Imperfect Systems
IFMISs in Africa

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Summary

PFM Reform in General

1. PFM reform does not have increasing returns

2. Conventional wisdom—normative not positive
   - Fails to describe what exists
   - Fails to consider great variations (pathways)
   - ‘International best practice’ (endpoints not transitions)
   - Continuous reform—not consolidating financial reform

3. Framework of Public Sector Reform: context, ownership, purpose, actions

4. Actions (Pathways) of Changing PFM
   - ‘Toning’ existing systems (comprehension, improvement)
   - ‘Reforming’ (expanding, experimentation)
   - Finding: small adjustments can have big effects

5. What is the Problem? procedures, discipline, both?

6. Sufficient Control—what are the ‘basics’?
   - Sources: manual procedures, legal framework, select automation
   - Attributes: effectiveness, efficiency
Summary

PFM Reform and Financial Information Systems

7. **High rates of failure**
   - Misalignment of Incentives: funders, contractors, governments
   - Bad projects: budget, scope, schedule

8. **Postulate: can’t automate everything**
   - Hybrid vs Insulated Financial Control Systems
     o Ethiopia: custom—budget/accounts
     o Tanzania: package—procurement/disbursement
   - IT tends to promote efficiency rather than effective control

9. **Custom/bespoke vs Package Approach**
   - Extensive customization can not be avoided
     o Legacy systems, migration, consolidation, unique user requirements, admin reform

10. **Management of IT risk**
    - Competent project management and contractors
    - Process change rather than innovation (reengineering)
    - Selective/modular/iterative development
Outline of Presentation

• Components of Financial Control & IFMISs
• Two Pathways of Financial Reform
  – Ethiopia
  – Tanzania
• Managing Risk of Financial Information Systems
• Commercial Off-the-Shelf (COTS) systems
Figure 1
Financial Control: ‘Platforms’ of PFM

Transaction Platform
Budgets, Commitments, Procurement, Disbursement (Treasury), Reporting, Revenue, External Audit, Financial Information Systems

Legislative Platform
Financial law/regulations
Policy
Appropriation
Expenditure Evaluation

Policy/Planning Platform
Macro Economic Fiscal Framework
Budget Policy and Strategy
Medium Term Frameworks
Intergovernmental Transfers
Performance/Program Budgeting
Performance Audit

Sequence of Implementing Financial Reform

Control (Inputs)

Manage (Outputs)

Plan (Outcomes)
What are Core and Non-core IFMIS Systems?
(Deepak Bhatia, World Bank)

Core systems
• General ledger
• Accounts payable and receivable
May include:
• Financial reporting
• Fund management
• Cost management

Non-core systems
• HR/payroll
• Budget formulation
• Revenue (tax & customs)
• Procurement
• Inventory
• Property management
• Performance
• Management information
Features of a Typical IFMIS

Integrated
- Standard classification
- Common processes
- Controls over data entry & processing
- Real time transaction recording

Financial
- Accounts (general ledger, payables & receivables)
- Reports

Management
- Tracking
- Control
- Cost management
- Adjustment (policy, operational)
- Performance

Information
- Summarises information
- Ex ante (budget)
- Ex post (audit, financial statements)
- Operational

System
- Software, hardware, people, procedures, data
- Migration?
- Consolidation?

High level of IT infrastructure
Linked to Chart of Accounts & Budget Structure

- Timeliness
- Comprehensiveness

Source: Perran Penrose
Pathway of PFM Reform: Ethiopia

Context: hard budget constraint, effective not efficient financial control
Ownership: Government designed Civil Service Reform
Purpose: Policy (not crisis) driven: decentralization; rebuild civil service
Actions: evolve existing systems
  - Hybrid approach
  - Focus on legal framework, budget, accounts, reporting, automation replicates
  - Strong manual controls over commitments, procurement, disbursement

Sequencing
Stage 1: ‘toning’ (comprehension)
  —documentation, massive training, legal framework
Stage 2: ‘toning’ (improving)
  —new chart of accts, budget classification, redesign of forms, FIS
Stage 3: ‘reforming’ (expanding)
  -- cost center budgeting, double entry, modified cash, MEFF, performance framework, unit cost/needs based transfer, redesigned IFMIS
Ethiopia’s Pathway of PFM Reform

- **FY 96 to FY 06**
  - Multi-year budget planning
  - Performance budgeting frameworks
  - Financial Statements
  - Mgmt accounting
  - Integrated FIS (WAN/LAN)
  - 73,000+ trained

- **FY 98-03**
  - Cost Center Budget
  - Double Entry Bookkeeping
  - Modified Cash Accounting
  - Relational databases (FIS)
  - 47,000+ trained

- **Line Item Budget**
- Single Entry Bookkeeping
- Cash Accounting
- Spreadsheets
Example of a Manual Procedure that instilled both Effective and Efficient Control

Single Treasury Pool

- **Challenge:** rapid decentralization to weak admin levels
- **Response:** centralize financial management in local finance office
  - Single check book for all domestic (Treasury) expenditures
  - Removed Discretion from spending offices
  - Concentrated scarce finance staff in one office
  - Strengthened
    - Budget
    - Commitments
    - Procurement
    - Disbursement
    - Accounting
    - Reporting
Strategy of Financial Information Systems

• **Replication** (of manual systems)
  – Years 1-6
  – Rapid and iterative development driven by manual procedures
  – Seamless manual/automated operation
  – Different configuration for levels of administration (stand alone, LAN)
  – Beyond IFMIS basics: budget, accounts, disbursement, reporting

• **Redesign** (Beyond International Standards)

• **Years 7-10**
  – Cutting edge connectivity: low bandwidth (24 Kbs) WAN capability
  – Extensive consolidation/migration tools (legacy systems, configurations)
  – Open source frameworks: Robust enterprise-class: application server (Apache Tom Web Server—Apache); Development Environment—Eclipse for J2EE distributed applications)
  – International standard security (Netegrity Siteminder), RDBMS (MS SQL)
Features of the Ethiopian IFMIS (IBEX)

Financial Modules
(See IBEX Executive Summary)

- Budget
- Accounts
- Budget Adjustment
- Budget Control
  commitments; disbursements (between admin levels)
- Nation-wide Consolidation
  (budget and accounts)
- Disbursement
  (under development—single pool>ZTB>STS. ZTB at Fed
Assessment of the Ethiopian IFMIS

1. **Operational.** Yes.
   - Works

2. **Reliable.** Yes.
   - 97% uptime

3. **Functional.** Yes.
   - Meets all user requirements
   - Four languages.

4. **Capable.** Yes.
   - Good Performance
   - Extensive reporting capacity
   - Effective in managing low bandwidth

5. **Compatible.** Yes.
   - Extensive migration tools

6. **Useable.** Mixed.
   - Senior and middle government staff are still learning to fully use the reporting capabilities.
Assessment of the Ethiopian IFMIS

7. **Sustainable.** Mixed.
   - Open source frameworks, well-documented
   - Government owns source code
   - Limited capacity of govt to sustain product, can do operational
   - In-country capacity to sustain product

8. **Expandable.** Yes.
   - This system has continually evolved with new functionality.

9. **Affordable.** Yes.
   - Ten years of software development ($3.2 million)
   - Current system ($1.65 million)
   - Product maintenance ($248,000 a year)

10. **Credible.** Yes
    - Foreign aid agencies respect, increased funding through Treasury

11. **Beneficial.** Yes.
    - Ethiopians trained in state-of-the-art systems development
Specific Success Factors

- Small budget
- Patience and time to evolve (ten years)
- Continuity/long term funding support
- Small team—very talented team can do ‘big’ things
- Right technical lead
- Good domain knowledge
- Legacy data not lost (manually or in automation)
- Focused on Fundamentals (not bells & whistles)
- Innovations (performance budget) used bc/coa
- Few ‘cooks in the kitchen’
Pathway of PFM Reform: Tanzania

(Caveat: this case is based on secondary literature)

Context: no hard budget constraint, ‘totally dysfunctional’ procedures, absence of effective and efficient financial control

Ownership: Government and Foreign Aid Agencies

Purpose: Crisis driven, regain aggregate fiscal control

Actions: driven by Information Technology--install new procedures and discipline

- Insulated ‘turnkey’ IT approach using a commercial software package
- Focus on Central Payment System—procurement and disbursement—a cash budget
Assessment of the Tanzanian IFMIS

1. **Operational.** Yes.
   ✓ Works

2. **Reliable.** Unclear.
   ✓ Uptime?

3. **Functional.** Mixed.
   ✓ CPS initially-no sub-head budgetary control; current version does

4. **Capable.** Mixed.
   ✓ Problems of bandwidth management

5. **Compatible.** Unclear.
   ✓ Management of legacy data or different configurations?

6. **Useable.** Mixed.
   ✓ Limitations of government staff to fully using the functionality
Assessment of the Tanzanian IFMIS

7. **Sustainable.** Unclear.
   - ✔ Documentation?
   - ✔ Government ownership of source code?
   - ✔ In-house or in-country sustainability?

8. **Expandable.** Yes.
   - ✔ A number of modules are being added to the system.

9. **Affordable.** Unclear.
   - ✔ Cost of software development?

10. **Credible.** Yes.
    - ✔ Foreign aid agencies are increasing support

11. **Beneficial.**
    - ✔ Have Tanzanians been trained in systems development?
Lessons from the Ethiopian and Tanzanian Reforms for using Financial Information Systems

• Significant differences in Pathways
  – No ‘one-size fits all’ best practice
  – Limitations of ‘one-country-fits all’ prescriptions

• No a priori reason to favor COTS over Custom
  – Extensive customization is needed

• Critical decision
  – Replace or reform existing procedures

• Automation should be selective not comprehensive
  – Questions the relevance of ‘high-end’ IFMISs which are more complex, costly and difficult to sustain
Risky Business: Large-Scale Information Systems

50%+ failure rate in developed countries

3 Keys to Project Success

1. Top management support
2. A sound methodology
3. Solid technical leadership by someone who has successfully completed a similar project

and

4. Data Migration
5. Implementation

Managing the Risk of Information Systems

• **Good Projects**
  – Scope (limited)
  – Budget (defined and limited)
  – Schedule (adequate)

• **Business Processes**
  – Process change not process innovation (reengineering)
Managing the Risk of Information Systems

- Iterative not Comprehensive Development
  From ‘Whales’ to ‘Dolphins’

“Public sector budgeting systems can encourage the funding of large and highly visible IT projects...that often fail. A radical approach, increasingly adopted in the private sector, is to avoid large projects altogether, opting for small projects instead. One expert has called this change a shift from ‘whales to dolphins’. Adopting dolphins does not mean breaking big projects into small modules. Rather, it involves a shift to a different way of working and thinking, with total project time frames of no more than six months, technical simplicity, modest ambitions for business change, and teamwork driven by business goals.”

Caveats about COTS

- Failures in both custom and COTS
- COTs is not a guarantee (see the Hall of Shame)
- Rarely if Ever a pure COTS: customization
  - Can not fully bring your procedures to the system
  - Legacy data
  - Migration tools (bring data across different configurations—standalone, LAN, WAN))
  - Consolidation (map data across different BC/COAs, single/double entry)
  - Unique user requirements—government and FA agencies
- COTS are not as robust as assumed
  - Functionally designed (focus on user interface) but not on system architecture
    - Problem when customizing
    - Upgrades don’t support customization
    - Old COTS have difficulty with upgrades in operating sys, DBs
Why do COTS persist as the ‘Simple Solution’

• Risk-averse IT Managers/CIOs—
  ‘no one got fired by buying IBM’—blame failure on the vendor or system integrator

• Backlash against custom systems—
  – failure as well—so COTS can’t be worse—it can

• Software integrators love COTS implementations—cash cow (high fees for low level admin tasks—e.g. inventory conversion, general ledger creation)

• Vendor and Integrator ‘Lock’
Financial Information Systems

How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it

How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed
Thank you for listening
Further Information

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