | Ayo, CK; Ekong, UO; Fatudimu, IT; Adebisi, AA | 2007 | Journal of Internet Banking and Commerce |
| 70 | M-Pesa: A Case Study of the Critical Early Adopters's Role in the Rapid Adoption of Mobile Money Banking in Kenya | KGUGI, Benjamin; PELOWSKI, Matthew; OGEMBO, Javier G. | 2010 | The Electronic Journal of Information Systems in Developing Countries |
| 71 | Mobile 2.0: M-money for the BoP in the Philippines | ALAMPAY, Erwin; BALA, Gemma. | 2010 | Information Technologies & International Development |
| 72 | ICT, Development and Poverty Reduction: Five Emerging Stories | SPENCE, Randy; SMITH, Matthew L. | 2010 | Information Technologies & International Development |
| 73 | Adopting mobile payment channels: Key challenges for US financial institutions | KAPOSTASY, Janet L. | 2008 | Journal of Payments Strategy & Systems |
| 74 | The Enigma of Mobile Money Systems | Ernesto M. FLORES-ROUX & Judith MARISCAL | 2010 | COMMUNICATIONS & STRATEGIES |
| 75 | Mobile Money: Implications for Emerging Markets | ALLEMAN, J.; RAPPOPORT, P. | 2010 | COMMUNICATIONS & STRATEGIES |
| 76 | The role of payment systems in reaching the unbanked | Sergio de Sousa | 2010 | Journal of Payments Strategy & Systems |
| 77 | Mobile Phones and Financial Services in Developing Countries: a review of concepts, methods, issues, evidence and future research directions | Richard Duncombe; Richard Boateng | 2009 | Third World Quarterly |
| 78 | Framing M4D: The Utility of Continuity and the Dual Heritage of "Mobiles and Development" | Donner, Jonathan | 2010 | The Electronic Journal of Information Systems in Developing Countries |
| 79 | Innovative Payment Solutions in Agricultural Value Chain as a Means for Greater Financial Inclusion | Tushar Pandey; Nagahari Krishna; Venetia Vickers | 2010 | Agricultural Economics Research Review |

| | | | | |
|----|---|--|------|---|
| 80 | A Financial Analysis of Mobile Money Services | Peter LYONS | 2010 | Communications & strategies |
| 81 | Mobile Payments: Moving Towards a Wallet in the Cloud? | Sophie PERNET-LUBRANO | 2010 | Communications & strategies |
| 82 | Preliminary Insights into M-commerce Adoption in Ghana | Raymond A. Boadi, Richard Boateng, Robert Hinson and Robert A. Opoku | 2007 | Information Development |
| 83 | From Microfinance to m-Finance Innovations Case Discussion: M-PESA | Mudit Kapoor;Jonathan Morduch;Shamika Ravi | 2007 | Innovations: Technology, Governance, Globalization |
| 84 | Cell phones , electronic delivery systems and social cash transfers : Recent evidence and experiences from Africa | Katharine Vincent;Tracy Cull | 2011 | International Social Security Review |
| 85 | Cooperation for Innovation in Payment Systems: The Case of Mobile Payments | Marc Bourreau;Marianne Verdier | 2010 | Communications & strategies |
| 86 | Who will be the winners and losers in the battle for mobile payments market share ? | Olivier Cagnet | 2011 | Journal of Payments Strategy & Systems |
| 87 | Three keys to M-PESA's success : Branding , channel management and pricing | Ignacio Mas;Amolo Ng | 2011 | Journal of Payments Strategy & Systems |
| 88 | Mobile Opportunities, Mobile Problems: Assessing Mobile Commerce Implementation Issues in Malawi | E. Saidi | 2009 | Journal of Internet Banking and Commerce |
| 89 | Mobile communications and treasury management - making mobile money work for the business | Morten Hofstad | 2010 | Journal of Corporate Treasury Management |
| 90 | Legal issues in mobile banking | Rolf H. Weber;Aline Darbellay | 2010 | Journal of Banking Regulation |
| 91 | How Mobile Money Can Drive Financial Inclusion for Women at the Bottom of the Pyramid (BOP) in Indian Urban Centers | A. L. Chavan;Sarit Arora;Anand Kumar;Praneet Koppula | 2009 | Internationalization, Design and Global Development: Third International Conference, IDGD 2009, Held as Part of HCI International 2009, San Diego, CA, USA, July 19-24, 2009, Proceedings |
| 92 | Mobile-banking adoption and usage by low-literate, low-income users in the developing world | Indrani Medhi;Aishwarya Ratan;Kentaro Toyama | 2009 | Internationalization, Design and Global Development: Third International Conference, IDGD 2009, Held as Part of HCI International 2009, San Diego, CA, USA, July 19-24, 2009, Proceedings |
| 93 | Mobile remittances: design for financial inclusion | Supriya Singh | 2009 | Internationalization, Design and Global Development: Third International Conference, IDGD 2009, Held as Part of HCI International 2009, San Diego, CA, USA, July 19-24, 2009, Proceedings |
| 94 | Examining the usage and impact of transformational M-banking in Kenya | Olga Morawczynski | 2009 | Internationalization, Design and Global Development: Third International Conference, IDGD 2009, Held as Part of HCI International 2009, San Diego, CA, USA, July 19-24, 2009, Proceedings |

ANNEX 2 – Non-peer-reviewed literature analysed

| # | Title | Author(s) | Source | Year of Publication |
|----|---|---|--|---------------------|
| 1 | The alternatives to mobile money | Goss, Salah | CGAP - Consultative Group to Assist the Poor | 2011 |
| 2 | Branchless Banking in South Africa | Bold, Chris | CGAP - Consultative Group to Assist the Poor | 2011 |
| 3 | A new year's resolution for the mobile money industry: interoperating | Mas, Ignacio | CGAP - Consultative Group to Assist the Poor | 2011 |
| 4 | Why distributing mobile money is harder than airtime for MNOs | McKay, Claudia and Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2011 |
| 5 | How mobile money is changing Africa: Interview with Barry Coetzee of Iveri | | Mobithinking | 2011 |
| 6 | Will mobile money take off in India? | | Reuters | 2011 |
| 7 | Showcasing Successes in Banking Beyond Branches: Latin American Banks Lead the Way | Almazán, Mireya and Mas, Ignacio | CGAP - Consultative Group to Assist the Poor | 2011 |
| 8 | Haiti: Could mobile banking be a legacy of the earthquake? | Bold, Chris | CGAP - Consultative Group to Assist the Poor | 2011 |
| 9 | Why Distributing Mobile Money is Harder than Airtime for MNOs | CGAP Group | CGAP - Consultative Group to Assist the Poor | 2011 |
| 10 | Mobile Money in Haiti: A Novel Approach to Developing the Financial Sector | HAUSMAN, V. | The Next Billion | 2011 |
| 11 | Mobile Money in Haiti: Strategies for a Multi-Competitor, Multi-Industry Market | Hausman, Vicky; Daggett, Matt; Bernasconi, Lorenzo and Altman, Daniel | CGAP - Consultative Group to Assist the Poor | 2011 |
| 12 | Will Brazil's agents become a channel for a wide range of financial services for the poor? | Kumar, Kabir and Seltzer, Yanina | CGAP - Consultative Group to Assist the Poor | 2011 |
| 13 | Can mobile money be "free"? | KUMAR, Kabir; MINO, Toru. | CGAP - Consultative Group to Assist the Poor | 2011 |
| 14 | Five business case insights on mobile money | KUMAR, Kabir; MINO, Toru. | CGAP - Consultative Group to Assist the Poor | 2011 |
| 15 | Mobile money profitability = long term view + existing voice base + driving electronic transactions | KUMAR, Kabir; MINO, Toru. | CGAP - Consultative Group to Assist the Poor | 2011 |
| 16 | Google Wallet Kicks Off First Phase of Smartphone NFC Adoption | LITAN, A. HUNG M. | Gartner Inc. | 2011 |
| 17 | Delivering on the Savings Promise of Mobile Money | Mas, Ignacio | CGAP - Consultative Group to Assist the Poor | 2011 |
| 18 | Five Business Case Insights on Mobile Money | MINO, T. KUMAR, K. | CGAP - Consultative Group to Assist the Poor | 2011 |
| 19 | Mobile Money in mHealth | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2011 |
| 20 | Want tips on mobile money product design? Here are two from a motorcycle and a jerry can in Uganda | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2011 |
| 21 | Which Way? Mobile Money and Branchless Banking in 2011 | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2011 |
| 22 | Looking for a "killer app" for the poor? Sell stress reduction | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2011 |
| 23 | The Last Frontier for Branchless Banking: State of Play in WAEMU | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2011 |
| 24 | How to run with mobile money and not fall | Shakhovskoy, Matt | CGAP - Consultative Group to Assist the Poor | 2011 |
| 25 | Cool Vendors in Consumer Mobile Services, 2011 | SHEN S. VERMA S. ZIMMERMAN A., MCINTYRE A. | Gartner Inc. | 2011 |
| 26 | Near Field Communication is a Long-Term Opportunity | SHEN, S. | Gartner Inc. | 2011 |

| | | | | |
|----|--|-------------------------------------|--|------|
| 27 | Visa's Fundamo Acquisition Marks the Financial Inclusion of Mobile Money Services | SHEN, S. | Gartner Inc. | 2011 |
| 28 | Mobile Payments go Viral: M-PESA in Kenya | Mas, Ignacio and Radcliffe, Dan | | 2010 |
| 29 | Mobile money's innovation crisis | Maurer, Bill and Morawczynski, Olga | CGAP - Consultative Group to Assist the Poor | 2010 |
| 30 | Could airtime discounts kick-start mobile banking? | McKay, Claudia | CGAP - Consultative Group to Assist the Poor | 2010 |
| 31 | The internet and mobile money – scenarios for 2020 | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2010 |
| 32 | Count them...4 mobile money services now live in Tanzania | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2010 |
| 33 | At Mobile World Congress, mobile banking takes center stage: Portfolios of the Poor meets the five firms who reach two billion customers | Rosenberg, Jim | CGAP - Consultative Group to Assist the Poor | 2010 |
| 34 | Are banks the bad guys in the mobile money innovation debate? | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2010 |
| 35 | Can mobile money be profitable? We asked mobile money managers | Baba, Karina. | CGAP - Consultative Group to Assist the Poor | 2010 |
| 36 | A mobile wallet and the price of money | Bold, Chris | CGAP - Consultative Group to Assist the Poor | 2010 |
| 37 | In Afghanistan, going where no bank has gone before | Bold, Chris | CGAP - Consultative Group to Assist the Poor | 2010 |
| 38 | Non Bank e-money Issuers: Regulatory Approaches to Protecting Customer Funds | CGAP | CGAP - Consultative Group to Assist the Poor | 2010 |
| 39 | To what extent do the unbanked need access to mobile money services? | Chipchase, Jan | CGAP - Consultative Group to Assist the Poor | 2010 |
| 40 | The Rise of Mobile Money | GOLDMAN, B. | Analyst Network | 2010 |
| 41 | The birthplace of microcredit contemplates mobile money | Greg Chen | CGAP - Consultative Group to Assist the Poor | 2010 |
| 42 | Dispatch from Sierra Leone: mobile money and agent incentives | Lyon, Ben | CGAP - Consultative Group to Assist the Poor | 2010 |
| 43 | Branchless Banking 2010: Who's Served? At What Price? What's Next? | McKay, Claudia and Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 44 | Mobile Money Transfer Services: The Next Phase in the Evolution in Person-to-Person Payments | Merritt, Cynthia | | 2010 |
| 45 | The Macroeconomics of Mobile Money | NOAM, E. | The Columbia Institute for Tele-Information (CITI) | 2010 |
| 46 | Proof mobile money can make money? M-PESA earns serious shillings for Safaricom | Pickens Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 47 | Where will the next mobile money innovation come from? | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 48 | Branchless Banking 2010: Is the hype justified? | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 49 | Getting Beyond Payments | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 50 | Mobile money takes off...where is the innovation in product design? | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 51 | Nationwide impact of agents in Brazil | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 52 | Mobile Money Innovation... waiting... waiting... | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2010 |
| 53 | O dinheiro móvel (mobile money) é barato o suficiente para os desbancarizados? | ROSENBERG, J. | CGAP - Consultative Group to Assist the Poor | 2010 |
| 54 | For the unbanked, is mobile money cheap enough? CGAP releases pricing study across 16 providers in 10 countries | Rosenberg, Jim | CGAP - Consultative Group to Assist the Poor | 2010 |
| 55 | An alternative to M-PESA? Orange and Equity Bank launch Iko Pesa | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2010 |

| | | | | |
|----|---|-------------------------------|--|------|
| 56 | Who will win the mobile money game? Depends on who plays | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2010 |
| 57 | Dakar Dispatch: Mobile money and financial inclusion | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2010 |
| 58 | Hype Cycle for Consumer Services and Mobile Applications, 2010 | SHEN, S. | Gartner Inc. | 2010 |
| 59 | M-Pesa: A Case Study of the Critical Early Adopters's Role in the Rapid Adoption of Mobile Money Banking in Kenya | Thomas, Jeanette | CGAP - Consultative Group to Assist the Poor - VIDEO | 2010 |
| 60 | mWomen | | GSM Association | 2010 |
| 61 | Accelerating the Development of Mobile Money Ecosystems | Dola, Jonathan | Harvard Kennedy School + IFC / World Bank | 2009 |
| 62 | Mobile operator-centric payment schemes: Osaifu-Keitai in Japan | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2009 |
| 63 | Mobile banking gets big names: Nokia, Microsoft, PayPal | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2009 |
| 64 | A view from Indonesia: Real mobile banking needs solid partnerships | Rosenberg, Jim | CGAP - Consultative Group to Assist the Poor | 2009 |
| 65 | Mobile Banking in Tanzania: Concluding Thoughts | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2009 |
| 66 | Mobile payments in West Africa | Rotman, Sarah | CGAP - Consultative Group to Assist the Poor | 2009 |
| 67 | MTN's recipe for mobile banking success | Bold, Chris | CGAP - Consultative Group to Assist the Poor | 2009 |
| 68 | Mobile Banking: From Concept to Reality | CGAP | CGAP - Consultative Group to Assist the Poor | 2009 |
| 69 | Seeking Fertile Grounds for Mobile Money | Heyer, Amrik and Mas, Ignacio | | 2009 |
| 70 | Do low-income mobile phone users want mobile money? | Kumar, Kabir | CGAP - Consultative Group to Assist the Poor | 2009 |
| 71 | New business models in mobile banking? | Kumar, Kabir | CGAP - Consultative Group to Assist the Poor | 2009 |
| 72 | Mobile money by the numbers | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2009 |
| 73 | Window on the Unbanked: Mobile Money in the Philippines | Pickens, Mark | CGAP - Consultative Group to Assist the Poor | 2009 |
| 74 | Microfinance, mobile banking and barangays | Santos, Maybelle | CGAP - Consultative Group to Assist the Poor | 2009 |
| 75 | GSMA Webinar - Mobile Money Pricing & Commissions | | mmublog | 2009 |
| 76 | Mobile Money: A US\$5 Billion Market Opportunity | | GSMA | 2009 |
| 77 | Developing Mobile Money Ecosystems | Jenkins, Beth | CGAP - Consultative Group to Assist the Poor | 2008 |
| 78 | An Examination of Mobile Banking and Mobile Payments: Building Adoption as Experience Goods? | S. Cheney, Julia | | 2008 |
| 79 | Payment Applications Make E-Commerce Mobile | Leavitt, Neal | | n/a |
| 80 | Good things come in small packages: mobile money in Fiji | Bruett, Till | CGAP - Consultative Group to Assist the Poor | n/a |
| 81 | Connectivity | | GSM Association | n/a |
| 82 | Development Found - Overview | | GSM Association | n/a |
| 83 | Financial Institutions | | GSM Association | n/a |
| 84 | Green Power for Mobile - Overview | | GSM Association | n/a |
| 85 | GSMA MMT Project | | GSM Association | n/a |
| 86 | How Pay-Buy-Mobile Works | | GSM Association | n/a |

| | | | | |
|----|-------------------------------|--|-----------------|-----|
| 87 | mAgri Programme | | GSM Association | n/a |
| 88 | Market Opportunity | | GSM Association | n/a |
| 89 | mHealth - Overview | | GSM Association | n/a |
| 90 | Mobile Money for the Unbanked | | GSM Association | n/a |
| 91 | Mobile Money Transfer | | GSM Association | n/a |
| 92 | Mobile Operators | | GSM Association | n/a |