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Design and Implementation of  
Financial Management Systems:  
An African Perspective

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## **Abstract**

In the early 1990s developing countries in Africa began to focus on the improvement of public finance, in particular on budget and expenditure management reforms. Mainly as a response to concerns from the donor community, governments started to critically review the existing systems and processes. As a response to inadequate and outdated systems, a recommendation was the introduction of integrated financial management systems (FMS) along the experience of developed countries in the '70s and '80s (integration of different functions of public finance on the basis of a uniform technical platform.)

This note intends to evaluate experience with the design and implementation of FMS in the context of African countries, and to identify some of the critical elements for the success of their introduction. The note outlines the FMS reform agenda; summarizes the experience in five African countries; analyses lessons learnt and presents some key conclusions for the design and implementation of FMS reforms.

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## Table of Contents

I. Defining the FMS Reform Agenda .....	1
II. <i>Learning from the Experience in Five African Countries</i> .....	4
III. Lessons Learned and Recommendations.....	10
Table 5. Comparative Assessment of FMS Reforms .....	11
Recommendation No. 1: Adequately Assess Commitment to FMS Reform .....	12
Recommendation No. 2: Determine functional reform priorities and “think small” ...	12
Recommendation No. 3: Design Adequate Roll-Out Strategy for FMS Reform .....	14
Recommendation No. 4: Focus Initially on Reforming the Existing Budget Execution Process .....	15
Recommendation No. 5: Make the Right Technical Choices.....	16
Recommendation No. 6: Adequately assess and build capacity .....	18
Recommendation No. 7: Assess the Cost Implications.....	19
IV. Conclusion .....	21
Reference .....	22

## Table and Figures

Financial & Economic Management System .....	2
Table 1. FMS Reform in Selected African Countries Financial & Economic Management System .....	4
Table 2. FMS Reform in Selected African Countries .....	7
Table 3. Technical overview .....	9
Table 4. Comparative Assessment of FMS Reforms .....	11
Table 5. Cost Implications.....	20



## I. Defining the FMS Reform Agenda

Many African countries struggle with the ‘right’ approach to reform public financial management. Studies indicate that institutions, systems, and processes that deal with the various aspects of public finance are weak, non-transparent, and, often, incapable of developing adequate budgets, monitoring public expenditures, using public funds and investments efficiently, and providing reliable data for macroeconomic modeling. Even if an analysis identifies all problem areas and weaknesses, it is often difficult to determine how and where to begin to reform the existing environment. The necessary adjustment processes are complex and deal with interrelated issues, such as institutional reforms, procedural and institutional arrangements, training, and capacity building. The use of information technology (IT)—often considered a key element of a reform agenda—poses additional challenges.

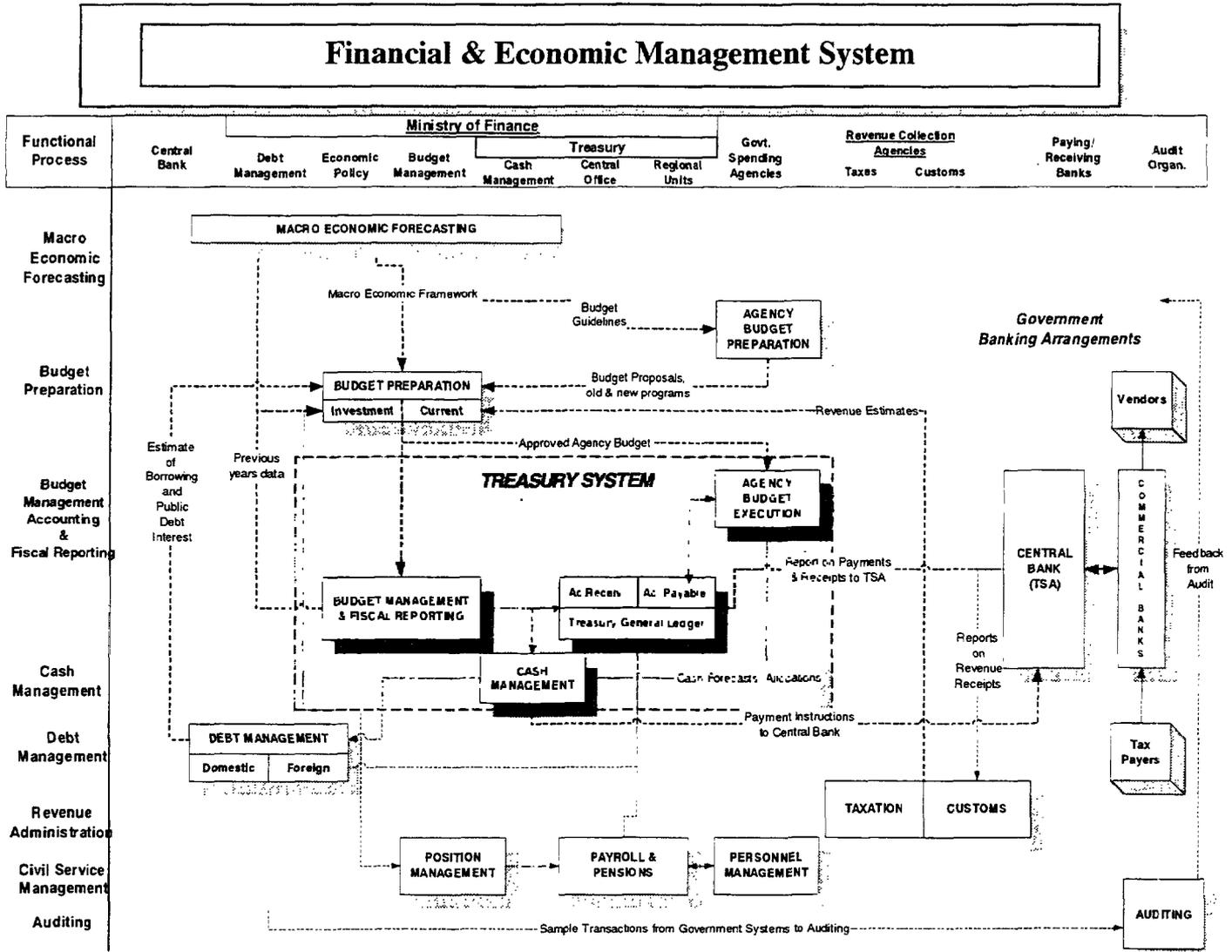
What is a FMS and what are its key components? Definitions differ but for the purpose of this note we suggest focusing on the budget and expenditure management process. From this point of view, key elements of a FMS entail:

- a budget preparation sub-system which may or may not be based on a Medium-Term Expenditure Framework (MTEF). Under a MTEF, the national budget is derived from a multi-year rolling plan which is updated annually;<sup>1</sup>
- a budget execution and expenditure management sub-system to monitor and account for revenues and public expenditures. Important elements typically include an accounting system, a cash management system to monitor the cash flow within government, a commitment control system to monitor commitments, an aid and debt management system to track external aid and debt, and a payroll system. To ensure consistency, the introduction of a uniform Chart of Accounts to capture receipts, expenditures, and commitments is required. Other related expenditure control mechanisms could focus on public procurement and inventory control.
- reporting and auditing sub-systems to ensure transparency, accountability, and compliance with the budget or with existing regulations that govern public expenditure management.

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<sup>1</sup> See ‘Public Expenditure Management Handbook’, June 1998, World Bank, Document No. 18168.

The full complexity of the financial and economic management process of government is illustrated in the following model:<sup>2</sup>



<sup>2</sup> Ali Hashim, "Treasury Reference Model", World Bank Technical Paper No. 505.

The integration of different functions and entities within a shared database provide managers with tools to plan, manage, and control public resources. Automation is an important FMS feature whose benefits include:

- improved transparency of public sector operations;
- rapid expedition of many transactions at once (contrary to manual systems which are cumbersome and slow);
- improved efficiency of financial controls and other expenditure management procedures;
- rapid compilation of data from many sources for improved financial analysis and decision making; and
- improved consistency of information and improved checks and balances.

Technical solutions range from a stand-alone accounting system to a complex network-based IT system. Experience indicates that the use of a standard FMS package is the most cost-effective solution. These FMS packages allow customization of specific user requirements formulated at the design stage. Modern integrated FMS systems have in particular two key features:

- a uniform classification of accounts (new Chart of Accounts) used for the budget and expenditure management data; and
- communication and data exchange capabilities across the system or across the Local Area Network (LAN) and Wide Area Network (WAN), regardless of technology platform used within the system.

The technical choice depends, *inter alia*, on availability of funds, operational costs and long-term cost implications, existing infrastructure, planned number of users and sites to be connected, local skill-level and IT capacity.

## II. Learning from the Experience in Five African Countries

This note draws upon the experiences of five African countries, each of which have made different choices for FMS design and implementation.<sup>3</sup> Table 1 summarizes the scope and focus of the FMS reforms, as well as the broader reform context in the selected countries.

Table 1. FMS Reform in Selected African Countries

	Starting point	Broader Reform Context	Scope	Key FMS elements
<b>Ghana</b>	Reviews and studies of public finance system	National Institutional Renewal Program with various components including financial management reforms	Large and comprehensive with massive IT-investments	Budget preparation (incl. MTEF*), accounting, cash management, commitment control, aid & debt management, payroll system, Complementary audit, revenue agencies' and procurement reforms
<b>Tanzania</b>	Reviews and studies of public finance system	Comprehensive public sector reform program	Comprehensive with reform focus on central government agencies, revenue agencies and local governments	At central government level: Budget preparation incl. MTEF, accounting, cash management, commitment control, full integration of revenue agencies At local government level: all of the above except MTEF Complementary payroll modernization
<b>Burkina Faso</b>	Reviews and studies of public finance system	Structural Adjustment Program with particular focus on economic management, public sector reform project	Moderate with reform focus on key agencies	Budget preparation, accounting, cash management, commitment control, aid & debt management, Integration of revenue agencies, Interface to payroll system, Public procurement reform ongoing
<b>Malawi</b>	Reviews and studies of public finance system	Comprehensive budget and administrative reform program with various components including financial management reforms	Moderate with initial reform focus on key agencies	Accounting, cash management, commitment control, Complementary payroll reform Planned for later phase: integration of budget preparation, aid & debt management, revenue administration, asset management, fleet management, MTEF-budgeting was introduced earlier
<b>Uganda</b>	Reviews and studies of public finance system	Comprehensive budget and administrative reform program with various components including financial management reforms	Large and comprehensive covering all central government ministries and 10 districts	Budget preparation, accounting, cash management, commitment control, aid & debt management Complementary audit, revenue agencies' and procurement reforms

\* MTEF: Medium Term Expenditure Framework.

<sup>3</sup> The evaluation of the country experiences is based on telephone and videoconference discussions with government officials and consultants as well as on documents made available by the project teams.

- **Ghana** has been implementing an ambitious multi-faceted Public Financial Management Reform Program since 1996, which aims to address all of the above mentioned elements of the budget and expenditure management process. Part of the program is to introduce three-year rolling plans for the government based on the MTEF. The new budget and financial management system now under development is based on state-of-the art IT-technology (i.e. Oracle Financials) and will cover the entire central government, including its decentralized entities. Under the program, about 2,000 workstations will be installed and integrated into one network. Several thousand public sector employees will be trained to ensure compliance with the new system. The pilot phase (1996-2001) has focused on reforming the budget preparation process with the introduction of the MTEF, revising the regulatory framework for expenditure management, developing a new procurement law, and introducing a pilot integrated budget and expenditure management system in the Ministry of Finance, the Controller and Accountant General's Department, and in six key ministries. At the same time, the payroll system is being modernized and is scheduled to be integrated into the new expenditure management system.
- **Tanzania** is well-advanced in implementing a new integrated FMS, which focuses on budgeting, accounting, cash management, and commitment control. The modernization of the payroll system was addressed under a separate project. Tanzania's reform program, launched at the same time as Ghana's, involves a phased approach, initially introducing an accounting system, followed by an MTEF-based budget preparation process. The IT-solution selected is a medium-sized financial management and accounting package (Platinum) and is significantly less complex than Ghana's. The rollout plan, which began in 1998, was based on an incremental approach and focused initially on the Accountant General's Department and ten pilot ministries. After a consolidation phase, the system was rolled out to all 43 ministries and departments in the capital. Subsequently, the system was introduced in twenty regional treasuries and now covers the entire central government. At the local level, the system has been introduced to 28 local authorities and a roll-out to an additional 30 authorities is ongoing. For the revenue agencies, a comprehensive expenditure management system has been introduced, which operates on an accrual basis, encompassing creditors, debtors, depreciation, and assets and liabilities. The system also provides for procurement, tender management, asset management modules. The backbone of the system is a WAN that links the agencies in the capital; the remote sites are connected by dialup technology or more recently by a private service provider. Currently, over 500 terminals have been installed and over 1,500 staff have been trained.
- In **Burkina Faso**, a new financial management system was introduced in 1994. It focuses primarily on budget execution and expenditure management and entails budget preparation but has not introduced a MTEF. The backbone of the IT-solution is a customized expenditure management and accounting system (based on Oracle). The rollout focused initially on the budget and treasury departments and was expanded to all central government ministries in the capital and then to the regional treasuries, where it is accessible by intranet connection. At the current stage, about

250 workstations are integrated into the system. Subsequent rollouts to the regional offices of line ministries are under consideration.

- **Malawi** initiated budget and administrative reforms in 1995 with a MTEF, which was to introduce a medium-term planning framework while strengthening the in-year budget process. Difficulties in deepening the MTEF, as well as problems in implementation such as the build-up of arrears and reliance on extra-budgetary sources of funding, have led to a strategic re-thinking of reforms. The government is seeking to strengthen the systems for execution and reporting and accountability mechanisms to improve the credibility of the budget process. In this context, efforts to pilot an integrated FMS in four ministries focus on budget execution, accounting, cash management, and commitment control. The customized FMS software will be introduced in the pilot institutions in 2001. The package solution—CODA Financials—is a medium-sized financial management and accounting software, sufficiently versatile to be tailored to different institutional arrangements (for example, centralized and decentralized systems) and to operate in a stand-alone mode in remote areas. Following the completion of the pilots, a horizontal rollout of the FMS to other central ministries is envisaged to fit the needs of Malawi's existing institutional framework, such as its decentralized payment system. A FMS team has been organized to support the IT, data management, and capacity building dimensions of implementation; counterpart teams have been formed in all pilot ministries. The communication infrastructure includes a fully operational Wide Area Network (WAN) on which the FMS and other automated information systems will run. Other parallel projects focus on automating the payroll and pension systems, as well as on aid and debt management. An interim IT policy is being developed to guide the integration of these systems with the FMS.
- **Uganda** is preparing a comprehensive financial management reform program, to overhaul the budget and expenditure management processes at the central and decentralized governmental levels. In line with its decentralization policy, the government intends to delegate authority in the area of public finance to local governments.<sup>4</sup> The new system will address all stages of the financial management process, including budget preparation, budget execution, accounting, cash management, fiscal reporting, and asset management. The new system is being complemented by other parallel reforms, such as the adjustment of the regulatory framework for financial management, procurement and external audit reforms. At the local government level, efforts are under way to enhance capacity for financial management. The rollout of the new is scheduled to begin in 2002 and will be completed in 2005 covering all central government ministries and departments and at least 10 districts. The system will be operated by the Uganda Computer Service Department, which will be restructured, modernized, and transformed into a semi-autonomous institution.

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<sup>4</sup> Fiscal decentralization in Uganda has so far been characterized by supporting recurrent non-wage expenditures in specific sectors through a series of conditional grants.

In each country, the starting point which triggered the reforms was similar—an analysis to identify the weaknesses of the financial management system. The reviews were by and large initiated by the donor community, concerned about the status of public finance in these countries, and not by the countries themselves. One can also observe a variety of approaches, even in countries with similar colonial heritages. The most significant difference is the scope and dimension of the reform agenda. In the case of Ghana, Tanzania, and, to some extent, Uganda, the reform agenda is far-reaching and comprehensive, addressing all major weaknesses of the FMS.

Table 2 provides details of the technical solutions and reform processes in the five countries, and summarizes the impact of the reforms on the existing financial and economic management system.

**Table 2. FMS Reform in Selected African Countries**

	<b>Technical Solution</b>	<b>Sequencing</b>	<b>(Estimated) Implementation Time<sup>5</sup></b>	<b>Impact</b>
<b>Ghana</b>	Complex RDBMS** (Oracle Financials) Complex WAN/LAN*** Architecture	3 steps (pilot ministries and departments, remaining central government level, introduction at local government level)	5 years (for the pilot phase)	MTEF* budgeting successfully introduced in 1999, Payroll system, revenue Agencies' and procurement reforms well under way
<b>Tanzania</b>	Medium sized financial mgmt. and accounting package (Platinum) Complex WAN/LAN architecture	2 steps (Accountant General's Department & 10 pilot ministries; rest of the central government, regional treasuries, local governments)	5 years	Significantly improved expenditure management in all public sector agencies
<b>Burkina Faso</b>	Medium sized financial mgmt. and accounting package (Oracle server and Windows 98/NT clients) Moderate LAN architecture	1 step (focus on integrating expenditure management at the central government level in the capital) Extension to regional treasuries and introduction of MTEF planned	7 years (instead of initially planned 4 years)	Significantly improved expenditure management in all central government agencies
<b>Malawi</b>	Medium sized financial mgmt. and accounting package (CODA Financials) Moderate WAN/LAN architecture	3 steps (introduction of MTEF, introduction of FMS in 4 pilot ministries, further roll-out to the rest of the central government)	2-year design phase, 1-year pilot phase, 4 years further rollout	FMS pilot phase is ongoing MTEF was introduced in 1995 but improvement of financial management process remained modest
<b>Uganda</b>	N/A (reform has not yet reached the design stage)	2 steps (large pilot with 5 ministries and 3 districts, roll-out to rest of the central government and additional districts)	6 months design stage, 3-year pilot phase	N/A

\* MTEF: Medium-Term Expenditure Framework.

\*\* RDBM: Relational Database Management System.

\*\*\* WAN/LAN: Wide/Local Area Network.

<sup>5</sup> The timeframes for Malawi and Uganda are estimates as the reforms are in their initial stages

In Ghana, the (initial) sequencing of the reforms was ambitious, with a large pilot and many users. Tanzania and Burkina Faso chose to pursue a more incremental approach, focusing on priority areas, i.e. accounting. In the Tanzania case, the new system was tested at the core agency before the rollout to ten pilot ministries. Both Tanzania and Malawi have built into their reform programs a consolidation phase to allow adjustments to their reform programs.

The technical solutions for a new financial management system range from sophisticated state-of-the art hard- and software packages to modest systems with a small number of end-users. A key issue is the **architecture** selected for the FMS which has significant implications for the design and implementation of the new system. Three basic approaches to **IT-system design** are common:

- **Centralized Approach.** In a centralized system, information and data are held in one database, enabling all end-users to access it with the appropriate security and control measures. The centralized approach allows standardization of processes and technology. In addition, existing resources (hard- and software, human resources) can be deployed freely from one unit to another. Some disadvantages include: (i) increased vulnerability and reduced flexibility as complex technical and organizational solutions are required to operate the system, and (ii) difficult integration of decentralized information systems that may already exist.
- **Decentralized approach.** With technology becoming smaller, faster, and easier to use, as well as more powerful, reliable, and cost effective, decentralized systems are on the rise. Advantages include: (i) reduced communication gaps—the end-user and system developer are in close proximity, (ii) reduced vulnerability—the overall system remains functional even when a part is not operating, (iii) increased flexibility—system solutions are curtailed to the needs of the end-users, and (iv) reduced costs—adjustments are faster, and hard- and software solutions are less complex. On the other hand, in a decentralized system, it is more challenging to make strategic decisions, technical changes, and to ensure coherent IT-standards and processes.
- **Combination approach.** This approach optimizes system design by combining the advantage of both systems. Tanzania and Malawi are good examples. In both cases, processes and technology are based on standards throughout the targeted public sector organizations while ensuring a system design that incorporates the needs of the respective end-user.

Another element that differed among the countries is the **management solution for implementation**. The FMS implementation typically requires input from various sources. At the design stage, consultancy assignments need to be commissioned to determine the scope and focus of the FMS. During the implementation stage, firms and consultants work on the hard- and software development, the establishment of the LAN and WAN, training and capacity building, and other assignments. It is usually challenging to effectively organize the FMS design and implementation process, particularly the coordination and sequencing of assignments. Most governments consider this coordination role a vital part of their responsibility. In many cases, Ghana, for

example, a project team and steering committee comprising key decision makers oversee the design and implementation of the FMS. While the steering committee focuses on *strategic decisions*, the project team monitors the day-to-day activities of the reform agenda. The project team's work can be facilitated by a turn-key approach, which assigns responsibility for the design and/or implementation of FMS to one service provider, typically a consulting firm. Tanzania used such an approach for the implementation of its FMS. Under such an arrangement, the service provider is responsible for coordinating the work of the sub-contractors and for delivering the service. Due to the potential cost implications, most governments decide against the turn-key solution.<sup>6</sup>

Table 3 summarizes the technical solutions in the five selected countries and the consequences of the FMS introduction.

**Table 3. Technical overview**

	<i>Ghana</i>	<i>Tanzania</i>	<i>Burkina Faso</i>	<i>Malawi</i>	<i>Uganda</i>
<b>IT-System design</b>	Centralized approach	Combination of centralized and decentralized approach	Centralized approach	Combination of centralized and decentralized approach	Combination of centralized and decentralized approach
<b>Project management solution</b>	Different assignments	Turn key solution	Different assignments	Different assignments	Preferred option: Different assignments
<b>Situation before FMS-design</b>		<ul style="list-style-type: none"> <li>• Weak capacity of IT-personnel (if any)</li> <li>• No integrated system in place</li> <li>• Few LAN* in place (if any)</li> <li>• No WAN** in place</li> </ul>			
<b>Situation during or after FMS-implementation</b>		<ul style="list-style-type: none"> <li>• More or less adequate capacity and quality of IT-personnel</li> <li>• Soft- and hardware development of an integrated system under way or completed</li> <li>• Establishment of LAN*/WAN** under way or completed</li> </ul>			

\* LAN: Local Area Network.

\*\* WAN: Wide Area Network.

<sup>6</sup> Further analysis is required to determine whether the costs of a turn-key assignment are higher than government-financed coordination efforts

### III. Lessons Learned and Recommendations

What can be learned from the experience in the five African countries? What are key observations and recommendations for countries considering similar reforms? What are the issues to be considered in the context of the design and implementation of a FMS? One could argue that a great deal of experience already exists from similar projects to adequately answer this question. Reform experience can be obtained from developed as well as from developing countries. In particular, Latin America and Eastern Europe have a successful track-record of financial management reform programs, including the introduction of an integrated FMS.<sup>7</sup> Can Africa draw from this experience? In a general sense, the answer is “yes,” as every reform program raises some questions with regard to design, implementation, and sequencing of the reforms. Nevertheless, the uniqueness of the African context should be taken into account in shaping its reform agenda.

Two key differences are worth mentioning. *First*, while Anglophone and Francophone African countries can build on financial management procedures and arrangements introduced under colonial rule, the regulatory and institutional framework of public finance was entirely new to Eastern European countries. In the former socialist countries, budget and expenditure management mechanisms similar to those found in countries in the West did not exist. Consequently, reform initiatives aimed at implementing FMS did not focus on adjusting existing financial management arrangements or changing financial management practice developed over a long period of time. This has significant implications for the design of a reform agenda.

*Second*, many financial management arrangements in Latin America prior to the implementation of budget and expenditure management reforms seemed fragmented rather than integrated. Typically, the budget system used different classifications than the those used in the accounting system. Consequently, the mere integration of the various parts of the budgeting, accounting, and auditing systems into a common framework as well as the clarification of the roles and responsibilities of the institutional actors were perceived as important steps forward. In Anglophone and Francophone African countries, largely because of the colonial inheritance, the budget and expenditure management systems have been integrated for a long time and the (formal) distribution of authority is specific. The key problem, however, has been the pervasive informal behavior and the failure to follow established rules. The implications for the reform agenda are obvious: the focus is not on integration but rather on how to ensure compliance with formal rules.

With the African context in mind, what determines the success or failure of (complex) institutional development processes? While various approaches exist to answer this question, we suggest assessing several critical factors that are prerequisite to a successful reform:

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<sup>7</sup> See ‘Integrated Financial Management Systems: A Guide to Implementation, Based on the Experience in Latin America’, Institute for Democratic Studies, the LATPS Occasional Paper Series Nr. 19, December 1996; Ali Hashim and Bill Allan, Information Systems for Government Fiscal Management, World Bank/IMF, August 2001.

- (i) Commitment to reform;
- (ii) Identification of functional reform priorities;
- (iii) Adequacy of the roll-out plan and the sequencing of reforms;
- (iv) Adequacy of technical solution;
- (v) Adequacy of capacity building activities; and
- (vi) Realism of short, medium, and long-term cost estimates.

The FMS reforms in the five African countries have been assessed on the basis of these factors. It is important to note that many of the issues raised are not subject to quantifiable standards. Consequently, Table 5 present a subjective view of the reform processes in the selected countries.

**Table 4. Comparative Assessment of FMS Reforms**

	<i>Ghana</i>	<i>Tanzania</i>	<i>Burkina Faso</i>	<i>Malawi</i>	<i>Uganda</i>
<b>Commitment to reforms</b>	+	++	++	++	++
<b>Identification of functional reform priorities</b>	++	+++	+++	++	++
<b>Adequacy of roll-out plan and sequencing of reforms</b>	+	+++	++	++	+
<b>Adequacy of technical solution</b>	+	+++	+++	+++	N/A
<b>Adequacy of capacity building activities</b>	+++	++	++	++	
<b>Realism of cost estimates</b>	+	+	+	+	+

+ *weak.*

++ *medium.*

+++ *strong/successful.*

Seven recommendations follow which intend to provide practical advise for the design and implementation of an integrated FMS. These recommendations also discuss in more detail the basis for the assessments outlined in Table 5.

**Recommendation No. 1:  
Adequately Assess Commitment to FMS Reform**

That political commitment is an important element that determines the success or failure of a reform program is a well established principle. As reforms begin, most governments will speak strongly of their commitment to change. In many cases, this commitment fades at the first significant challenge. What level of commitment then is necessary for the introduction of a FMS? How can it be adequately assessed (and tested)?

Commitment is not a finite quantity. Even when it exists initially, commitment can vary during the life of a project. On the other hand, commitment can be built and reinforced, if the benefits of the FMS are made apparent, as was the case in Tanzania and Burkina Faso, where the reform process gained momentum as the benefits of the FMS began to reveal themselves.

While establishing criteria to gauge commitment to change is difficult, a good starting point is to determine who is requesting the FMS and why. If, for example, the request for FMS reform is coming from line ministries and departments, who in order to deliver services require well-functioning FMS, then this is a positive sign. This has been the case in Tanzania, Burkina Faso and Malawi. The assessment could differ if the introduction of a new FMS is purely donor-driven. Another indicator is the gap between formal and informal rules in public finance. The commitment for change is questionable if the gap is too large. If existing rules are ignored or manipulated by powerful interest groups, it is difficult to imagine that this behavior will fundamentally change with a new FMS, which is based on compliance with formal rules. In the Ghana case, the government's unwillingness to address this problem had been well-established in prior analytical work and should have been an early sign to question government's commitment to change. The official reaction to mismanagement, fraud, and corruption is another indicator to determine if the government is willing to change the 'rules of the game'. The commitment is doubtful if the findings and recommendations of the Auditor General or of other watchdog agencies are not addressed. The same assessment would apply if waste of public resources or other forms of mismanagement by public servants remain unsanctioned.

**Recommendation No. 2:  
Determine functional reform priorities and "think small"**

In most cases, the weaknesses of the public finance system are well-established on the basis of reports such as Public Expenditure Reviews (PER) and Country Financial Accountability Assessments (CFAA) or similar instruments. These studies usually provide an excellent basis for discussion and determination of functional priorities. Although the need to prioritize should be obvious, experience shows that large and therefore more spectacular projects are often preferred because they can be easily communicated to the public as evidence of political action and a remedy to existing problems. Often, the key factor which triggers the need for choices to be made at the

initial stage of a reform process are funding constraints rather than the conviction that it is prudent to “think small.”<sup>8</sup>

It is well known that large, complex projects are more volatile and subject to an increased likelihood of failure than are smaller, more focused interventions. This finding reflects experience with large or complex programs in developed countries in both the public and private sectors. In particular, the private sector seems increasingly reluctant to adopt complex reform agendas, opting instead for shorter timeframes, increased simplicity, and less ambitious objectives.<sup>9</sup>

There are many reasons why a well-focused, incremental approach is more likely to succeed. *First*, complex projects are difficult to manage, typically involving coordination of many stakeholders, requiring sophisticated project management skills and reporting arrangements, and strong leadership. *Second*, complex projects are expensive. Large IT-projects require substantial investments in equipment and infrastructure. In addition, the cost implications of the project administration are usually significant. *Third*, complex projects are not likely to produce results in the short-term. The development of a complex IT-project can take several years to accomplish. It difficult to maintain enthusiasm and commitment if the project cannot demonstrate, on a regular basis, results and accomplishments. *Fourth*, complex projects have a higher risk of delay and failure because of the interdependency of project components and sub-components—implementation problems in one area impact other related project areas.

The experience in the five African countries confirms that complex projects are more likely to fail. The Ghana reform program, which entails a broad range of interrelated interventions in budget preparation and execution, as well as expenditure management, ran into difficulties at an early stage of implementation. While the budget preparation component and the introduction of the MTEF took off as planned, the budget execution and expenditure management component encountered design and implementation problems, which resulted in substantial delays. In 1999, Ghana introduced an advanced budget preparation system based on three year rolling plans. The budget execution and expenditure management system, which was initially scheduled for pilot introduction in the 2000, will not be finalized before the end of 2001. The project had to be restructured at the mid-term review to adjust the overly ambitious scope and implementation schedule to a more reasonable level.

Tanzania and Burkina Faso appear to have adopted a more prudent approach. In both countries, the initial scope of the reform agenda was less ambitious and focused on specific areas of public finance identified as key priorities. In addition, the implementation focused primarily on a few key institutions (Accountant General and pilot ministries in Tanzania, budget and treasury departments in Burkina Faso) which were considered critical for improving public finance. Only after a consolidation phase, the implementation continued in other areas of government. Despite delays and setbacks

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<sup>8</sup> “Think small” is one of the key recommendations of *The Hidden Threat to E-Government, Avoiding large government IT failure*, OECD Public Management Policy Brief, PUMA Policy Brief No. 8, March 2001, pages 2, 6.

<sup>9</sup> *The Hidden Threat to E-Government, Avoiding large government IT failure*, OECD Public Management Policy Brief, PUMA Policy Brief No. 8, March 2001, page 2.

in both countries, the reform process has been successful, resulting in visible public finance improvements.

The assessment of reform priorities should also consider the scope and focus of other reforms that run parallel to a new FMS. Many countries, for example, consider devolving significant authority to decentralized levels of government in the context of decentralization or public sector reform. These reforms have a significant impact on the system of public finance. At the central government level, financial management responsibility will be shifted to line ministries and departments, within departments from heads to divisional managers, to improve efficiency. At other levels, the public finance framework and requirements may differ from the center, in particular, at the local government level. These requirements need to be taken into account in designing FMS reforms. Uganda is a good example of attempting to integrate overall reform objectives into the design of the FMS.

### **Recommendation No. 3: Design Adequate Roll-Out Strategy for FMS Reform**

Even if the weaknesses of the existing system and the strategies to address these deficiencies are clearly established the question how to effectively design a roll-out strategy and sequence the proposed interventions poses significant problems. In many cases project implementation plans are overly ambitious. They overestimate the ability to adequately manage and implement a complex reform agenda. The experience in the five African countries confirms the importance of carefully sequencing financial management reforms. In Ghana the FMS reform has been substantially delayed because of numerous implementation difficulties. It became apparent that the initial reform agenda and the underlying timeframes were too ambitious. Consequently, the FMS reform agenda had to be scaled down significantly. In Burkina Faso the FMS implementation took seven instead of the initially planned four years. In Malawi the government adjusted the initial focus of the reforms when it discovered that it would not be able to achieve the intended objectives.

In designing a roll-out strategy and sequencing a complex reform agenda the following factors should be considered: *First*, any FMS reform should be built around clearly defined benchmarks and milestones. Often, performance indicators focus on technical achievements rather than demonstrable results. The initial project implementation plan of the Ghana project is a good example for this tendency. It is important to note that the regular assessment of the implementation progress has an additional function which is to maintain the initial enthusiasm and the commitment in the course of the implementation of the project. The definition of benchmarks and milestones should adequately reflect this perspective.

*Second*, as much as possible the FMS reforms should be divided up into self-contained modules. This is one of the key lessons from the Ghana experience where the high interdependency of the various components and sub-components has created significant implementation problems. A modular approach would allow to focus changes that

become necessary during project implementation on the specific module. The repercussions on the remaining project would be limited even in case of delays or other difficulties with one module.

**Recommendation No. 4:  
Focus Initially on Reforming the Existing Budget Execution Process**

Experience has shown that the most important area to be addressed is the system of budget execution and expenditure management, which tends to be non-transparent, complicated, and labor intensive. Consequently, the improvement of expenditure management should be at the center stage of the reform agenda. A reform proposal in this area would focus on accounting, cash management and control including the underlying procedural and institutional arrangements. Tanzania and Burkina Faso are examples of a selective approach focusing on these priority areas. Malawi's approach is similar, after the initial reform strategy was adjusted. By contrast, Ghana and Uganda have opted for a comprehensive solution—an approach that has caused significant implementation difficulties in the Ghana case.

Should the reform of the budget preparation process precede or follow the adjustment of the budget execution system? The five selected countries do not provide a sufficient basis to clearly answer this question. It depends on the weaknesses that are identified, and the type of budget reform that is proposed. If the proposal entails the introduction of a complex MTEF-based budget process, like in Ghana, the advise would be to focus initially on budget execution and to streamline the accounting, cash management, and commitment control system before fundamentally overhauling the budget system. From today's perspective, the adequate control of 'inputs' should have preceded the reform of the budget preparation process. Similarly, the Malawi government began its FMS reform with the MTEF budgeting without targeting budget execution problems, which ultimately led to the build-up of arrears. Whether or not the Ghana and the Malawi cases serve as the basis for a broader conclusion should be further analyzed. As mentioned earlier, the budget execution system is clearly one of the most important reform areas and should be high on the list of priorities.

In countries where it is difficult to determine the actual cash position of the government there may be the need to some consolidating reforms prior to the introduction of a new FMS. This refers in particular to countries that deviate from the traditional treasury payment system which operates on the basis of a common bank account in the central bank. In some countries (Ghana and Malawi are examples) multiple bank accounts are spread across the commercial banks making it difficult to control the actual cash flow. In these countries it may be necessary to consider the closure and consolidation of these Bank accounts to ensure meaningful cash management reforms. At the very least, bank reconciliation will have to be carried-out across the Government, which is likely to be a difficult and time-consuming exercise.

An interesting question is whether FMS reforms need to be preceded by strengthening the existing accountability framework. This refers in particular to the effectiveness of the

supreme audit institution, of the ‘Chambre des Comptes’ or the ‘Cour des Comptes’, and of the parliamentary committees that oversee the economic management of the government. If functional these institutions are critical factors to adequately monitor the financial management process. In the majority of the countries in Africa these institutions are weak, ill-equipped and understaffed. With the resources allocated to them they are typically not able to effectively fulfill their roles and responsibilities. While it is undoubtedly useful to strengthen these institutions the review of the five African countries does not provide sufficient information as to whether this should be considered a precondition for FMS-reform. The answer to this question would require more in-depth analysis.

### **Recommendation No. 5: Make the Right Technical Choices**

**Determine the ‘right’ IT-System Design.** The FMS design phase typically begins with a thorough analysis of the existing budget and expenditure management processes. Additional evaluations include:

- Assessment of capacity needs of IT personnel, which usually needs upgrading;
- Identification of the user requirements, which form the basis for soft- and hardware development. It may also be necessary to conduct a business transaction analysis to determine size and technical capabilities of the FMS database(s).
- Review of existing IT-infrastructure and assessment if an integration is feasible; this typically includes an analysis of the LAN/WAN-requirements.

This information forms the basis for determining the IT system design and for selecting a centralized or decentralized system architecture or a combination of both (see pages 9,10 for details).

**Determine hardware and software solutions.** The choice of software depends on the FMS requirements of the public sector environment. To this end, a comprehensive analysis is typically conducted to thoroughly evaluate the user requirements. The scope of the data transmission to and from the main database will determine the size of the database, its security features, the data backups and recovery requirements, as well as influence the front-end and back-end features. The software package is usually an “off-the-shelf” product, which allows full customization, depending on the needs of the respective government.

The hardware selection follows a similar process. The system architecture that will be developed and agreed upon during the design stage will determine the hardware requirements necessary to transport data to and from workstations to the main database. It also influences other hardware specifications, such as the size of communication pipelines, system specifications and performance, network topology, network security, network management, device commonality, system integration, network standards, network protocols, and power conditionality. To ensure sustainability hardware maintenance is an important factor which should be reflected in the project design. It is

also crucial to make sure that well specified, uninterruptible power supplies are included in the hardware requirements because power fluctuation and power shortages are common in African countries. The (sometimes significant) cost implications for hardware maintenance and power supply have to be factored into the project to ensure trouble-free FMS-operation.

**Assess Local Area Network (LAN) and Wide Area Network (WAN) needs.** Apart from the hardware and software, the LAN and the WAN are other key elements of the physical FMS infrastructure. The FMS requires information exchange over long distances to other cities and regions throughout the country. To enable this exchange, the workstations must be connected via cable, telephone line, radio link, or other suitable options. LANs were first established in Africa in the early '90s. Since, small- or medium-sized LAN-based systems are common in Africa. The role of the WAN is to ensure connectivity over a long distance and to bring together workstations and LANs that are in a specific environment. Most FMS require a WAN as the system will be rolled out to the central, regional, and local levels of government which are located in all parts of the country. In many African countries, the existing telephone system is the only available basis for a WAN. A few countries can build on more sophisticated solutions. Ghana, for example, managed to install fiber optic wiring around the country which allows for high-speed information exchange. This infrastructure could serve as a basis for the distribution of FMS information to the regional and local centers.

It is important to consider the cost implications of the LAN and WAN, which are substantial. In Ghana, the operating cost for the WAN that will distribute the FMS to the entire central government is estimated at US\$800,000. The technical WAN infrastructure can be owned by the government or by an external service provider (in the public domain). Often, the government establishes its own WAN for security or secrecy considerations. While such an investment may have long-term advantages, it is important to note that FMS information can be protected even if it is distributed by public domain.

**Align IT solutions with broader technical and institutional reforms.** A recently published OECD brief <sup>10</sup> emphasized that information technology should be seen as a tool and a means to other ends—notably a change in business processes. Interestingly, the main focus in some of the reviewed countries appears to be rather different. IT and its implications is at the center stage of the reform agenda—procedural and institutional adjustments play some role but seem to be pre-defined by the IT-agenda.

Ghana is a case in point for this phenomenon. The initial studies that triggered the development of the Ghana reform program identified problem areas such as (i) poor planning, management and control of public expenditures, (ii) the lack of internal and external controls, transparency, and accountability, (iii) unclear mandates and responsibilities of key actors, (iv) insufficient reporting mechanisms, and (v) significant deviation from formal rules. This analysis should have called for investments in realigning the existing procedural and institutional arrangements, in particular enforcing controls and compliance with formal rules. Interestingly, in the final design of the reform

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<sup>10</sup> The Hidden Threat to E-Government, Avoiding large government IT failure, OECD Public Management Policy Brief, PUMA Policy Brief No. 8, March 2001, page 4

program, these issues do not have a dominant place (if any). At the center of the Ghana solution is the introduction of an IT-system for budget and expenditure management.

It is questionable if the procedural and institutional weaknesses of the existing system of public finance can effectively be addressed by an IT-driven project. How should IT be able to change an environment, which is characterized by significant informalities and non-compliance with existing regulations? Why should a public servant whose input into the existing system of public finance is not controlled (and thus provides significant leverage) behave differently if he provides his input via computer? The answer to these questions is obvious. While IT has an important function in facilitating reforms and improving efficiency it cannot replace adjustment processes which are necessary to overcome fundamental structural, organizational or behavioral deficiencies of the existing system.

Some protagonists might argue that these adjustments should better be addressed in the context of the introduction of a new IT-based system to provide adequate incentives for change. There are strong arguments to address the deficiencies of the existing mechanisms of public finance without waiting for the implementation of the IT-system. *First*, the development of the new IT-system takes time, usually several years. In addition, the introduction of a new IT-system typically requires a transition period in which the old system is still in place and the new system runs parallel to adequately test that it functions well. Consequently, substantive reforms would have to wait several years to be implemented. *Second*, the actual commitment for change needs to be established early in the reform process. To wait until the IT-solution is being implemented would unduly postpone the relevant critical assessment. Targeting the organizational, structural and behavioral deficiencies of an *existing* system is a key challenge of FMS reforms. The more it is important to address these issues at an early stage to allow sufficient time for adjustment and to assess the determination of key players to change the existing “rules of the game”.

#### **Recommendation No. 6: Adequately assess and build capacity**

The necessary capacity to manage and implement the FMS reforms should be adequately assessed. It is important to remain realistic as to what is achievable within a predefined timeframe. A realistic design and implementation requires to adequately assess two areas: (i) *the conduciveness for change of the existing public sector environment*, and (ii) *the ability of the environment to “digest” the intended reforms*.

FMS reforms include complex technical, procedural, institutional and behavioral adjustments that require specialized expertise. Finding expertise in key areas (i.e. project management, capacity building, IT) has been a problem in the selected countries and has caused delays and implementation difficulties. It is also important to take into account that while some relevant expertise may be available ‘in house’, it may take time to ensure the external procurement of the necessary capacity.

Reform of public finance also poses a major challenge to the existing public sector environment. In most African countries, parts of the existing FMS are based on outdated manual, labor-intensive processes. The skills needed to operate that system are different from the demands of a new computerized system.<sup>11</sup> Apart from IT-knowledge, a new accounting system requires professional accounting skills, which are scarce in African governments. To close the gap between available and necessary skills will not always be possible with the existing staff. It will in any case require long-term capacity building. Consequently, time should be allocated to build skills and capacity in the existing public sector environment. In this context, it is essential to strike a balance between the necessary training and the ability and capacity to absorb information at the level of individual staff. Ghana is a good example as the reform program entails well-sequenced activities to establish the capacity to operate and institutionalize the new system.

Training needs and capacity building assessments are key elements of the reforms in all five African countries. Ghana has adopted a far-reaching approach which is based on a comprehensive needs assessment. In the Ghana reform, significant investments are made to upgrade the accounting and IT skills in the public sector and to institutionalize the new FMS in public sector operations. Almost 5,000 staff will benefit from the training and capacity building activities. Burkina Faso and Tanzania implemented a less ambitious program, focusing on the development of core IT skills and the qualification of a key group of users. While it may require a more in-depth analysis to make a final assessment, more comprehensive capacity building efforts are recommended to avoid skills/capacity constraints and the potential loss of qualified public sector employees to the private sector.

At least parallel action should be considered to improve the salaries for financial management and IT-staff. Experience in the five countries indicates that it is difficult to retain qualified staff on public sector wages. As a consequence, in many cases (Ghana and Tanzania are examples) key staff are being paid outside the public sector salary structure. A careful evaluation of the salaries and packages for the relevant staff in both public and private sector should be done including an assessment of the implications of improved salaries for the broader public sector environment. Such a strategy would aim at striking a balance between the need to attract/retain qualified staff and the financial and social implications of better wages for specific employees.

**Recommendation No. 7:  
Assess the Cost Implications**

Many complex projects, in particular if they entail IT, experience significant cost overruns. It is obviously difficult to forecast in all necessary details how the project will evolve over time and to adequately assess cost implications of delays and changes in the initial design. The experience in the five African countries confirms this phenomenon.

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<sup>11</sup> There are different views about the skills needed to operate a FMS. Some practitioners believe that the skills required are not as sophisticated as outlined above. While it is necessary to comprehensively train a small core group, it may suffice to provide basic training to the rest of the public sector focused on the day-to-day operations of the new system. To trigger the procedural, institutional and behavioral changes, it appears, however, critical to institutionalize the new FMS into the public sector environment, which implies comprehensive training and capacity building activities.

Table 4 provides an overview of the costs for the introduction and the day-to-day operation of the new system that were identified by the FMS teams in the five African countries.<sup>12</sup>

**Table 5. Cost Implications**

	<i>Scope</i>	<i>FMS introduction Actual/projected costs</i>	<i>Annual operating costs Actual/projected costs</i>
<b>Ghana</b>	Large and comprehensive with massive IT-investments	US\$15.0m (pilot phase)	US\$1.0m
<b>Tanzania</b>	Comprehensive with reform focus on central government agencies, revenue agencies and local governments	US\$5.0m	US\$0.1m (without staff costs)
<b>Burkina Faso</b>	Moderate with reform focus on key agencies	US\$6.0m	N/A
<b>Malawi</b>	Moderate with initial reform focus on key agencies	US\$15.0m	N/A
<b>Uganda</b>	Large and comprehensive covering all central government ministries and 10 districts	US\$6.0m	N/A

The variation among the five countries is striking. Guidelines on public expenditure management reform which have recently been published by DFID<sup>13</sup> estimate the costs of a “core budgeting and accounting system” to be between US\$10m and US\$20m. These estimates are close to the Ghana costs and Malawi estimates but significantly higher than the costs which were identified by the Tanzania (US\$5m), Uganda (US\$6m) and the Burkina Faso (US\$6m) FMS-teams. Similarly, the estimates for the operating costs are hugely different in the two countries (Ghana, Tanzania) where this information was made available. One explanation for these variations is that not in all cases the cost implications of the FMS reforms were thoroughly and/or comprehensively established.

It is critical to rigorously ascertain the cost implication of the FMS reform. The costs do not only include the actual development of the new FMS and its deployment but also expenses for project management, training, rehabilitation of buildings, Wide Area Network, Local Area Networks etc. In some cases these cost implications were not budgeted at the project design stage conveying a false picture about the cost implications of the FMS development.

Another important factor is the operating costs once the system is operational. There are several options to ensure the day-to-day operations of the new FMS. The most radical solution would be to outsource the operations of the FMS. Mainly due to the cost implications, this solution has not been the preferred option in any of the reviewed countries. A more typical solution would be to build on the IT-capacity which exists in government and complement it with services by external providers in specific areas.

<sup>12</sup> Establishing the full cost of FMS reforms in the five selected countries has been difficult, particularly if development partners with different support models, are involved.

<sup>13</sup> Understanding and reforming public expenditure management, Guidelines for DFID, Version 1, March 2001, page 60.

Some countries have chosen to transform the existing IT-capacity in government into a semi-autonomous agency which operates independently and is contracted by the government to operate the FMS. Uganda and Ghana are examples of such an approach. Under such an arrangement, IT-staff could be hired with salaries that are competitive with the private sector.

It is important to emphasize that the operating costs for a FMS are likely to be substantial. In the Ghana case, a study was conducted to determine the various options and it estimated that the total costs of operating an integrated FMS for the government was between US\$1 and US\$3 million annually. These are long-term costs that will put a heavy burden on the already strained financial resources of the government. A discussion about the affordability of a FMS should, therefore, be initiated at the design stage to curtail the FMS to the specific needs.

#### IV. Conclusion

The lessons learned from the experience in five African countries are summarized as follows:

- “*Don’t fall in love with IT*”—to effectively reform public financial management, it is critical to identify and focus on the systemic and institutional weaknesses of the existing system of public finance. A reform process typically entails complex technical, procedural, institutional, and behavioral adjustments.
- “*Think small*”—a well-focused incremental approach to FMS reform is likely to be more successful. The priorities of the reform agenda should be carefully determined. It should focus on areas likely to trigger the intended systemic and institutional changes. At the center stage should be the transformation of the existing *budget execution* process.

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