



INFORMATION FOR DEVELOPMENT PROGRAM

**MOBILE BANKING:
Knowledge map &
Possible donor support strategies**

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Executive Summary

1. The use of a mobile phone to conduct payment and banking transactions (m-banking) is at an early stage in a number of developing countries. Because m-banking uses the existing rapidly expanding mobile phone infrastructure, it has the potential to be deployed rapidly and affordably to expand access to financial services among unbanked people. Donors are increasingly expressing an interest in whether, and if so, how they can support the realization of this potential.
2. The case for donors to support m-banking rests on the causal chain linking generally improved access to financial services to the reduction of vulnerability and creation of opportunity for poor households. Although m-banking is one channel in the wider domain of e-banking, there are reasons to single it out for focus—especially because mobile phone usage has reached critical mass numbers in countries with few banked individuals.
3. There is little hard evidence yet of unbanked people being served on any scale by existing m-banking services, in part because most models are very recent; however, there is reason to believe that ‘transformational’ models have considerable potential for m-banking to broaden access.
4. While m-banking as an additional channel for banked customers is likely to be rolled out anyway, transformational models which target unbanked customers face particular obstacles. In Africa, current pioneers of m-banking report barriers to rollout in areas such as uncertainties over speed and nature of customer adoption, and regulatory barriers.
5. The sector as a whole has three main areas of need:
 - a. More successful transformational models which have reached financial sustainability, to create a suitable demonstration effect.
 - b. Systematic information collection and knowledge dissemination to guide potential entrants and policy makers by filling in the gaps identified by the knowledge map in Annex A. The map reflects a field at an early stage—with accelerating volume of reports of launches and new technology, but little systematic knowledge and indeed, little credible or accessible knowledge at all outside of a few chosen models or countries.
 - c. An enabling policy and regulatory environment which has sufficient openness and certainty to allow new models to startup and grow.
6. There are a range of current or prospective donor-supported programs with activities which may touch on m-banking from different perspectives, and with differing geographic coverage (country-level, regional and international). None currently has an exclusive focus on knowledge creation in the area of transformational m-banking.
7. There are two broad donor strategies to take:
 - a. Direct support to new transformational models: this requires substantial funding and expertise to assess which to support; and may be amenable to more of a ‘challenge fund’ approach whereby grant funds are allocated competitively. Large telcos and banks are less

likely to be fund constrained; but may be more amenable to indirect support which persuades them that there is a viable case to enter.

- b. Indirect support, to create and disseminate useful knowledge about the sector to potential participants and to policy makers; and to improve the enabling environment through technical assistance and support to regulators.
8. Using the criteria of potential impact, additivity and short gestation period, the report proposes the strategy of indirect support and identifies four potential projects for donor to support:
- a. Studies of customer adoption across different models;
 - b. Establishment of a web portal as a resource centre and dissemination point;
 - c. Country environment reviews which may lead to requests from regulators for technical assistance to bring about changes;
 - d. Sponsoring a commercial conference to provide focus for dissemination of work done.

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1. Introduction

Mobile banking (m-banking) involves the use of a mobile phone or another mobile device to undertake financial transactions linked to a client's account. M-banking is one of the newest approaches to the provision of financial services through ICT, made possible by the widespread adoption of mobile phones even in low income countries. The roll out of mobile telephony has been rapid, and has extended access well beyond already connected customers in developing countries. There is mounting evidence of positive social impact on poorer people and communities as a result.

There are sound reasons for the hope that m-banking could have similar impact. A mobile network offers a high technology platform onto which other services can be often provided at very low cost to deliver an effective result. Mobile data channels are often under-used and therefore may be offered at low cost by the network operator. M-banking services which use channels such as text messaging/ SMS can be carried at a cost of less than US1c per message. The low cost of using existing infrastructure makes such channels more amenable to use by low income customers.

M-banking is new in most countries, and there has been limited donor support in the sector to date. This report considers the case for donors to support m-banking as a sector, by assessing:

1. The likely impact on the lives of poor people in theory and practice—the 'why' of donor intervention (Section 2);
2. The needs and gaps arising from the development of the sector to date, in the light of what donor-funded programs are already doing (Section 3).

In the light of this assessment, the report goes on in Section 4 to consider strategies and particular initiatives which donors may take to respond concretely to the needs and gaps identified.

2. The case for donor action

2.1 Theoretical case

M-banking is another channel for the provision and accessing of formal financial services.

The underlying theory of change which links m-banking to the purpose of poverty reduction runs as follows:

- While poor people, by definition, have little money, they are active managers of what they have. Holding cash comes at high price to poor people because of the risk of crime in many poor countries, but they often have few alternatives to cash based services.
- In particular, appropriate financial services help poor people to access usefully large lump sums of money, which may either enable a pathway out of poverty through investment in income generating activities (such as microenterprises) or asset creation (such as housing); or may reduce vulnerability to sudden shocks to cashflow, as a result for example of illness or climate conditions.
- In many countries, poor people are forced to rely on informal financial services, which may be unsafe, or fringe formal financial products which may be expensive as well as unsafe. In other words, their exclusion from formal financial services has economic and social impacts which may exacerbate their poverty.
- The cost efficient provision of formal financial services (payments/ remittances, savings, credit or insurance) is predicated on customers having access at least to a basic transactional account, from which electronic transfers can be made (for loan installments, for example) and cash withdrawn (or deposited) as necessary.
- M-banking holds the prospect of offering a low cost, accessible transaction banking platform for currently unbanked and poorer customers. In addition, as mobile networks expand their coverage, they offer the opportunity of bringing payment and remittance services into areas without conventional banking services.
- However, not all m-banking products will be transformational in the sense of broadening access to financial services substantially at first or even at all. However, it is likely that even m-banking services which start targeted at existing banked customers may over time extend to unbanked groups.

This causal chain motivates the potential for m-banking to increase access to better, safer and cheaper financial services, and as a result, to reduce poverty. However, m-banking also has several features which may restrict its impact:

- M-banking requires prior access to a mobile phone—however, initiatives are underway to reduce the initial handset cost so that it is not an impediment.
- Mobile networks in many low income countries are still enjoying explosive growth in subscribers, and are focused on basic network rollout; even if the additional financial investment required for m-banking is limited and the revenue positive, they may be less amenable to divert scarce human resources from this core business into other non-core projects.

These features are more likely, however, to affect the speed of adoption, rather than limit the potential described.

A question remains about the relative case and timing of support for m-banking; that is, the extent to which m-banking should be singled out from the broader e-banking domain, which has already been receiving some donor attention. Clearly, many of the regulatory and infrastructural issues are common to both; and channels other than mobile phones will also be necessary in any retail financial system. However, there are several reasons for focusing on m-banking specifically at this time:

- In low income countries, m-banking may enable leapfrogging in the sense of reducing the need for the rollout of higher cost financial infrastructure, such as dedicated POS devices;
- M-banking potentially brings new players, telcos, to the table; in many LICs, these may be stronger than retail banks and better placed to reach out to unbanked customers;
- M-banking is still very new, whereas other forms of e-banking are quite well established; the potential to influence the models adopted towards being transformational (i.e. targeting new markets) may be higher.

2.2 Evidence to date

Two recent donor-funded reports have reviewed existing m-banking models in various developing countries. A report by *infoDev* entitled *Micro-Payment Systems and their application to mobile networks* ('*infoDev* report' available via www.infodev.org) considers the issues faced by new m-banking models particularly in the Philippines, where the concept appears most advanced among developing countries, and especially from a Telco perspective. A recent DFID report, *The Enabling Environment for Mobile Banking in Africa* ('*EE Mobile* report' available via www.bankablefrontier.com/publications), explores emerging models of m-banking in Africa in the context of global models; and asked in particular, whether they have the potential to be transformational, in the sense of massively expanding access to financial services by poor people.

Both reports conclude that there is as yet little evidence that m-banking has yet been transformational. As the knowledge map in Annex A shows, this is in

part because there are at present only a few models which are intentionally transformational. Most of these are very new with limited history, or else, as yet, little is known about their client bases. The case for m-banking therefore presently rests on the theoretical case outlined above, in the sense that there is a strong expectation that it may have desirable positive effects on the lives and livelihoods of poor people. This needs to be monitored over time.

Even when the case for m-banking is born out in practice, this does not in itself justify donor support, since it may emerge spontaneously with any support. On this key question of whether support is necessary, the EE Mobile report concluded that, while m-banking by already banked customers ('additive m-banking') is likely to grow anyway, the extent to which m-banking can be transformational will be decisively shaped by the extent to which the regulatory and policy environment is enabling. Enablement was defined as the appropriate balance between openness to the startup and growth of new and varied models; and certainty, both for providers investing capital and taking risk, as well as consumers entrusting funds to new m-banking providers, whether banks, telcos or other entities.

Through interviews with providers in Africa, the report identified three main types of barriers to the emergence and growth of transformational m-banking which may limit or restrict its ability to occur spontaneously. These were similar to barriers reported by providers in other regions. These were:

1. *Uncertainties over the speed and nature of customer adoption*: this is to be expected with any new offering, although the uncertainty is compounded by the relative lack of knowledge of the needs of unbanked people in many places, and the market potential. Consumer education may speed adoption; but more likely, adoption on scale will happen as it has happened with mobile phones: by person to person transfer of the knowledge necessary to operate. Providers will be forced to adapt their offerings as they encounter feedback in the market place. Therefore, it is necessary to have sufficient providers in the market who can remain in the market long enough to ensure that to identify the elements of a successful model. Hence, support to providers may assist in overcoming this barrier. Generally available research into the patterns and needs of the unbanked target market may also help.
2. *Lack of interoperability with existing systems*: interoperability of different payment systems is primarily a question of market structure and regulation. It arises initially only in markets where there is an existing payment infrastructure with which new providers can inter-operate (and later on, once new infrastructure becomes the standard). Without inter-operability, the fixed costs of deploying financial infrastructure may be much harder to recover, since usage per item of proprietary infrastructure will fall. Clearly, one solution may be to give regulators the power to require interoperability; however, it may be sufficient to encourage the identification of appropriate standard

- upfront. This could take place via support to regulators or industry bodies, where these exist.
3. *Regulatory barriers*: specific regulatory impediments vary by market; but in general, a lack of openness to new models of provision and a lack of policy certainty limit the potential of new models. Increasing openness and certainty may require support to regulators to outline high level policy, as well as to amend existing regulations or draft new ones where and when required.

The case for donor support therefore rests on removing barriers such as these, thereby making it more likely that transformational models of m-banking will emerge at all, or at least, sooner; and that they will develop more rapidly than otherwise would be the case.

3. Needs and gaps

Even if there is a strong *prima facie* case for donor support to date, how can donors best intervene? Table 1 below lists three main areas of need, based on analysis in the reports described and from interactions compiling the knowledge map.

3.1 Sectoral Needs

Table 1: Needs

Need	Why?	How?
1. Sufficient successful m-banking models to encourage entry and competition	Ultimately, success means having a competitive, active m-banking sector which charges affordable prices and which is incentivized to innovate and seek new clients. While interest in the sector is strong from potential entrants (telcos, banks, payment providers), there are still few documented models with a clear business case which can generate a demonstration effect to others	This requires that at least some of the existing startups succeed by reaching profitability and a critical mass of users, and that more entrants start up, using other models. Donors could provide funds directly to early stage models, as was the case with microfinance institutions and has been the case with the Financial Deepening Challenge Fund and M-Pesa in Kenya. However, the fact that many m-banking entrants are large, privately owned multinational telcos or banks makes the case for direct support harder.
2. Systematic information collection and knowledge dissemination	The state of knowledge in the sector (Annex A) is fragmented, with many gaps which affect providers and regulators alike. While proprietary research analysts are active in the field offering new trade publications and reports by subscription only, these are often not accessible or affordable especially to regulators or new entities in developing countries.	A systematic research program, or coordination among existing programs undertaking research, which targets the gaps in the knowledge map
3. Enabling country environments	This should mean that more firms can and do enter this space; and that more are able to succeed with diverse models.	Primarily, this means creating sufficient openness and sufficient certainty in legal and regulatory frameworks where they do not exist. Underlying this, is building the knowledge and capacity of regulators and policy makers to address this sector in an enabling fashion.

3.2 Sectoral Gaps

Annex B highlights a range of existing or proposed donor-funded programs which currently do or are likely to touch on m-banking. The coverage of these is assessed against the main needs identified above.

Table 2: Current donor initiatives

Need	Assessment	Programs
1. Sufficient successful m-banking models to	<i>Likely to be somewhat covered</i>	While no major present program provides concessional direct funding, several new programs will or may. The new CGAP/ Gates Foundation technology program will provide matched

encourage entry and competition		grant funding support to m-banking models although unlikely to be able or willing to fund more than a couple of projects in the m-banking space. When started (potentially in mid '07), the AECF may provide funding for m-banking projects in Africa only. UN's GSB may facilitate or support particular models at country level. The IFC is increasingly interested supporting quasi-commercial investment.
2. Systematic information collection and knowledge dissemination	<i>Likely to be somewhat covered - uncoordinated</i>	Limited work has been done to date by several donors (DFID, infoDev, CGAP). However, these and other donors plan to embark on further research initiatives in 2006/07, including CGAP, infoDev and Vodafone's SIM Panel. These will all contribute to the knowledge base. However, not clear that the knowledge is yet reaching the key people (i.e. decision makers within potential entrants and regulators/ policy makers)
3. Enabling country environments	<i>Somewhat covered in general- but not specifically</i>	There are several new and existing programs which provide technical assistance to regulators and policy makers. FIRST is a general facility which provides funding for technical assistance to financial regulators in developing countries; however, FIRST is nearing the end of its current life and capacity. The Investment Climate Facility (ICF) has recently been launched in early 2006, but covers Africa only. Country level FSD programmes of bi-lateral and multi-lateral donors will clearly address aspects of the enabling environment, but, given both the complexity and the commonality of some of the issues, there is likely to be benefit in having centralized knowledge pools and frameworks to draw on.

3.3 Conclusions

While relatively new, m-banking is not entirely new to donors: Table 2 above indicates that the activities of some existing and certain prospective donor programs either can or are likely to touch in some way on all the main areas of need identified. This is at one level encouraging in that it suggests that these programmes at least are generally responding to needs. However, no programmes currently focus on m-banking specifically; and there is limited coordination across many of the activities. Furthermore, some of the programmes have a limited regional focus, for example, Africa only. It is not the case, therefore, that existing programs will meet all needs required for the takeoff of transformational m-banking.

In a field in its relative infancy, like m-banking, there is likely to be positive return to approaches which enable systematic learning to be accumulated and disseminated rapidly to encourage cycles of innovation which converge on successful models of provision and regulation. In the absence of a suitable learning hub, as interest in the potential of this sector grows, the risk of duplication and waste of donor funds will grow too.

Note also, that addressing the enabling environment for mobile banking is likely to have positive externalities for other areas of the broader financial access agenda: indeed, m-banking may provide a focus around which to develop and advocate such changes.

4. Donor strategies and possible projects

4.1 Choice criteria and strategies

Preceding sections have addressed the following criteria in considering new forms of donor support for the m-banking sector:

- (i) *Is there a clear potential impact* on unbanked and poor people? (Yes: Section 2);
- (ii) *Is the support additive and non-duplicative?* i.e. unlikely to be undertaken by someone else (Section 3).

Donors will have additional individual criteria which will shape their desired strategies of intervention In addition.

In addition, the state of the sector as young and rapidly emerging suggests a further criterion, since longer term 'big bets' may be premature and even unnecessary:

- (iii) *Short gestation time*, meaning able to start quickly (3-6 months), with relatively short term (12-24 months) commitment of initial resources. This criterion creates a deliberate preference for smaller initiatives which can be tried out, then scaled up if successful or phased out if not, rather than longer term projects with a long gestation period.

Against these criteria, donors can evaluate the two main strategies available:

- *Provide direct support to providers* to enable more models to start and some pioneers to reach success: In this space, challenge-fund type models, which invite applications, and support the best, are more likely to be effective. CGAP's forthcoming initiative will take this approach; and will probably be able to fund a few m-banking type models which require funding as part of its learning agenda. This strategy requires both relatively deep pockets (perhaps \$1-3m per project) to be relevant and the expertise to choose which model/s to back. It also may not fit well with criterion 3 above (time to start and run).

In addition, the most successful models are likely to require close collaboration with either a telco, a bank or both. On the whole, neither category is fund-constrained; and both have strategic reasons for implementing m-banking—they will be vulnerable if sufficient of their competitors do. For this reason, while there is a need for more entrants, direct support to achieve this may be costly, and even unnecessary, in most cases.

- *Provide indirect support through improving the informational, policy and regulatory environment* so that the ground is more fertile for more models to emerge and succeed. This is more likely to fit the criteria above, even though the period in which success can be judged may exceed the 12-24 month window. However, in that period, demand could at least be assessed. The argument for indirect donor support is therefore stronger than for direct support.

Initiatives in line with this strategy could include a programme of 'basic' research to fill knowledge gaps, especially research which is subject to large minimum fixed cost such as surveys, and therefore not undertaken by individual providers in poorer or smaller markets. A research agenda to fill in identified knowledge gaps would likely include:

1. *Further and ongoing client survey work to monitor adoption, to understand the main drivers especially among unbanked and poorer people.* This will likely involve systematic surveying across global regions where early m-banking models are underway.
2. *Better systematic analysis of the emerging models, and especially of the roles and business case for telcos and banks:* as these roles evolve, and as existing pilots develop further, it will be useful to track client numbers, profitability and pricing against expectations to the extent possible.
3. *Wider scan for emerging models outside of well known places* and relating this to the environmental factors in each case: the existing knowledge base relies heavily on a relatively limited number of examples in a few countries. A more systematic scan would ensure that no material case is left unexplored. The GSM Association, which has already cooperated in the recent *infoDev* report, may be well placed to assist this process.

In addition to undertaking research, it is necessary to disseminate the knowledge adequately, especially to likely providers who may enter and to regulators/ policy makers who can impede or facilitate this entry.

Furthermore, as a means of increasing focus on comparative merits of different enabling environments, a methodology could be developed to undertake environmental reviews which scan for sufficient certainty and openness for m-banking across a range of country environments. Like the World Bank Group's *Doing Business Surveys*, this could call attention to relatively negative environments, and in the process incentivize change.

The indirect support strategy is therefore more likely to fit the approach of most donors. Four possible projects following this strategy are identified in Table 3 below.

Table 3: Possible donor-supported initiatives in 2006/7

Activity	Objective	Clients/ beneficiaries	Timeframe/ Possible cost	Risks & issues
1. Studies of customer adoption	To understand the drivers of customer adoption, which models are successful— especially those which target unbanked people; and to define potential target market for transformational m-banking	Providers and potential providers	Would require rolling set of surveys to monitor adoption and usage across chosen set of sites. Cost of surveys would depend on size of samples e.g. 1000 interviews at 5 providers pa. @ \$50 ph=\$250k p.a. over two years. Analysis of market potential would build on these surveys, but cost more (say, further \$50k per country)	Providers would have to be persuaded to take part in an exercise which may erode competitive advantage if successful— argument would have to be made on basis of (i) cost sharing around their own market research; and/or (ii) delay in timing to public release of survey information. However, such studies could also inform the issues needed for consumer education curricula around m-banking.
2. Establishing web portal for dissemination	To create a visible, recognized resource centre through which research, analysis and best practice examples could be disseminated	Donors, policy makers, providers	Setup of web portal: \$30k + ongoing maintenance. Active management of content likely to require \$100k pa plus ongoing flow of good content (e.g. from program 1 above), which may necessitate a broader research funding component (\$100-200k)	Should this portal be separately branded or merely a resource centre within a larger portal? What would its long term future be? (donor funded as in Microfinance Gateway or evolution to subscriber basis)
3. Environmental scans of countries for potential for m-	To evaluate the level of openness and certainty within domestic markets for m-	Policy makers and regulators	Assessment methodology could probably be developed and tested in	Depending on demand, and the extent to which country-level programs can

banking	banking models to start and grow to scale, by developing an assessment/ self-assessment methodology to test for certainty and openness in a particular country		a few cases within 3-6 months for \$100k. An assessment could naturally lead to a request from country regulators for TA to address obstacles encountered.	meet it, a fund could be created to respond to demand for particular TA projects especially in areas with strong demonstration effect i.e. creating precedent-building norms or regulations. TA would require a skilled corps of providers who are able to apply appropriate learning; this corps may be limited today. However, provision of funding may grow demand and stimulate more to enter
4. Hosting conference on transformational models of m-banking	To provide a platform to showcase emerging transformational models, and disseminate other research in the field	Operators and policy makers	Would depend on the nature of the event i.e. standalone or incorporated as part of a broader event (e.g. GSMA Event—Feb 07 in Barcelona); and extent of sponsorship necessary	A conference could provide a means of focusing various research streams; however, this would mean concerted effort to work towards this so that sufficiently useful models are on the table to attract attention

4.2 Structures for implementation

The projects in Table 3 above could be undertaken as independent projects, although there are clear synergies from keeping them together: for example, based on evidence of demand and potential (project 1 above), environmental scans could be prioritized (3), which could be disseminated through a web portal (2) and a conference (4).

Since there is additional value in a coordinated program in the short to medium term at least, an important question is therefore how it may best be structured.

There appear to be two possibilities:

- By creating and funding a new joint work programme of the multilateral bodies, CGAP and *infoDev*. Each is well placed to do this, since research, dissemination and coordination among donors are part of their core agenda and program. Furthermore, transactions costs for many donors would be reduced through contributing to an existing funding line with a nominated purpose. However, certain issues would have to be clarified: CGAP has indicated that its own new technology program is likely to be its main focus in this area going forward since it has limited capacity to take on more; and *infoDev* is focused on ICT space only, whereas the projects outlined above must necessarily also crossover into financial needs and users as well.
- By funding a new multidonor program (e.g. FDCF or FIRST). There would, however, be transaction costs for donors to set up such an entity which would limit the potential to be started quickly: presumably, there would have to be a tender call for managers to run the work programme. These costs would probably not be worth incurring without a critical mass of intended funding (over \$1m).

The benefits and costs of these different approaches would require concrete discussions as to the scope and intent of funding, with the particular parties involved, which is beyond the scope of this initial report.

5. Conclusions

There is a strong donor case for accelerating the startup and rollout of transformational models of m-banking, especially in low income countries. Although m-banking is generally in its infancy, a growing number of models is being piloted in different parts of the world. Not surprisingly for a field in its early stages, there remain important gaps in current knowledge—for example, about consumer attitudes and models which accommodate these.

There are also an increasing number of donor-supported entities interested in researching the sector. However, there is little evidence of coordination among them at present around an overall knowledge agenda, raising the risk of duplication and waste of effort in this area.

As one strategy consistent with the needs and gaps, this report has proposed a structured program which would seek to fill in important knowledge gaps over the next 12-24 months, and disseminate the results widely. This will benefit providers and regulators as well as inform donors seeking a way to support the development of this field. If dissemination takes place widely, the knowledge agenda of such a program may also help to guide new funders to complete and extend the knowledge base. On the basis of this foundation and the take-up of the knowledge generated during the next two years, further work may be planned; or if the sector shows every sign that transformational models are indeed taking off, then no further donor support will be necessary; and further knowledge initiatives may be left to private sector providers who will charge for accessing the knowledge.

Annex A: Knowledge Mapping: M-banking and the Poor

Guiding Question

Does mobile banking lead to broader access to appropriate financial services among the unbanked, especially low income and rural people?

Answer: most mobile banking offerings in developing countries are at too early a stage for this question to be answered; even in countries like the Philippines where the reported number of registered users is now significant (4 million), there is insufficient evidence of the profile of customers yet to answer this question definitively: there is some reason to believe that relatively few may be previously unbanked.

M-banking certainly has the potential to be transformational because it enables new players, like telcos, to enter the payment services business, and also enables new relationships to be formed for the distribution of financial services (most importantly cash in and cash back).

However, 'potential' is not the same as proven capacity: barriers stand in the way of the realization of this. Nonetheless, this answer based on available knowledge provides the starting point for further investigation of the knowledge base; and of the case for supporting the unlocking of this potential.

Current knowledge base

What we know, what we believe and what we don't

This is captured in Table 4 which follows.

Table 4

Questions	Answers & Source	Comments
A. Overall: Definitions and context		
A1. How many people use m-banking globally?	<p>We don't know: but to put this in perspective, neither do we know accurately how many m-banking customers there are in total globally, nor even how many banked people there are in the world: there are currently accurate household surveys only in certain countries (mainly developed countries and Middle Income Countries (MICs)) with estimates for others.</p> <p>However, since most m-banking models are quite recent (2000 onwards), the number is still small: if one adds current usage numbers in the Asian countries with largest uptake (see B1 below) only, there are around 25 million. Outside of these countries, absolute take-up has been quite low.</p>	A major initiative has been launched by World Bank and DFID-connected entities to fund household surveys in a number of low income countries (LICs) which will give much better information on financial service use and attitudes.
A2. How many current m-banking customers were previously unbanked?	We don't know accurately because no known profiles yet exist of m-banking customers. However, based on the countries where most of the users are (Japan, Korea), it is likely that most current users by far are already banked.	CGAP has initiated field surveys of m-banking users which will help to answer this question for Philippines and SA. The household surveys in A1 above will help answer this too, once the m-banking numbers become statistically significant enough to be reliable.
A3. What is the size of the potential market among currently unbanked people for mobile banking?	Given answers to A1 & A2, this is clearly not known with any accuracy. However, it is a subset of the number of mobile phone users, currently rising 1.5 billion. Of particular interest are studies such as FinScope in South Africa, which has consistently found that 20-25% of unbanked people in the country use a mobile phone.	Apart from having a mobile phone, the market size will be determined by demand and supply side characteristics which could lead to some surprises: e.g. the market may well be larger in poorer countries where customers have few reliable payment options, rather than in wealthier countries where, for example, internet access is pervasive
B. Models emerging		
B1. Where are there successful models of m-banking?	Depends on the criteria for success—if it is number of customers, then countries in developed world include: Japan, Korea; and among developing countries: Philippines. (Porteous 2006). However, given relatively low overall usage to date, especially among unbanked, success probably means evidence of accelerating adoption and growth.	There has not been a publicly available extensive scan of all countries to test whether there are models in other LICs countries which have not been reported on and hence are less well known. The GSM Association of mobile operators can

	<p>However, there are often significant differences in uptake of new technology models in the former two countries, so the usefulness of models from the former two may be limited</p>	<p>probably help with this as they operate in virtually every country of the world with the possible exception of a few highly developed markets using US-CDMA technology</p>
<p>B2. Why have the models emerged there?</p>	<p>Various factors: in Japan & Korea, very high levels of usage and customer base open to new technology; also integrated hardware and service in Japan through DoCoMo. (Porteous 2006)</p> <p>Philippines: m-banking started because network operator SMART, late into the cellular market, was under pressure to find innovative ways to target a broader customer base. This led them to pioneer offering credit increments on prepaid at very low levels. Competitor GLOBE then developed similar concepts. This led to the provision and promotion of m-Commerce, a natural progression from low value prepaid transactions. (<i>infoDev</i> 2006) In addition, it appears that Central Bank has adopted an accommodating approach to new models (Lyman et al 2006).</p>	<p>Since m-banking was first introduced by SMART in 2000, and GLOBE followed only in 2004, it would be interesting to know the rates of adoption over time, and how the m-banking offering evolved in response to market feedback.</p>
<p>B3. Which models are more appealing to poor people?</p>	<p>Linked to A2 above, this is not yet known definitely but can be postulated based on features known to be demanded by low income customers.</p> <p>According to <i>Microsave</i> and other research, these characteristics include:</p> <ul style="list-style-type: none"> • Safety of money • Ability to deposit and withdraw small amounts of cash easily and affordably • Ability to transfer small amounts of money P2P reliably and fast 	<p>These features characterize 'transformational' m-banking products (Microsave 2006, Porteous 2006).</p>
<p>B4. How to categorize the emerging models?</p>	<p>Various ways possible—e.g. by technology channel or security element in use; by whether proprietary to one network or not; by roles played by bank and telco.</p> <p>The biggest regulatory distinction is whether or not there is e-money issuance by telco or non-bank (Lyman 2006). Porteous proposes 4 models, ranging from bank driven to telco driven, similar to <i>infoDev</i> (2006 Annex 3)</p>	

B5. Which communications channels/ protocols are being used and what are the issues with each?	A variety—SMS, USSD, WAP, WIG, IVR. Most popular emerging models use SMS or USSD. The significant advantage of the SMS approach is that it has a presence in almost all if not all networks, both US and GSM standards. All other protocols are in the “may be available” category as far as actual availability on any given network.	Would be useful to have an independent review of the technology aspects of each in terms of security, usability etc
B6. What are the barriers encountered so far?	A range, including 1. Uncertain pace and form of customer adoption: this is compounded by cumbersome download processes for some SIM-based models and time consuming origination of accounts where there is no real time ability to electronically verify identity 2. Regulatory impediments from the financial regulation side: these stem from the complex interaction of different regulatory domains i.e. AML/CFT, bank supervisor, payment supervisors, consumer protectors 3. Lack of interoperability of acquiring devices e.g. ATMs, where there are existing payments networks (Porteous 2006)	These impediments are based on reports from developed country provider forums and interviews with African providers. This could do with further validation across other developing countries
B7. What is the business case for telcos to provide m-banking services?	Basic case (telco as message carrier only): extra data traffic on network. Since data services such as SMS are very low cost and often have capacity, as long as network receives fee in excess of this cost, m-banking is revenue positive for the telco Enhanced models (telco playing a wider role, such as brand, system, etc): depends on the role played by the telco. Often, this requires extra investment in financial systems and interfaces, as well as marketing of brands, but they generate new fee revenue for telco; and reduce customer churn, especially if number portability is in place or likely (<i>infoDev</i> 2006)	
B8. What is the business case for banks?	Varies depending on role of the bank but includes: (i) Retaining existing customers (a defensive strategy in face of rival offerings) through greater convenience; (ii) Tipping transactions towards lower cost e-channels (although similar to internet for the bank). (iii) Selling other services (esp. credit which earns highest margin) through this channel, based on new transaction	There are few known transformational bank-driven models at present—rather JV-type such as Smart/BDO or MTN/Standard Bank. More systematic scan of other markets as in B1 may yield further examples and therefore drivers for banks

	<p>history</p> <p>(iv) Additional cash float from deposits</p> <p>(v) Potential for reaching new client base while maintaining a low cost of provision and on-going management</p> <p>Banks with existing client bases face the risk of cannibalizing this base through introducing low cost offerings. Only banks with the strategy, brand and capacity to reach out to unbanked customers are likely to be major players in transformational m-banking models.</p>	
B9. Who are likely to be the dominant players in m-banking?	Not clear yet—telcos dominate in Japan and Philippines; but mix in Africa. Tight financial regulatory regimes favour banks (MICs); weak domestic banking sectors favour telcos (LICs)	This is speculative; and can only be answered by tracking the emerging models
C. Policy and regulatory issues emerging		
<i>C1. Bank regulators</i>		
What does it require to get m-banking started?	An enabling environment with sufficient openness and certainty to allow a variety of models to startup and develop—see definition and principles applying it in Porteous (2006). To create this environment in the midst of complex overlapping legislation usually requires some public policy priority or commitment towards extending financial services. Sometimes, this may come simply from the desire for more efficiency in government payments to employees or citizens (G2P); or from fighting crime, although this may have perverse consequences—see C2, C3 below	
<i>C2. Telco regulators</i>		
What are the implications for telco licensing & regulation?	<p>None of significance, because the telecommunications aspects are essentially business as usual <i>infoDev</i> (2006)</p> <p>If telcos go beyond a message carrying role, they usually fall under one or more of the financial and commerce sector regulators as below.</p> <p>Note however, moves to require that ID be presented and verified for opening pre-paid mobile phone accounts as part of anti-crime strategies (similar to AML/CFT for bank accounts below)</p>	There may be a case for investigating (i) overlap of regulatory jurisdictions if telco issues e-money; (ii) accounting and regulatory treatment of pre-paid balance outstanding; (iii) solvency implications of greater revolving balances

<i>C3. Other regulators</i>		
Which other regulators are potentially affected by m-banking?	<p>M-banking is likely also to touch on domains of:</p> <ul style="list-style-type: none"> • Financial Intelligence Centre: AML/CFT regs • Payment system regulator • Competition authority • Consumer protection authority <p>For explanation of the specific issues connected to each, see Section 4 of Porteous 2006</p>	
D. Knowledge bases		
D1. Are there publicly accessible knowledge bases?	<p>Few websites provide comprehensive or targeted coverage although certain public web portals cover payment developments in general: e.g. European Payment System Observatory ePSO, which as the name implies, has a European focus.</p> <p>Industry associations MPF and MobeyForum also have websites with industry whitepapers available.</p>	There is a lot of breaking news, as expected in a new, widely followed sector, but a shortage of accessible independent analysis focused on developing countries
	There are also a number of proprietary services by subscription only e.g. Mobile Banking News, Mobile Payments World, Mercator Reports, etc	
D2. Are there independent (i.e. outside of providers) pools of skills on this issue?	In the US & Europe, there are payment specialist firms which include a mobile element. Large card associations also have technology skills in this area in-house, but not available to provide advice.	As demand increases in developing countries, these firms and individuals are likely to emerge, either exporting from markets with growing experience or adding on mobile expertise to existing payments service

Annex B. Other relevant donor initiatives underway

Several donor initiatives are already active in particular fields which touch on this field directly or indirectly.

B1. CGAP (www.cgap.org)

CGAP has already run a technology programme for several years, and has set up a web resource centre on the issue: http://www.microfinancegateway.org/resource_centers/technology. To date, the program has focused on understanding technology deployment especially at microfinance entities, and especially in their choice of IT systems. One output has been the publication of donor guides on financing technology adoption at MFIs. However, the program has expanded as the

ambit of technology has evolved, and CGAP has recently published useful pieces of overview research related to technology and financial services more generally.¹

B2. *infoDev* (www.infodev.org)

Similar to CGAP, *infoDev* is supported by a multidonor syndicate and is housed within the World Bank group. *infoDev* has undertaken extensive research into the introduction of ICT strategies on the lives of poor people. *infoDev* has published a handbook for ICT regulators; and commissioned a useful recent report on m-commerce, which investigated the Philippino m-banking models in detail and others in Africa to some extent.² *infoDev* is now developing a workplan in the area of m-banking, especially on the technology angles. <http://www.infodev.org/>

B3. FIRST (www.firstinitiative.org)

FIRST is a multi-donor facility which provides funding for technical assistance projects to policy makers, financial regulators and trade bodies in developing countries. Started in 2001, FIRST has funded a large number of projects to date. None have directly addressed the environment for mobile banking, although m-banking has featured recently within a broader project on payment system improvement more generally. However, FIRST now has limited remaining funding, unless replenished, and focuses only on a set of agreed priority areas within low income countries, hence it is unlikely to be able to provide much, if any, support in this area. Among the FIRST panel of consultants, two are listed as having mobile banking relevant experience.

FIRST is currently funding extensive cross-country research into the effect of AML-CFT approaches on access to financial services. The outcome of this research could assist greatly with arguing the case for enablement of transformational approaches to m-banking.

B4. UNDP Growing Sustainable Business (GSB) Programme (www.undp.org/business/gsb/about.htm)

UNDP's GSB programme aims to support enterprise models which address poverty in targeted developing countries. GSB largely achieves this through the presence of an in-country broker responsible for facilitating connections and new programs; and through co-funding market research and feasibility studies for new projects.

¹ CGAP Focus Note No32, available via http://www.cgap.org/docs/FocusNote_32.pdf; and Occasional Paper on Branchless Distribution, forthcoming

² Available via <http://www.infodev.org/content/highlights/detail/3013>

GSB prioritizes several sectors, including ICT and the financial sector. In these sectors, GSB has links to major multinational providers. Through the UNDP, GSB has in-country convening power to assemble regulators and providers for round table-type discussions, and may be able to undertake country-level surveys or mappings.

B5. Country level FSD programmes

A number of country-level financial sector development programs have been started, especially in Africa, which focus on expanding access to broader financial services. These include: FinMark Trust (Southern Africa), FSD Kenya, FSDT (Tanzania). These programs often have flexible resources which can be applied to projects within their geographic focus, whether at provider or regulator level. For example, the country-specific work for the prior Enabling Environment for Mobile Banking Report was funded by FinMark Trust for SA and FSD Kenya. These programs can be contributors to international or regional programs which cross their boundaries, as long as they will specifically benefit their own geography.

B6. Africa Enterprise Challenge Fund (AECF)

The AECF was proposed in the 2005 Report of the Commission for Africa as a way of supporting private sector development in Africa. AECF builds on DFID's learning in using a challenge fund-type approach through mechanisms such as the Financial Deepening Challenge Fund (FDCF). FDCF co-funded the M-Pesa mobile banking project underway in Kenya.

AECF is currently in design phase, and it is uncertain what the size of the fund will be or whether it will accommodate multiple sectors, such as the financial sector. It is likely to be operational from 2007. If it does, it could be a source of matched funding for private sector m-banking projects in Africa.

B7. Investment Climate Facility (ICF)

www.investmentclimatefacility.org

The ICF was recently launched as a private-public partnership, focused on improving the investment climate in Africa. ICF's mission is "to make Africa an even better place to do business, by removing obstacles to domestic and foreign investment and by promoting Africa as an attractive investment destination". The financial sector is one of the eight priority areas for the ICF, and m-banking could fit into this approach. However, ICF support would be limited to initiatives in African countries which improve the investment climate such as designing new regulations or capacitating regulators.

B8. Citigroup Foundation: Financial literacy (<http://www.citigroup.com/citigroup/financialeducation/highlights060401.htm>)

CitiFoundation has funded the design of consumer financial education materials for developing countries, and recently announced a further commitment of \$3.9m over 3 years for the roll out of financial education for the poor, through training trainers at microfinance institutions (MFIs).

The work is to be undertaken through Microfinance Opportunities, which has designed and researched curricula and approaches; and MFI Freedom from Hunger.

B9. Vodafone SIM Panel

(http://www.vodafone.com/section_article/0,3035,CATEGORY_ID%253D3040302%2526LANGUAGE_ID%253D0%2526CONTENT_ID%253D265416,00.html)

Vodafone has established an advisory panel which oversees research funded by this large multinational network operator into the social impact of mobile phones. Research published to date has included major research reports on mobile phones in Africa, and on applications in health care. The Panel is commissioning research around questions in the m-payments and banking arena.

B10. Other technology projects

Corporate foundations have funded a range of initiatives relevant to this sector: for example, HP (and others) supported through staff time and money a project to develop a Remote Transaction System in Uganda (see <http://www.hp.com/e-inclusion/en/project/uganda.html>). This project has now ended, however.