



**Digital Financial Services Risk Assessment For
Microfinance Institutions
A Pocket Guide**

A collaborative financial services practitioner-led effort

The Digital Financial Services Working Group

September 2014

Washington, D.C.

Table of Contents

1. Purpose and Principles.....	1
Figure 1.1. Examples of DFS Implementing Strategies	3
Figure 1.2: DFS Risk Categories Matrix	5
2. Risk Assessments and Mitigation Strategies	5
2.1 Risk Definition:	5
Table 2.1. Risk Categories, Definitions, and Examples	6
2.2 Risk Assessments.....	8
Table 2.2.1: Key Questions and Strategies	8
3. Issues and Lessons from the Field	9
4. Additional Useful Resources	11

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

About the Digital Financial Services Working Group

The Digital Financial Services Working Group is a practitioner-led group facilitated by Terry Isert, President of ProMicro Consulting LLC and Lynn Exton, Managing Partner of Exton & Partners Risk, Governance & Analytics LLP. Contributions to this guide were made by: Tom Shaw (CRS), Marcella Willis (Net Hope), Daryl Skoog (MicroPlanet Technologies, Inc.), Sonia Arenaza (Accion), Sudha Garg, Susan Salerno, Eve Hamilton (Chemonics), and Shailee Adnolfi (FHI360).

1. Purpose and Principles

The last ten years have seen growth of mobile technology, and as of 2014 there are almost 7 billion mobile cellular subscriptions worldwide with about half of them being unique subscriptions¹ (75% in developing countries). Despite growth in microfinance services over the same timeframe,² there are still approximately 2.5 billion people who do not have a formal account at a financial institution³ though 1.9 billion people out of those 2.5 billion have access to a mobile phone. Hence, this presents an opportunity for microfinance institutions (MFI)⁴ to adopt mobile platforms and channels and thereby expand access to their microfinance services.

According to a 2013 survey of 73 MFIs, 56 were not offering services through a mobile money platform but were interested in doing so.⁵ This indicates a growing interest by MFIs to identify innovative ways to leverage new technologies with the goal of increasing outreach, reducing costs and providing quality services. Reaching these goals can be more attainable by using Digital Financial Services (DFS),⁶ which can provide many tangible benefits such as:

- Decreased security risks to staff from not having to transport and handle large amounts of cash;
- Increased convenience for clients to make and receive payments via mobile phones;
- Improved governance from reduced cash handling by finance and field staff;

¹ <https://gsmaintelligence.com/>

² 2014 statistics by the International Telecommunications Union on global mobile subscriptions:

<http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2014-e.pdf>

³ 2012 World Bank data on the numbers of unbanked:

http://siteresources.worldbank.org/EXTGLOBALFIN/Resources/8519638-1332259343991/world_bank3_Poster.pdf

⁴ For the purposes of this guide, the term MFI refers to all financial institutions serving the base of the pyramid. This may include non-governmental organizations, cooperatives, credit unions, MFI banks, and other regulated and non-regulated financial service providers.

⁵ 2013 Mobile Banking Study: Experiences and Perspectives of MFIs:

http://www.fgda.org/dati/ContentManager/files/Documenti_microfinanza/Mobile-Banking-Study.pdf

⁶ For our purposes we are using the US AID definition for Digital Financial services as “a broad category that encompasses MFS and all branchless banking services that are enabled via electronic channels. Services can be accessed using a variety of electronic instruments, including mobile phones, PoS devices, electronic cards (credit, debit, smart cards, and key fobs) and computers. Similarly “digital payments” covers mobile payments and electronic payments, while “digital money” covers mobile money and electronic money (Source: *Digital Finance for Development: A Handbook for USAID Staff*, p. 3, US AID).

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

- Increased staff efficiency by reducing their time spent on cash disbursements and collections;
- Better service to clients using mobile phones and/or agents to repay their loans more easily, without incurring additional transactional costs (transportation/time); and
- Clients can receive automatic reminder and alerts on the phones reducing late payment.⁷

Despite these potential benefits, there are also practical challenges that may be encountered when adopting DFS:

- Investments of time, human resources, and money, are necessary to change payment systems;
- Change management is required within the institution to lead this effort successfully; and
- Behavioral changes are required by the clients to adopt the new technologies.

Before proceeding with providing these services, it is critical that each MFI carry out its standard feasibility assessment to determine whether the investment is justified, and if so, to select an appropriate DFS business model.

The 2013 CGAP Focus Note “Microfinance and Mobile Banking: Blurring the Lines?”⁸ provides case examples illustrating the range of m-banking⁹ solutions (products) and business models that have been adopted by MFIs. These are summarized in the table below, and provide a useful framework for reviewing potential existing options in the market versus the level of internal resources needed:

⁷ Digital Financial Services and Microfinance: State of Play:

https://centerforfinancialinclusionblog.files.wordpress.com/2014/08/20140821_eos_dfs_mfis.pdf

⁸ 2013 Focus Note: Microfinance and Mobile Banking: Blurring the Lines?

<http://www.cgap.org/publications/microfinance-and-mobile-banking-blurring-lines>

⁹ M-banking is a term used to refer to mobile financial services transactions for customers and their financial institutions by way of an electronic device and platform. For the purposes of this pocket guide, it is synonymous with digital financial services although the authors recognize that there are other interpretations and definitions.

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

Figure 1.1 Examples of DFS Implementing Strategies¹⁰



The last three options rely on the existence in the market of mobile money products, termed “deployments”¹¹ offered by payment service providers like Mobile Network Operators (MNO). The most relevant products they offer to MFIs for extending DFS to their clients are:

- A bulk payment product that allows payments to be sent from one to many, or business to person (B2P), which can be used for loan disbursements from the MFI to the clients.
- A merchant or bill pay product that allows payments to be sent from many to one, or person to business (P2B), which can be used for loan repayments or savings contributions from clients to the MFI.

Some key differences between these options are around the data transaction reports generated by the payment service provider, how the MFI accesses them and integrates them into their own MIS (manually and/or through introduction of a new middleware or software), how the MFI staff accesses and interfaces with the data input, and how the end client interfaces with the product and service.

The opportunities for MFIs to leverage existing products in the market are increasing with the rapid growth of mobile money deployments globally, and an increase in bulk payment and merchant or bill pay products.¹² In the majority of cases to date, MFIs have selected one of the first three options. Nonetheless,

¹⁰ Please note the distinction between the “Build Own Platform” and “Go-It-Alone” options. The former is not an MFI building its own mobile banking platform. Rather it’s development of the MIS integration platform to integrate an external service provider’s m-banking product. I would not label it as Build Own Platform and leave that for the Go it Alone extreme option. And perhaps in the description would change to “develop MIS platform.” In all of the options it’s a combination of two elements; e.g., the m-banking products and the data integration with the MFI’s MIS.

¹¹ GSMA Mobile Money Deployment Tracker: <http://www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked/insights/tracker>

¹² 2013 GSMA State of the Industry Report: http://www.gsma.com/mobilefordevelopment/state-of-the-industry-2013?utm_campaign=GSMA%20REPORT%20SHOWS%20ACTIVE%20MOBILE%20MONEY%20CUSTOMER

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

for some MFIs developing a proprietary system may be the preferred option. As would be expected, the investment in terms of time, human resources, and funding required, and the risks associated with each option vary. Consequently, each option requires a tailored assessment by the MFI.

The purpose of this guide is to help MFI's to be successful in their DFS delivery. This Guide is meant to help MFIs understand the risks and corresponding mitigation strategies associated with DFS in general, and with the diverse business models available for providing these services. It will help in reducing the risks to clients in their transition to DFS delivery models.

With a sound risk assessment and robust risk mitigation strategies, MFIs can successfully provide DFS that will ensure protection of assets, security of transactions, prevention of fraud, protection of client privacy, data security and compliance with laws and regulations that are applicable to DFS, regardless of which option is selected.

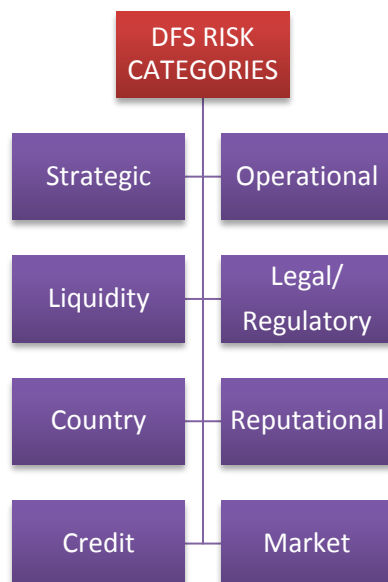
While this guide mentions the spectrum of solutions that MFIs can consider, it does not attempt to fully analyze all of the options available to MFIs, as the fusion of DFS and microfinance is subject to constant innovation. Nor is it a "how to" manual. Rather, it is a guide that will help identify and assess risks associated with providing DFS to clients prior to offering these products as well as on an ongoing basis. Because strategies to mitigate risks will vary according to each institution and its own particular context, this guide does not prescribe specific risk mitigation strategies, but does provide some examples in the issues and lessons learned. As illustrated in Figure 1.2 risks for MFIs can be categorized as strategic, operational, liquidity, legal/regulatory, country, reputational, credit, and market, encompassing a wide continuum of threats that are external as well as internal to institutions providing MFS. Technology and cyber risks are included under Operational risks.

[S%20REACHED%2061%20MILLION%20IN%202013&utm_medium=email&utm_source=Eloqua&elq=367e8210bd0245268f57b4821fb5ff11&elqCampaignId=1332](https://www.reached.com/2061/20MILLION%20IN%202013&utm_medium=email&utm_source=Eloqua&elq=367e8210bd0245268f57b4821fb5ff11&elqCampaignId=1332)

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

Figure 1.2 DFS Risk Categories Matrix



This Guide, in line with the DFS Risk Categories Matrix, will help you:

- Identify risks quickly and uniformly
- Accurately assess your institution's exposure to various risks
- Rapidly select consistent mitigation strategies to lessen your exposure to these risks
- Successfully develop and offer DFS products to your clients, while minimizing associated risks
- Protect your clients and your institution

2. Risk Assessments and Mitigation Strategies

The risks faced by an MFI that is looking to offer digital financial services or expand the scope of those services depend on the role that it takes in the implementation of the system. If they solely disburse funds through mobile banking and receive payments they face a narrower range of risks, than those that receive cash and hold the account of the individuals involved as the level of risks and complexity increase.

Prior to doing a risk assessment, it is important that institutions identify the potential risks that they may face. In order to do that it is important that they have a good understanding of what constitutes a potential risk as well as various risk categories so that the risk identification is comprehensive and pre-emptive steps are taken to mitigate these risks.

2.1 Risk Definition

Risk is defined as the potential for loss or failure to meet business objectives as a consequence of internal or external events.

Below are some potential risks that an MFI looking to implement digital financial services might face:

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

- Clients cannot access account or cash
- Failure of counterparty¹³ to perform
- Regulation
- Technology
- Competing systems
- Fraud
- Reputation risk
- Taxation
- Cyber risk

Risks can be difficult for many financial services practitioners to define and therefore monitor consistently. The table below groups risks by categories and provides useful real-life examples to make risks more tangible and easier to monitor and plan responses.

Table 2.1 Risk Categories, Definitions, and Examples

Risk Category	Definition	Risk Examples
Strategic	Risk to earnings or capital of operating a business in a competitive environment. Key words: Competition, deals, major long term investments and/or resource commitments	<ol style="list-style-type: none"> 1. Organization does not fully understand its target market for digital financial services and does not estimate properly the amount of investment and resources needed. 2. Providing digital financial services does not fit into the long-term strategic plan of the organization or is not currently a good fit. 3. Competing priorities that negatively impact ability to focus on digital financial services.
Operational	Risk of direct or indirect loss from failed or inadequate processes, people or systems, or exposure to external events. Operational risk includes information technology (IT) risk.	<ol style="list-style-type: none"> 1. Systems and technology to provide digital financial services are not available or there are frequent breakdowns in services. 2. Clients cannot access cash or services. 3. Provider lacks adequate safeguards to prevent fraud or hacking into system, including identity fraud and theft of customer moneys.
Liquidity	Risk of not being able to obtain funds at a reasonable price and in a reasonable time period to ensure financial commitments can be met as they fall due.	<ol style="list-style-type: none"> 1. Inability of clients to convert credit to cash (both through organization, agents, or other service providers).

¹³ The term “counterparty” is defined as the other party that participates in a financial transaction. Counterparty risk is the risk that the other party will be unable to fulfill its obligations under the contract.

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

Risk Category	Definition	Risk Examples
Legal/Regulatory	Risk of failing to comply with laws, regulations, and rules. It also includes risk of loss related to new and changed laws, and interpretation of laws.	<ol style="list-style-type: none"> 2. Counterparty does not perform or provide services as agreed upon. 3. Service provider goes out of business. 4. Risk of money laundering if Anti-Money Laundering (AML) controls are not in place. 5. Organization does not comply with applicable laws and regulations resulting in fines, regulatory intervention, and disruption or closure of services. 6. Government imposes new taxes or fees on services.
Country	Political, exchange rate, and economic risks associated with operating in a given country, including changing economic policy or banking regulations, political unrest.	<ol style="list-style-type: none"> 1. A license to provide a given service may be changed as a result of government policy. 2. Election periods disruptions due to civil unrest. 3. Price caps on services can render them uneconomic to provide.
Reputation	Risk to market value arising from negative public or other stakeholder opinions based on business practices, products, services, or other areas of concern.	<ol style="list-style-type: none"> 1. Activities negatively impact financial system such as bank failures and widespread fraud. 2. Failure to provide services impacts confidence in organization, client reaction and retention.
Credit (also includes counter-party credit risk)	Risk of loss from obligor's failure to meet terms of a contract or otherwise fail to perform as agreed.	<ol style="list-style-type: none"> 1. Counterparty does not perform or provide services as agreed upon, including failure to offer credit if needed. 2. Risk of non-payment by MFI clients.
Market	Risk of loss resulting from changes in interest rates or foreign exchange/market rates.	<ol style="list-style-type: none"> 1. Changes in foreign exchange rates could negatively impact international remittances of funds. 2. Potential currency re-denomination

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

2.2 Risk Assessments

Risk assessment is a process that is composed of identifying, assessing and responding to risks so that the likelihood of achieving business objectives (in this case implementation of digital financial services) is increased. It also ensures that appropriate resources, both management and staff, are allocated to manage those risks.

Self- Assessment Steps
1. Assessment Planning
2. Event Identification
3. Carry out Assessment
4. Mitigation Responses

An effective risk assessment process should involve key areas within an organization – Operations, Credit, Lending, Risk Management, Internal Audit and others, as deemed appropriate. In performing a risk assessment, the following considerations should be taken into account:

Table 2.2.1 Key Questions and Strategies

Key Questions	What should you do?
What are the largest risks to business objectives?	<ul style="list-style-type: none"> • Understand the largest risks.
How are the risks updated in response to changing information and new information?	<ul style="list-style-type: none"> • Ensure risks are kept up to date.
What is the response strategy and related accountability and implementation plan?	<ul style="list-style-type: none"> • Assign accountable parties to each of the risks and mitigants. • Mitigate largest risks and manage the other risks.

Note: When identifying risk exposure through risk self-assessment, the goal is to focus on the higher level risks, rather than on lower level risks that may not be material (i.e. they may not have a significant impact on the objectives and goals that an organization is seeking to achieve).

In conducting a risk assessment, an institution needs to understand what the probability is of the risk occurring, and if it does occur, how severe the impact on the MFI is likely to be. Probability and impact will help an institution determine what their risk mitigation strategies and actions will be. Risks can be categorized by frequency and then assigned a probability as described below: ¹⁴

¹⁴ When assessing the likelihood of risk, consider that it is not the potential for occurrence (every time you buy a lottery ticket you could potentially be a winner), but rather it is the expected frequency or probability of occurrence. Frequency or Probability or both can be used by an MFI make its risk assessment.

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

Figure 2.2.2 Risk Assessment Probability Scale

Frequency	Probability	Probability (Low, Medium, High)
Every 10 years	10%	Low Probability of Occurrence
Every 5 years	20%	Medium Probability of Occurrence
Every 2 years	50%	
Every year or less	100%	High Probability of Occurrence

Using the risk probability, an institution determines impacts of each risk on its operations and clients. Some risks will have low impacts on an MFI while others will be more severe. For example, risks with higher impacts and higher probabilities of occurrence will require swifter responses. The figure below provides a useful tool to quickly determine appropriate mitigation decisions.

Figure 2.2.3 Risk Mitigation Decisions Using Impact and Probability Levels

	Impact		
Probability	Low	Medium	High
High			
Medium			
Low			

Key:

Green Risks: Do not need to mitigate if risk is acceptable. Monitor and reduce where practicable.

Yellow Risks: Risks should be mitigated/reduced as far as practical, for example depending on resources as well as competing priorities.

Red Risks: Strongly consider mitigating risk and taking immediate action.

3. Issues and Lessons from the Field

The following key issues and lessons have been captured from other MFIs who have analyzed and/or implemented DFS. Valuable experiences have been distilled into 9 key areas both internal and external to MFIs weighing a DFS product or managing an existing product.

- **Client Trust is a Necessary Precondition for Successful DFS Product Take-up**

Trust is of primary importance when venturing into new channel delivery capabilities by the MFI. The clients must trust that the MFI will be able to deliver securely the service that it is promoting. Clients also must trust that the MFI's delivery partners are also reliable. Using MPESA as an example, people in Kenya knew that Safaricom/Vodafone were reliable in delivering text messages so when the company added the payment element of their service, people trusted that their payments would be safely delivered.

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

- **Dedicated Team for the Project**
When taking on a major project like mobile banking/payments systems, it is valuable to the MFI to ensure that there is a team of people who can be dedicated to the new effort so that they can concentrate on managing the project according to the delivery schedule. Often times we observe that when a new project is engaged, the local team is made up of the same players that are already 100% busy running the current business. With the large workload of running the business, the new project often suffers from not receiving the time and attention needed. This causes a lot of project delays and contractors waiting on local staff to perform their tasks so that the contractors can complete their work.
- **Business Unit Involvement**
Building trust and confidence in the system by clients is extremely important.¹⁵ If the system isn't working properly or clients don't fully know how to use it, they will not have confidence to adopt it and may even lose trust in the MFI thereby leading to poor portfolio quality or even lost clients. Studies on mobile money adoption show that there's a greater chance customers will continue using the new mobile money technology if they are confident in how to use it initially (lots of initial hand holding required), and able to use it again right away (i.e., don't wait another six months for the next loan disbursement).
- **Road-test New Payment Systems Internally with Staff Before Rolling Out to Clients**
Test new payment systems first with staff internally to ensure it's working properly (the teething process) and the staff can understand it and can market it to clients. And test it in small trials and incrementally expand – starting with low hanging fruit (i.e., areas where coverage is better or clients are more educated).
- **Senior Management Engagement in Project Management**
Keeping to the projected delivery schedule is an important part of the change management for the MFI, and this means that leadership is critical to push it through and maintain the momentum.
- **Partner Reliability is Critical**
Partner reliability is very important for the ongoing success of new innovations in channel delivery. While price is always an important element in vendor selection process, the reliable sustainability of the partner is also very important. Will the management system partner be in business for the long term? Will the Mobile Network Operator (MNO) be able to provide the payment service or the message delivery; what is their track record in the community? Are the agents used as cashing and cash out points reliable; do they have the needed cash, a sufficient number of points of service, and a business that will be in the community long term?
- **Knowledgeable employees are critical:** Knowledgeable employees are critical to the roll out of new innovations. Ensuring that employees know and understand the products and services means they will be able to guide clients through difficult times when they are learning how to use the new products. Linking employees pay to the product or service is

¹⁵ Please refer to “Resources on Consumer Education for Branchless Banking” at <https://www.microfinanceopportunities.org/4-work-with-us/mfo-in-the-field/project-list/branchless-banking-2/>

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

one way that some organizations have ensured that their workforce knows intimately how the service works and ensures that it works reliably every day. Linking pay with a product, introducing the product internally with the employees first and then to the clients helps ensure that operations will be working before being exposed to the broader customer community.

- **Product Support Available Full-time for Clients and Employees is Recommended**

It is valuable to understand that when the new more sophisticated set of operations, procedures and systems are put in place, a support system also needs to be established so that when infrequently performed tasks are forgotten, there is a quick way to help the line employee assist a client with their transactions. Also, new employees will be coming onboard and their ability to be adequately instructed on how to operate the system and to also be supported when they are still learning on the job is critical in helping the customer maintain trust in an organization and its staff and to be confident that they are supported during difficult times.

- **An Experienced Project Manager is Advisable**

Project Management is often assumed to be a skill that is readily available in all project participants but experience has shown that it is a critical function that the leader (Project Sponsor) will want to ensure is adequately addressed by the project team. Project management leadership is the on the ground representative of the project sponsor on a daily basis and needs to have the authority to insist and ensure that project members are fulfilling their roles and deliverables so that the long delays to the critical path of the project don't stop progress. The project manager has to be able to take any number of unstructured sets of challenges that come up in the course of the project and ensure that those challenges are addressed in a timely manner. It might mean at times that the skills to solve the challenges are internal and at other times they need to be acquired from vendors or consultants. The person filling the project manager role thus must be able to make decisions and take action quickly and then ensure that all critical parties are informed about any changes that have taken place so that a continued coordination across the project team is maintained. The project manager is key and critical to success.

4. Additional Useful Resources

There is an expansive and growing library of resources available to MFIs on DFS. These can be accessed by free membership to the DFS forum on the LinkedIn social media platform. The forum's resource library is managed by group members and divided into the following folders:

1. Cases and briefs
2. Standards
3. Risk Assessment

In addition, Appendix A contains a subset of the most relevant publications. Finally, the authors of this pocket guide would like to encourage the MFI community to share lessons learned. To this end, there is an online community on the LinkedIn site that maintains an electronic library of "Lessons Learned," where stakeholders are invited to contribute their key learnings.

Digital Financial Services Risk Assessment For Microfinance Institutions Pocket Guide

A collaborative financial services practitioner-led effort

Appendix A Resource Documents

1. A Practical Guide to Information Governance (Iron Mountain)
<http://www.ironmountain.com/Knowledge-Center/Reference-Library/View-by-Document-Type/White-Papers-Briefs/A/A-Practical-Guide-To-Information-Governance.aspx>
2. Agent Network Accelerator Survey Kenya Country Report 2013 (Helix Institute of Digital Finance)
<http://helix-institute.com/data-and-insights/agent-network-accelerator-survey-kenya-country-report-2013>
3. Agent Network Accelerator Survey-Nigeria 2014 (Helix Institute of Digital Finance) <http://helix-institute.com/data-and-insights/agent-network-accelerator-survey-nigeria-country-report-2014>
4. Agent Network Accelerator Survey-Tanzania Country Report 2013 (Helix Institute of Digital Finance) <http://helix-institute.com/data-and-insights/agent-network-survey-tanzania-country-report-2013>
5. Agent Network Accelerator Survey Uganda Country Report 2013 (Helix Institute of Digital Finance)
<http://helix-institute.com/data-and-insights/agent-network-accelerator-survey-%E2%80%93-uganda-country-report-2013-0>
6. Digital Money Innovation Framework (Bill & Melinda Gates Foundation)
https://dl.dropboxusercontent.com/u/14380593/DigitalMoneyInnovationFramework_Bill%26MelindaGatesFoundation.pdf
7. Standards and Practices Report for Electronic and Mobile Payments (Deloitte Consulting LLP)
http://nethope.org/assets/uploads/Electronic_Payments_Standards_and_Practices_Report.pdf
8. Emerging Trends for Mobile Money Agent Networks (Helix Institute) <http://helix-institute.com/sites/default/files/Presentation%20Downloads/Emerging%20Trends%20for%20Mobile%20Money%20Agent%20Networks.pdf>
9. Executive Review Risk Management v1-June 2014 (GSMA-Mobile Money for the Unbanked)
http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/06/ExecutiveReview_RiskManagement_v1_June2014.pdf
10. Final Risk Management toolkit-Summary (GSMA-Mobile Money for the Unbanked)
http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/06/Final_Risk-Management-Toolkit-Summary.pdf
11. mMoney Handbook v6-Digital Finance for Development- A Handbook for USAID Staff (USAID and FHI 360) http://pdf.usaid.gov/pdf_docs/pbaaa740.pdf
12. MMU Enabling Regulatory Solutions (GSMA-Mobile Money for the Unbanked)
<http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/02/MMU-Enabling-Regulatory-Solutions-di-Castri-2013.pdf>
13. MMU Managing the Risk in Fraud in Mobile Money – 2012 (GSMA-Mobile Money for the Unbanked) <http://www.gsma.com/mobilefordevelopment/managing-the-risk-of-fraud-in-mobile-money>
14. Mobile Financial Services Risk Matrix (USAID and Booz Hamilton, Kenya School of Monetary Studies) <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/06/mobilefinancialservicesriskmatrix100723.pdf>
15. Mobile Financial Services: Basic Terminology (Alliance for Financial Inclusion) http://www.afifinancialinclusion.org/sites/default/files/publications/mfswg_gl_1_basic_terminology_finalnewnew_pdf.pdf
16. Mobile Financial Services: Regulatory Reporting (Alliance for Financial Inclusion) http://www.afifinancialinclusion.org/sites/default/files/publications/mfswg_guideline_note_no.3_lo.pdf
17. Mobile Financial Services: Technology Risks - 2013 (Alliance for Financial Inclusion)
http://www.afifinancialinclusion.org/sites/default/files/publications/mfswg_guideline_note_no.2_lo.pdf

**Digital Financial Services Risk Assessment For Microfinance Institutions
Pocket Guide**

A collaborative financial services practitioner-led effort

18. MSFWG Guideline Note no. 12-Supervision and Oversight of Mobile Financial Services (Alliance for Financial Inclusion) http://www.afi-global.org/sites/default/files/publications/mfswg_guideline_note_no.12.pdf
 19. Regulatory Approaches to MFS in Latin America (Alliance for Financial Inclusion) http://www.afi-global.org/sites/default/files/publications/afi_lac_special_report_en_annex_low_res.pdf
 20. USAID Net Hope e Payment toolkit-Making the Journey from Cash to Electronic Payments (USAID and Net Hope) http://www.usaid.gov/sites/default/files/documents/15396/USAID_NetHope_ePayment_Toolkit.pdf
 21. WP 0810-Mobile Money Transfer Services: The Next Phase in the Evolution of Person-to-Person Payments (Federal Reserve Bank of Atlanta) http://www.frbatlanta.org/documents/rprf/rprf_resources/wp_0810.pdf
-