

Helpdesk Research Report

Implementing integrated financial management information systems

Emilie Combaz

12.06.2015

Question

Please identify evidence on the implementation of integrated financial management information systems (IFMIS). Focus on low-income countries. Where possible, identify critical success factor and barriers to effective implementation, and lessons for programme governance and management arrangements.

Contents

1. Overview
2. State of knowledge
3. Major factors influencing success and failure
4. Lessons for IFMIS programmes
5. Country cases
6. References

1. Overview

Since the 1980s, several major international aid agencies, such as the World Bank, have promoted integrated financial management information systems (IFMIS) as a core element in reforming public financial management (PFM) in low-income countries (LICs)¹. The expectation is that IFMIS will make information on public finances comprehensive, efficient, secure and transparent. However, these expensive systems frequently fail to realise the promised benefits. So what do we know about what has worked, what has failed, and why? What lessons does the literature identify? A rapid review of academic and grey literature revealed a **dearth of rigorous knowledge**. The evidence base available has a number of weaknesses, and findings and recommendations are contradictory (see section 2 for details).

¹ IFMIS are an integrated technical package that computerises budget management and accounting system for governments, as widely defined in the literature.

Major factors determining success and failure are diverse with some relating to **programming IFMIS**. IFMIS are complex, high-risk, and demanding in staff involvement and resources. They come with significant challenges, such as ensuring high-quality work from contractors. The top risks are the scope, schedule and budget of IFMIS. Coherence between the strategy of public financial reform, its breadth, and the IT solution is essential, but rarely ensured.

Institutional factors are also important, because IFMIS constitute an organisational reform. Some IFMIS have overreached and tried to drive radical PFM changes or implement too much at once, resulting in failure. Many programmes have lacked ownership and clear lines of authority. IFMIS may also create new opportunities for corruption.

The role of **political factors** is debated. Most authors argue that a firm political commitment and its underlying incentives are required. However, in Ethiopia, only mid-level management was committed, and that was enough to enable success, according to Peterson (2006). Change management is widely seen as essential to success.

Getting **technical factors** right to obtain a robust and flexible system is crucial. Yet many IFMIS have failed to specify the required functionalities from the outset, which is hard to correct later. The literature is divided on the choice between off-the-shelf and custom-built systems. IFMIS also require hardware and reliable power supply.

Ensuring the required **staffing and staff capacities (both basic and advanced IT skills)** throughout government is often a challenge in many LICs. Capacity building is often needed.

Top lessons that authors widely agree on are as follows:

- Programmes should seek to **improve, not replace, existing systems**. Incremental and iterative approaches that phase in IFMIS work best. The implementation must be sequential: assessment of initial needs and possibilities; pre-testing; rolling out core IFMIS components in a few pilot bodies; and gradually expanding to further components, institutions and levels.
- **Arrangements for management and oversight** of IFMIS need to be substantial and sustained. Many authors recommend setting up both a high-level steering committee and a management team of implementers. Commitment from middle management is essential (Peterson, 2006).
- Some authors recommend attaching IFMIS to broader organisational reform in PFM, while others advocate gradual small changes focused on IFMIS.
- Understanding the **political positions and incentives** of decision-makers and users is essential to get buy-in and identify opportunities to advance IFMIS.
- **Technology** must be chosen based on detailed assessments of financial processes, functional requirements, and staff capacities. It must adapt to incremental upgrades and local conditions.
- **Capacity-building** tailored to different users is essential from the start and throughout IFMIS.

Section 5 presents case studies on Tanzania, Ethiopia, Uganda, Malawi, Rwanda and Kenya.

2. State of knowledge

This rapid review of recent academic and grey literature found **a dearth of rigorous evidence** specifically about the implementation of IFMIS in low-income countries. The searches conducted for this report looked for evidence about what has been shown to work and not to work in implementation. Even searches extended to the past ten years found little knowledge meeting minimal standards of rigour, i.e. references where authors laid out their methodology and presented arguments that were clearly based on the evidence provided². Many references also mix analysis and normative points.

A **very small number of sources and authors** have researched the report topic. This seems to have led to a concentration of knowledge production among a few academics and practitioners, such as the IMF, USAID and the World Bank. There are frequent cross-citations with a small number of references are repeatedly cited. However, one strength of the evidence base is that quantitative, qualitative and mixed methods are used.

Geographic coverage is very patchy: only a handful studies on the implementation of IFMIS focus on LICs, with Ethiopia and Uganda seemingly the most researched ones. Most knowledge stems from single-country studies, while many multi-country studies make claims based on experiences from a selection of low- and middle-income countries – at times also high-income countries. The validity of such generalised findings and recommendations for LICs remains mostly undiscussed.

Coverage of social groups is also problematic: the literature largely fails to consider how structures of inequality, such as gender, ethnicity, caste, and disability, interact with the implementation of IFMIS – be it among civil servants or among users as citizens. Socio-economic class and age are, however, discussed in some references, usually under the angle of capacities.

Lastly, findings are not consistent, with **authors and contributing experts adopting two main approaches**. The majority of authors and experts, mostly connected to international donors, seem to approach IFMIS as a set of technologies and corporate-like management of people and processes. Their widely cited references offer similar points (in part due to cross-citations). A minority of authors and experts emphasise the sociological, political, economic or historical dimensions of IFMIS (e.g. Fyson, 2009; Hove & Wynne, 2010; Kasumba, 2009; Peterson, 2006 & 2011). They present diverse findings and recommendations. The divide extends to assessing results. For example, IFMIS in Uganda is deemed a success by Bwoch and Muwanga (2009), and a failure by Kasumba (2009).

In light of this evidence base, **findings taken as a whole are indicative** rather than conclusive.

² Only references that met such basic criteria were considered for inclusion. One exception was made for Diamond and Khemani (2005), because this piece - also published in 2006 as an OECD article - is frequently cited. This is despite its failure to lay out its methodology and to cite references in the body of its text.

3. Major factors influencing success and failure³

Factors related to programming and IFMIS

Factors specific to IFMIS programmes

IFMIS are **complex, high-risk endeavours**, with the many risks go far beyond failures of technology and functionality – these observations are points of consensus in the literature. By the World Bank's own account, the implementation of IFMIS has proven very demanding, especially for low- and middle-income countries, and success has been patchy (Chêne, 2009: 4). The arrangements IFMIS require are wide-ranging, as implementing and maintaining IFMIS involve the Ministry of Finance and all line ministries (*idem*: 3). Large IT projects require substantial investments in equipment, training and infrastructure (*idem*: 8).

When implementing IFMIS, a central risk is the project, much more so than technical issues (Peterson, 2006: 41). In particular, contractors - even reputable or expensive ones - are a major risk in the implementation, as experience has shown in LICs such as Nigeria, middle-income countries such as Ghana, and high-income countries such as the US (Peterson, 2006: 41; see also Fyson, 2009). This is why an essential factor of success is for governments to ensure coherence between the broader strategy of financial reform, its breadth (e.g. budget, accounts, and commitments) and the IT solution. Yet this coherence is actually insufficient in many programmes (Peterson, 2006: 41).

Automation programmes come with three **factors of risk: scope, schedule and budget** (Peterson, 2006: 41-42). In many countries, the availability of concessionary aid means there are no hard budget constraints to IFMIS, and little discipline with schedule and scope. Financial and social analyses of costs and benefits have been virtually absent in these large investments, which has been a serious failing in the use of aid, Peterson (2006) concludes. Large IT programmes thus involve high risks of delays and failure, because there are various components are interdependent (Chêne, 2009: 8).

Applicability of typical programming lessons

Challenges are numerous when implementing IFMIS programmes (Chêne, 2009: 11). Frequent factors identified in the failure of IFMIS include: ineffective project coordination; loose design and planning; inadequate technology; the lack of high-level commitment; institutional resistance to change; and a lack of capacities sufficient for IFMIS among the staff involved. Conversely, experiences with IFMIS programmes in high-, middle- and low-income countries point to factors typical of any good programming, such as a sound design, capabilities for programme management, and adequate allocation of resources and human capacities to the project (*idem*: 2).

³ Among multi-country references about the implementation of IFMIS in LICs that address major factors and lessons, there are numerous cross-citations or overlap between several references: Chêne, 2009; Dener, Watkins & Dorotinsky, 2011; Diamond & Khemani, 2005 & 2006; Dorotinsky & Watkins, 2013; Rodin-Brown, 2008. To avoid repetitive and unwieldy citations, sections 3 and 4 will primarily cite Chêne (2009), because it offers a synthesis of evidence.

Institutional factors

IFMIS are not just a technical change towards automation: they actually **constitute an organisational reform**, because they affect the work processes and institutional arrangements that govern the management of public finance (Chêne, 2009: 3; Semakula & Muwanga, 2012: 3).

One problem has been **overreaching** for institutional changes in PFM: attempts at using IFMIS to drive large-scale, radical changes in public financial processes have failed to deliver the expected changes in Ghana and Uganda (Chêne, 2009: 7). They also carry far higher risks of problems (Peterson, 2006). Similarly, implementing too many components of the IFMIS reform at once carries high risks (Chêne, 2009: 8).

Many projects have failed because they **lacked clear ownership and clear authority** to implement (Chêne, 2009: 4). Public expenditure management is segmented by institution. As a result, it is not always clear who should be in charge of IFMIS, from the Ministry of Finance or Accountant General Department (. Conversely, joint ownership can result in a loss of accountability and ownership (*ibidem*).

Accountability between consultants, government and donors is also typically unclear (Fyson, 2009). Looking at IFMIS in Ghana in the 1990s and 2000s, Fyson (2009) finds that consultants depended on donors, through contracting between themselves and the government. This led to opacity in procurement. In turn, donors depended on consultants to diffuse best practices in PFM, when such practices were often not adapted to the public sector. And the political environment meant that many civil servants and elected officials would or could not commit to accountability opened up by IFMIS.

IFMIS may create **new opportunities for corruption** (Dorotinsky, cited in Chêne, 2009: 3). IFMIS can lead to a monopolisation of access to, and control of, information. Computerisation provides greater power to those with the required skills in information technology (IT). Integration means that all information from sub-systems is managed in a single database. In practice, only a few specialists have control over data on accounting, on budgeting, and on the management of cash and debt - these systems often include payroll and procurement (*ibidem*).

Political factors

Many authors argue that even the best designed projects will **fail without a firm political commitment**, Chêne notes (2009: 6-7). Relevant authorities' clear commitment to the objectives of financial reform is an important factor for successful implementation (*ibidem*).

IT reforms are complex and risky, make intensive use of resources, and require major procedural changes (Chêne, 2009: 4). As a result, high-level officials and individual agencies often have **no incentive for IFMIS**. There is typically wide-ranging resistance to change towards IFMIS, from those who benefit from existing practices to end users whose work might be radically transformed by new systems (*ibidem*).

Change management is often neglected, despite being critical (Chêne, 2009: 4). In many cases, IFMIS programmes have not sufficiently taken into account the role of individual incentives and political will (*idem*: 6-7). For example, the initial general World Bank appraisal of IFMIS assumed that their political risk was slow, because the Bank perceived such interventions to be technical (*ibidem*).

However, some authors argue that high-level commitment to reform is not necessary for success, Chêne (2009: 7) highlights. For example, the Ethiopian case shows that **mid-level management matters the most**, as changes must eventually be implemented at this level (Peterson, 2006:33-35). In that regard, Peterson observes that relative obscurity for IFMIS can help projects evade typical impediments to technical proceedings, such as high expectations, scrutiny and micro-management. In Ethiopia, senior

management's contribution was limited to securing funding at critical phases, accepting the chief technical adviser's advice, and monitoring progress (*ibidem*).

Technical factors

Making the right **technical choices for automation** is crucial to success (Chêne, 2009: 7-8). Effectiveness depends on the robustness and flexibility of the chosen technology. Systems "which started small and progressively extended are less likely to fail because associated risks can be better managed" (*idem*: 8). Readiness in using information and communication technology (ICT) is also crucial to success (*id.*: 7-8).

Many IFMIS have not worked out because they **failed to specify the basic functionality** of the system from the outset (Chêne, 2009: 4). Chêne (*ibidem*) emphasises that IFMIS design must carefully meet the functional needs and requirements of agencies, including the accounting and financial management tasks. In some cases, programmes must create interfaces with existing IT systems. Documents on functional requirements will often be a blueprint at later phases, but are difficult to rectify. Spending enough time on designing the project well is therefore crucial (*ibidem*).

Another significant challenge is making the right **choice between off-the-shelf and custom-built systems**, as the core systems of IFMIS need to be adapted to the local context (Chêne, 2009: 4). Off-the-shelf systems can be customised to fit local conditions, or IFMIS programmes can build tailored systems of their own. Either way, the decision has major implications for costs and resources (*ibidem*).

Most studies argue that developing custom-built systems or upgrading old systems "is demanding, complex and costly" (Chêne, 2009: 8). However, some authors observe that off-the-shelf IFMIS usually impose rigid procedures that create even higher costs to customise them to LICs and the public sector (*idem*: 8). Custom-built solutions seek to fit the information system to local conditions (*ibidem*).

A custom solution also creates opportunities for learning by doing and for ownership (Peterson, 2006: 36). In fact, using custom solutions can support and strengthen local computer skills or industries (*idem*: 42). This happened in the state of Andhra Pradesh, India, and in Ethiopia. Building local capacity and using local contractors also reduces the risks from introducing and sustaining IFMIS (*ibidem*).

IFMIS also involve **major requirements of hardware**. For example, in Malawi, IFMIS require "50 servers, one central server and a local IFMIS server in each line ministry" (Chêne, 2009: 4). In countries with power shortages and interruptions, generators and units for power supply are needed too (*ibidem*).

Staffing and staff capacities

IFMIS require **considerable staffing and capacities** throughout government (Chêne, 2009: 4). However, low computer literacy in a number of LICs must be redressed first, before IFMIS projects can be viable. Capacity building throughout the government is thus a major factor for success in IFMIS implementation, especially where IT capacities are limited in the public sector (*idem*: 4, 9).

Lack of staff with the required IT knowledge "cannot be easily remedied by training and hiring" (Chêne, 2009: 4); salaries and terms of employment in the public sector "are usually not attractive enough to compete" with the private sector in attracting and retaining candidates with the required skills (*ibidem*). Conversely, there is a risk that trained staff leave for better job conditions (*ibidem*).

4. Lessons for IFMIS programmes

Lessons for programming

Improvement, not replacement

Some authors emphasise that improvements are best made through a **gradual strengthening of existing processes and skills** (Chêne, 2009: 7). This strategy works with existing requirements and develops user's knowledge and capacity, which are usually limited in low- and middle-income countries. As a result, this strategy is more likely to mitigate the risks associated with IFMIS (*ibidem*).

Based on the Ethiopian experience, Peterson (2006) shows how improvement, not replacement, can lead to success. He advocates approaching IFMIS as a process change, where IT supports financial management reform and helps existing procedures to evolve. Conversely, he warns against using IT as a driver of reform to replace existing procedures.

Further, Hove and Wynne (2010) argue that economic problems, especially in the late 1970s and early 1980s, which resulted from events external to African countries, worsened the quality of financial management and governance. The authors recommend that reforms be country-led and build on existing PFM systems in each country. In their view, the priority should go to basic internal financial controls and reforms which have proven to be successful in similar environments. An incremental approach would thus use and enhance local capacity, which is far more likely to succeed than large-scale IFMIS.

Step-by-step approach

A phased approach can mitigate the risks associated with implementing IFMIS (Chêne, 2009: 8). Many practitioners recommend rolling out IFMIS across government gradually and flexibly. This step-by-step approach should be based on a detailed assessment of existing conditions and needs (*ibidem*).

Based on a review of the projects it had implemented between 1984 and 2010, the **World Bank** made three top-line recommendations for designing and implementing IFMIS (Dener, Watkins & Dorotinsky, 2011: xvi): identify the government's needs for PFM reform first (*What? Why?*); develop customised solutions (*How? Where? When?*); and strengthen institutional capacity to manage IFMIS activities effectively (*Who?*).

The **USAID** guide identifies key phases to implement IFMIS, including: preparations, including concept design (with organisational and institutional assessment, and feasibility study); design, where programmes outline functional specifications and IT issues; procurement; and implementation (Rodin-Brown, 2008). It also recommends key steps for implementation (Rodin-Brown, 2008). To begin, programmes should prepare an initial assessment of needs, requirements, and system specifications. They then should design and deliver a uniformed chart of accounts across the public service. The next step should be preparing and delivering accepted roles and procedure is for a new system. Then the programme should evaluate, select and procure software and hardware. After this, the system should be integrated, tested and implemented. Lastly, progress and results must be audited and evaluated.

Sequencing implementation

There is a consensus in the literature and among contributing experts that sequencing implementation is crucial to avoid the high risks associated with implementing too many components at once.

Programmes should **start by assessing existing institutional conditions** comprehensively (Chêne, 2009: 8). This means asking what is needed and what can reasonably be achieved. It typically includes analysing existing governance, ICT infrastructure, incentives, the legal framework, and the available staff and our capacities. It should also identify training needs and potential challenges for implementation (*ibidem*).

Next, the system should be **pre-tested** with real data and assessed (Chêne, 2009: 8). Only after such pre-testing should the system be rolled out (*ibidem*).

The **roll-out** should be broken down into steps, entail clear benchmarks and milestones, and be divided into self-contained modules (Chêne, 2009: 8-9). Phasing should occur by prioritising certain functions (often, budget execution and expenditure management). Phasing should also apply to government levels, starting from an experimental pilot site, consolidating, and then rolling out IFMIS to other institutions and levels. During the roll-out, change management and the training of end users are important (*ibidem*).

Adequate management and oversight

Managing IFMIS programmes goes beyond the technical aspects of implementation. **Governments must ensure a coherence** between their strategy of financial reform, its breadth (e.g. budget, accounts, commitments), and the IT solution (Peterson, 2006: 41).

IFMIS programmes should set up an **adequate implementation team**, “ideally comprising a project manager, a public finance economist, a qualified accountant”, as well as an expert in change management or training, experts in IT systems, and experts in logistic (Chêne, 2009: 8). Chêne (*ibidem*) also recommends setting up “a **steering committee** to oversee the process at the highest level, chaired by a high-level figure, such as the Minister of Finance”. The committee is to meet regularly and to document issues and milestones.

Lessons about institutional dimensions

Peterson (2006: 36) argues that institutional factors are far more important than technical choices in determining the success of IFMIS. In particular, to **obtain commitment from middle management**, the providers of IFMIS need to earn the trust of government officials, show them the need for change, and demonstrate how the solution will help them. There also has to be urgency to implement (*idem*: 37).

Broader organisational reform vs. gradual small changes

Some authors argue that programmes have often failed to undertake the parallel reforms required by IFMIS, and argue that this has frequently impeded success (Chêne, 2009: 3). For instance, a USAID guide on implementing IFMIS identifies **common institutional issues** in IFMIS reforms (Rodin-Brown, 2008):

- A coherent **legal framework** for the overall public finance system must underpin IFMIS.
- IFMIS usually implies fundamental changes in **operating procedures**. A preliminary functional analysis must detail the targeted processes, procedures, user profiles and user requirements.

- Unified **budget specifications and charts of accounts** are required in all administrative units at national, regional and local levels. Adopting common, coherent language and tool for budgets and accounts can be lengthy and cumbersome - it took over five years in Vietnam, for example.
- IFMIS reform often entails the centralisation of **treasury operations** consolidating all government finances into a single treasury account or a set of linked accounts.

However, some authors, such as Peterson (2006), warn **against using IFMIS as a driver of broader change**, i.e. as an entry point for a radical and comprehensive restructuring of procedures to improve financial management systems (Chêne, 2009: 7). They argue that the basic design of public financial systems, including financial statutes and regulations, are reasonably sound in most African countries, thus constituting a strong base from which to evolve through gradual change (*ibidem*). Based on a case study of Ethiopia, Peterson (2006) thus cautions against using IFMIS as an *innovation* in processes (a comprehensive change in procedures and organisation driven by IT) rather than simply a *change* in processes (an incremental evolution driven by procedural reform and supported by IT).

Lessons about political dimensions

Programmes should adequately assess political authorities' commitment to reform (Chêne, 2009: 6). IFMIS advocates need to understand the incentive structure from the start, and demonstrate to decision-makers how benefits would exceed risks (*idem*: 4). Where high-level commitment cannot be guaranteed, Peterson notes there is a virtue of "**optimal obscurity**" of automation projects (2006: 37).

More broadly, Chêne advocates using change management and 'selling' reforms to users through communication, education and training, using a variety of channels such as media, workshops and conferences (2009: 4).

Lessons about technical dimensions

To develop the information systems Peterson (2006) recommends **working incrementally** with frequent operational upgrades. The chosen technology must adapt to evolving conditions and enable a smooth extension to different parts of government (Chêne, 2009: 7).

To inform the decision on technological choices, IFMIS **design** typically starts with an in-depth analysis of processes for budgets and expenditure management (Chêne, 2009: 7-8). In addition, programmes must thoroughly identify user requirements, which are the basis for developing the IFMIS software and hardware. They must also assess IT staff's capacity and needs. All studies reviewed by Chêne recommend choosing simple IT solutions (*ibidem*).

Recommendations for **choosing between off-the-shelf and custom-built** solutions are contradictory (see sub-sections on technical dimensions in sections 3 & 4 of the report). In short, most studies reviewed by Chêne (2009: 8) recommend choosing off-the-shelf solutions, but cases such as Ethiopia shows that custom-built approaches can be more effective and efficient. In all cases, enough time must be allocated to assess and identify the most suitable and cost-effective IT solution to meet a country's needs (*ibidem*). The cost benefit analysis must be financial and social (Peterson: 2006, 36).

Programmes must also use ICTs that **work well with specific logistical challenges**, such as unreliable power, telecommunications and capacity (Chêne, 2009: 8). A 2005 World Bank case study on Rwanda and Sierra Leone recommended using web-based IFMIS supported by simpler software on standalone machines with an easy interface (study cited in Chêne, 2009: 8).

Staffing and capacities

Programmes must ensure they **build government staff's capacities**, especially in countries with low IT capacities and a low retention of well-trained staff in the public sector (Chêne, 2009: 9). The early stage of needs assessment must scope capacity building and training. It should identify various user groups, and assess levels of knowledge and recruitment needs. In addition, it should define the scope of the training curricula, tailored to the various key audiences (*ibidem*).

Training should begin from the start of the IFMIS programme (Chêne, 2009: 9). It needs to start with those most immediately affected by the IFMIS. Broader and permanent training should also be developed and implemented (*ibidem*).

5. Country cases

Tanzania

According to a 2006 paper by two IMF experts, the IFMIS in Tanzania is the **most successful to date** in an Anglophone African country (Diamond & Khemani, 2005: 15). Success was achieved thanks to several approaches. To begin, an initial review of public expenditure management was conducted and identified processes that affected budget execution. Expenditure control and the chart of accounts were also improved. The government then crafted enabling legislation, accounting principles, systems, and organisational arrangements.

The programme obtained solid political backing, which trickled down to management level, and ensured adequate resources from donors. The reform was embedded in the Ministry of Finance, where capacity-building was emphasised (*ibidem*).

The programme selected mid-range commercial software that a high-quality local consultancy company supported. The medium-sized package for management and accounting was significantly less complex than the ones used by other African countries such as Ghana (*ibidem*).

Lastly, the programme used an incremental roll-out. It started with the Accountant General's Department and 10 pilot ministries, was consolidated there, then progressively extended to all ministries and departments in the capital, then to all central government, and finally to local government (*ibidem*).

Ethiopia

Ethiopia was a success that **challenged conventional wisdom** on implementing IFMIS, shows a 2006 paper published by Harvard University (Peterson, 2006). The country had limited resource, capacity, infrastructure, as well as changes in government and dependency on foreign donors (*idem*: 22-23). Yet, a prudent and pragmatic approach ensured that IFMIS were promptly delivered at a relatively low cost, and then gradually updated into technically robust, sophisticated systems meeting international standards (*idem*: 35). Automation was delivered on budget, ahead of schedule, and beyond specification (*idem*).

The IFMIS in Ethiopia has been part of a larger **transformation of its PFM** to international standards, because the change aligned with the four known drivers of public sector reform: context, ownership, purpose, and strategy (Peterson, 2011). Peterson (2011) argues that PFM reform in Ethiopia succeeded because it built a stable and sustainable 'plateau' that is appropriate to local context, instead of aiming for a risky and irrelevant 'summit' of international best practice. To support of rapid government decentralisation, the reform successfully adopted a strategy of 'recognise, improve, sustain'.

The reform adopted a **sequential approach**, ensuring that basics were in place before moving on to complex systems (Peterson, 2006). To begin, existing systems were brought up-to-date: they were simplified, backlogs were eliminated, and sequential procedural change was introduced. Only after this were new systems introduced (*idem*: 24-25).

The strategy was to let users' definition of the procedural requirements drive automation (Peterson, 2006). This was done through an incremental and iterative approach which extensively involved government staff (Peterson, 2006: 23-32). User demand and resource availability drove the phased development of information systems. This customised approach focused on selectivity and completeness rather than integration, and was preferred over a more comprehensive and standardised off-the-shelf one that would have overwhelmed local capacities (*ibidem*).

The programme consistently **limited the burden** imposed on scarce staff (Peterson, 2006: 26). Such constant consideration mattered because staff had a low level of skills, fiscal decentralisation was evolving, and the financial system had suffered a general degradation over the previous years (*ibidem*).

The Ethiopian case demonstrates **several lessons**, according to Peterson (2006). Automation supports, but does not drive, public financial reform. Ethiopia used procedural reform, not IT, as the driver of change in processes. A lack of high-level political will does not necessarily hamper success. An incremental strategy of frequent operational upgrades is fruitful. Lastly, off-the-shelf solutions are not necessarily the most appropriate and cost-effective.

Uganda

In Uganda, attempts to set up government-wide IFMIS with World Bank financing have been longstanding (Chêne, 2009: 10). By the early 2000s, the second attempt at designing and developing IFMIS had gotten considerably delayed. In 2003, a company won the contract for the provision of a turnkey solution (Bwoch & Muwanga, 2009; Chêne, 2009: 10)⁴.

The pilot brought out **many problems** with functionality and treasury procedures (Chêne, 2009: 10). The costs of rebuilding the system were considerable. The system was put into operation with the defects, and with and parallel systems still in place (Chêne, 2009: 10; Semakula & Muwanga, 2012: 5). Manual processes also posed a big challenge, as did evolving with PFM reforms, new processes for budget analysis, and changes in technology (Semakula & Muwanga, 2012: 5-6).

Chêne (2009: 11) and Kasumba (2009) argue the Ugandan IFMIS was performing below potential in 2009, with piecemeal, *ad hoc* solutions, all of which decreased efficiency. In contrast, Bwoch and Muwanga (2009: 350-351) and Semakula and Muwanga (2012) argue that results were encouraging, with better speed, accuracy, reliability, reporting, comparability, oversight, control and transparency.

Useful **conditions to put into place** before implementation would include a comprehensive chart of accounts, and laws and regulations on public finances for electronic systems (Semakula & Muwanga, 2012: 3).

Problems that Uganda encountered are common to most IFMIS (Bwoch & Muwanga, 2009: 350-351; Chêne, 2009: 11; Kasumba, 2009). Planning was inadequate, and the design of IT inappropriate and unsustainable. Communication between implementers, donors and governments was poor. There were power struggles over IFMIS, and some government users resisted changes. Some of the design was changed without the agreement of all involved. There was a shortage of capacities and resources for management, trainings were poorly implemented, and sustainability was uncertain. Maintaining the

⁴ in addition to the references cited in the body of this section, also see Rodin-Brown (2008: 20-21).

IFMIS has also proven challenging, due to high staff turnover, and recurrent costs such as licenses, technical support and equipment maintenance (Semakula & Muwanga, 2012: 6).

Lessons include (Bwoch & Muwanga, 2009: 351-352, 354; Semakula & Muwanga, 2012: 4-6):

- a preliminary study identified user requirements and provided a roadmap which the Ministry of Finance used for planning. The roadmap included the scope of functionalities; timelines; and the needs in resources, staffing, skills development, and management arrangements. IFMIS was sequenced to yield quick wins, i.e. early visible outputs and benefits for staff.
- leadership and use of power and resources from the top helped drive and sustain the process.
- stakeholders' involvement, at all stages and across government, generated ownership, though with some limitations as the government did not approve special requirements for some units.
- a team dedicated to change management and communication championed IFMIS implementation, anticipated risks and designed mitigation measures.
- having a critical mass of motivated staff – i.e. better conditions than the late 1990s - was crucial. Incentives also encouraged employees to use the system (e.g. one-off payments). A small number of external Ugandan experts and graduate staff were recruited and trained to support the IFMIS in accounting and IT.
- having a single supplier deliver all components under a single contract helped the government limited risk, rather than tying components to separate contracts. Payments were on delivery.

Malawi

In 1995, the government of Malawi decided to computerise government accounting and finances (Diamond & Khemani, 2005: 18). It completed the conceptual framework for IFMIS in time, and set up adequate governance with a steering committee and a management team. It completed design and procurement in 2000. It started running the pilot customised software in 2001. However, from that stage on, the programme encountered **enormous difficulties** (*ibidem*).

The lack of political will was a major issue, with the main players neglecting the IFMIS (Diamond & Khemani, 2005: 18). Some observers argued that the political commitment to reform was weak, because individual incentives in some ministries undermined sound financial management (SIDA report, cited in Chêne, 2009: 10). In addition, the implementation team was poorly resourced and was dismantled. Change management and communication were insufficient. Outstanding issues were not resolved. By 2005, the government had decided to adopt an IFMIS similar to the Tanzanian one (Chêne, 2009: 10).

Rwanda

An IFMIS developed for Rwanda in 2003 by foreign consultants and local engineers **failed to meet its objectives** (Hove & Wynne, 2010: 20-21). The consultant teams had little coordination of their work, so neither the chart of accounts nor its manuals were compatible with the electronic tools. The IFMIS turned out to be a single entry system with no detailed information on transactions. As such, it was useful only for compiling periodic reports on budget execution, but not for the preparation of the government's annual financial statements (*idem*: 21). The IFMIS also failed to contribute significantly to capacity building. In fact, turnover particularly affected the local engineers, possibly undermining the success and functionality of the IFMIS (*idem*: 21).

Based on their fieldwork investigation of the IFMIS in Rwanda, Hove and Wynne (2010: 22) suggest that the government should have concentrated on **getting the tried-and-tested basics** of PFM right (such as budget control and external audits), instead of aiming for an expensive and risky IFMIS. They note that the World Bank, IMF and DFID were heavily involved in pushing the government to invest in IFMIS, when such reforms had not proven themselves even in the UK or France (*idem*: 22).

Kenya

In Kenya, an IFMIS piloted in 2002 had **stalled** by 2005, due to technological deficiencies (Diamond & Khemani, 2005: 19). Pilot implementation had raised a number of issues. The engagement of audit staff was inadequate, resulting in limited quality control assurance. The programme management lacked strategic direction, leadership and communication (*idem*: 19).

6. References

- Bwoch, G., & Muwanga, R. (2009). *Financial Management and Accountability Reform*. In: Kuteesa, F., Tumusiime-Mutebile, E., Whitworth, A., & Williamson, T. Uganda's Economic Reforms. Insider Accounts. Oxford University Press. Retrieved from <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199556229.001.0001/acprof-9780199556229-chapter-15>
- Chêne, M. (2009). *The Implementation of Integrated Financial Management Systems (IFMIS)*. U4 Helpdesk, with Transparency International & Chr. Michelsen Institute. <http://www.u4.no/publications/the-implementation-of-integrated-financial-management-systems-ifmis/downloadasset/393>
- Dener, C., Watkins, J. A., & Dorotinsky, W. L. (2011). *Financial Management Information Systems. 25 Years of World Bank Experience on What Works and What Doesn't* (World Bank Study). World Bank; see in particular pp. 67-81. http://siteresources.worldbank.org/PUBLICSECTORANDGOVERNANCE/Resources/285741-1303321730709/WBStudy_FMIS.pdf
- Diamond, J., & Khemani, P. (2005). *Introducing Financial Management Information Systems in Developing Countries* (Working Paper No. WP/05/196). IMF, October. <http://www.imf.org/external/pubs/ft/wp/2005/wp05196.pdf> ⁵
- Dorotinsky, W., & Watkins, J. (2013). *Government Financial Management Information Systems*. In: Allen, R., Hemming, R., & Potter, B. The International Handbook of Public Financial Management. Palgrave Macmillan, chapter 36, pp. 797-816.
- Fyson, S. (2009). Sending In the Consultants: Development Agencies, the Private Sector and the Reform of Public Finance in Low-Income Countries. *International Journal of Public Policy*, 4(3-4), 314–343. <http://doi.org/10.1504/IJPP.2009.023495> or http://capacity4dev.ec.europa.eu/sites/default/files/file/09/03/2012_-_1239/issues_paper-consultants_impact_on_pfm_in_countries-_s_fyson_oecd.pdf

⁵ Another version of this article is: Diamond, J., & Khemani, P. (2006). Introducing Financial Management Information Systems in Developing Countries. *OECD Journal on Budgeting*, 5(3), 97–132. <http://dx.doi.org/10.1787/budget-v5-art20-en>

- Hove, M. R., & Wynne, A. (2010). *The Experience of Medium Term Expenditure Framework & Integrated Financial Management Information System Reforms in Sub-Saharan Africa: What Is the Balance Sheet?* (Occasional Paper No. 9). African Capacity Building Foundation.
<http://elibrary.acbfpact.org/collect/acbf/index/assoc/HASH01fd.dir/file%20012.pdf>
- Kasumba, S. (2009). Where New Technology Meets Socio-Economic Impasses: A Study of the Integrated Financial Management System as a Management Control in Local Governments in Uganda. *Accountancy Business and the Public Interest*, 8(2), 1-43.
<http://visar.csustan.edu/aaba/Kasumba2009.pdf>
- Peterson, S. (2006). *Automating Public Financial Management in Developing Countries* (Faculty Research Working Papers Series No. RWP06-043). Harvard University, Kennedy School of government, October.
http://www.hks.harvard.edu/m-rcbg/papers/peterson_oct_2006.pdf
- Peterson, S. B. (2011). Plateaus Not Summits: Reforming Public Financial Management in Africa. *Public Administration and Development*, 31(3), 205–213. <http://doi.org/10.1002/pad.601>
- Rodin-Brown, E. (2008). *Integrated Financial Management Information Systems. A Practical Guide*. USAID, January; report prepared by The Louis Berger Group, Inc. and Development Alternatives, Inc.
http://pdf.usaid.gov/pdf_docs/PNADK595.pdf
- Semakula, L., & Muwanga, R. (2012). *Uganda: implementing an Integrated Financial Management System and the automation of the budget process* (Country Learning Notes). ODI, Budget Strengthening Initiative.
<http://static1.1.sqspcdn.com/static/f/1349767/19599878/1343318386603/Uganda+implementing+a+n+Intergrated+Financial+Management+System.pdf?token=bcXJEKmwEhGuxGDhynLbO9WgEE%3D>

Further relevant references

The following references may also be of interest but were not selected for use in the body of the report for various reasons: one could not be accessed during the turnaround time, others are about middle-income countries, another is a viewpoint in a debate (though published in an academic journal), and yet others were published over 10 years ago.

- Bartel, M. (1996). *Integrated Financial Management Systems : A Guide to Implementation - Based on the Experience in Latin America* (LATPS Occasional Paper Series No. 19). Public Sector Modernization Division, Technical Department, Latin America and the Caribbean Region. World Bank.
<http://documents.worldbank.org/curated/en/1996/12/695080/integrated-financial-management-systems-guide-implementation-based-experience-latin-america>
Cases about middle-income countries, published over 10 years ago
- Beschel Jr., R. P., & Ahern, M. (2010). *Public Financial Management Reform in the Middle East and North Africa: An Overview of Regional Experience* (Report No. 55061-MNA). World Bank Publications.
<http://siteresources.worldbank.org/EXTGOVANTICORR/Resources/3035863-1285103022638/MENARegionalPFMOverviewPartIFinal.pdf>
Cases of middle-income countries (incl. low middle income)

- Fengler, W., Ihsan, A., & Kaiser, K. (2008). *Managing Post-Disaster Reconstruction Finance — International Experience in Public Financial Management* (Policy Research Working Paper No. 4475). World Bank. <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-4475>
Case studies about middle-income countries
- Hendriks, C. J. (2012). Integrated Financial Management Information Systems: Guidelines for effective implementation by the public sector of South Africa. *South African Journal of Information Management*, 14(1), Art. #529, 9 pages.
http://reference.sabinet.co.za/webx/access/electronic_journals/info/info_v14_n1_a14.pdf
Case of South Africa (middle income country)
- Hepworth, N. (2015). Debate: Implementing advanced public financial management reform in developing countries. *Public Money & Management*, 35(4), 251–253.
<http://doi.org/10.1080/09540962.2015.1047261>
Viewpoint in academic debate, published in academic journal
- Kostenbaum, S., & Dener, C. (2015). *Managing Change in PFM System Reforms: A Guide for Practitioners* (Financial Management Information Systems Community of Practice). World Bank, June.
http://siteresources.worldbank.org/PUBLICSECTORANDGOVERNANCE/Resources/285741-1303321730709/FMIS_Managing_Change_May2015_v1.1.pdf
Includes case studies on middle-income countries
- Peterson, S. (1996). *Making IT Work: Implementing Effective Financial Information Systems in Bureaucracies of Developing Countries*. In Jenkins, G. (ed.). *Information Technology and Innovation in Tax Administration*. Kluwer Law International, pp. 177–193
Includes discussion of low- and middle-income countries, published over 10 years ago, frequently cited
- Peterson, S (1998). Saints, Demons, Wizards and Systems: Why Information Technology Reforms Fail or Under Perform in Public Bureaucracies in Africa. *Public Administration and Development*, 18(1), 37–60. [http://doi.org/10.1002/\(SICI\)1099-162X\(199802\)18:1<37::AID-PAD990>3.0.CO;2-V](http://doi.org/10.1002/(SICI)1099-162X(199802)18:1<37::AID-PAD990>3.0.CO;2-V)
Includes discussion of low- and middle-income countries, published over 10 years ago, frequently cited
- United Nations (1999). *Integrated Financial Management in Least Developed Countries* (ST/ESA/PAD/SER.E/18). UN, Department of Economic and Social Affairs, Division for Public Economics and Public Administration; see chapter X ('Implementing Integrated Financial Management'). <http://www.unpan.org/information/case%20study/e18.pdf>
Published over 10 years ago

Wescott, C. G. (2011). *Recent Innovations in Public Financial Management and Procurement in Asia Pacific*. In Anttiroiko, A. V., Bailey, S. J., & Valkama, P. (eds.). *Innovative Trends in Public Governance in Asia*. Amsterdam: IOS Press, vol. 16, pp. 24–47

Could not be accessed during turnaround time

Key websites

- IMF – Fiscal Issues at the IMF: <http://www.imf.org/external/np/exr/key/fiscal.htm>
- ODI – Budget Strengthening Initiative: <http://www.budgetstrengthening.org/>
- World Bank - Governance & Public Sector Management - Financial Management Information Systems:
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPUBLICSECTORANDGOVERNANCE/0,,contentMDK:23118772~pagePK:148956~piPK:216618~theSitePK:286305,00.html>

Expert contributors

Simon Delay, University of Birmingham

Cem Dener, World Bank

Christoffel J. Hendriks, University of the Free State, South Africa

Stephen Kasumba, Kyambogo University

Philipp Krause, Centre for Aid and Public Expenditure

Andrew Wynne, University of Leicester

Suggested citation

Combaz, E. (2015). *Implementing integrated financial management information systems* (GSDRC Helpdesk Research Report 1229). Birmingham, UK: GSDRC, University of Birmingham.

About this report

This report is based on four and a half days of desk-based research. It was prepared for the UK Government's Department for International Development, © DFID Crown Copyright 2013. This report is licensed under the Open Government Licence (www.nationalarchives.gov.uk/doc/open-government-licence). The views expressed in this report are those of the author, and do not necessarily reflect the opinions of GSDRC, its partner agencies or DFID.

The GSDRC Research Helpdesk provides rapid syntheses of key literature and of expert thinking in response to specific questions on governance, social development, humanitarian and conflict issues. Its concise reports draw on a selection of the best recent literature available and on input from international experts. Each GSDRC Helpdesk Research Report is peer-reviewed by a member of the GSDRC team. Search over 400 reports at www.gsdrc.org/go/research-helpdesk. Contact: helpdesk@gsdrc.org.