



Public Expenditure Management
Peer Assisted Learning

PEMPAL TCOP Thematic Group Meeting

Integrated PFM Solutions

Global Trends in Transition to Integrated FMIS Solutions
Minsk, Belarus October 15-17, 2014



Cem Dener
Governance Global Practice



Integrated PFM Solutions

Contents

- ▶ Transition to Integrated FMIS
- ▶ Regional and Global Trends
- ▶ Technical and Adaptive Challenges

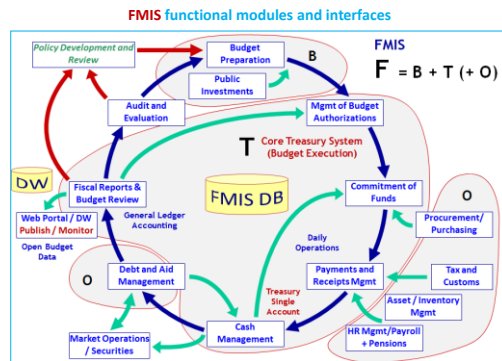




What is Integrated FMIS?

Definitions

- ▶ A **Financial Management Information System (FMIS)** can be broadly defined as a set of automation solutions that enable governments to plan, execute and monitor the budget.
- ▶ Whenever FMIS and other PFM information systems (e.g. HRMIS/Payroll, Procurement) **share the same central database** to record and report all daily financial transactions, offering reliable consolidated results for decision support, performance monitoring and web publishing, they can be referred to as an **'Integrated' FMIS** (or IFMIS).
- ▶ IFMIS solutions are **rare in practice**, and it should not be used as a synonym for core FMIS functionality to avoid unrealistic expectations.
- ▶ Modern FMIS platforms support **decentralized operations through centralized web-based solutions**.
- ▶ In summary, **Integrated FMIS solutions offer a great potential for improving service delivery, budget performance, transparency, and government accountability.**



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Transition to Integrated FMIS

Drivers for Demand

- ▶ In many economies, **initial PFM reforms** concentrated on establishing well functioning Treasury/FMIS, Tax/Customs, HRM/Payroll, and other e-Government platforms for core PFM functions (**mainly through fragmented ICT solutions**).
- ▶ **Next generation Integrated FMIS (IFMIS) Solutions** are being designed to combine PFM operational systems (OLTP) with powerful data warehouse capabilities and multi-dimensional analytical queries (OLAP) to assist in effective forecasting/planning, performance monitoring and decision support (**as a key component of e-Gov platforms**).
- ▶ There is also a growing interest in using Integrated Solutions for the disclosure of public finance and other sector specific information as **Open Data**.

Mof's new roles >>>

- Providing Access to IFMIS
- Publishing Open Budget Data
- Improving Service Delivery

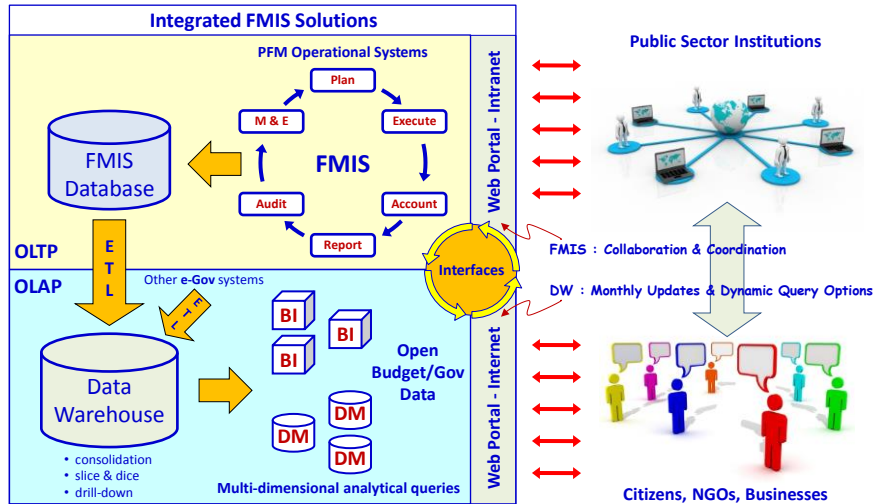


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Why Integrated FMIS?

Goals > Sustainable public resource management + Effective public service delivery + Open and accountable government



OLTP : Online Transaction Processing

OLAP : Online Analytical Processing

ETL : Extract, Transform, Load

BI : Business Intelligence DM : Data Mining

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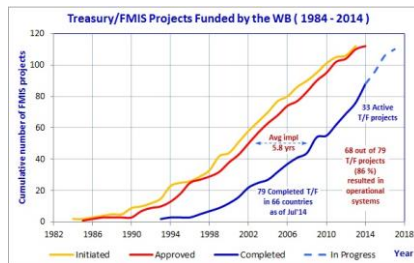
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Integrated Solutions

WBG Activities in PFM Domain

- ▶ The WBG has **leading edge knowledge and substantial global experience** to assist in the development of **ICT applications** for Public Financial Management (PFM) systems.
- ▶ Since **1984**, the WBG has financed **112** Financial Management Information System (FMIS) projects (79 completed; **33 active**; including large ICT investments) in **66 countries**, totaling over **3.1 billion USD** (4.2 billion including borrower and other donor co-financing).
- ▶ Similarly, there are more than **25 active Revenue (Tax/Customs)** system modernization projects (ICT investments), and additional activities supporting the development of Human Resource Mgmt (HRMIS) / Payroll, ePayment, eProcurement, and various **e-Gov** applications.



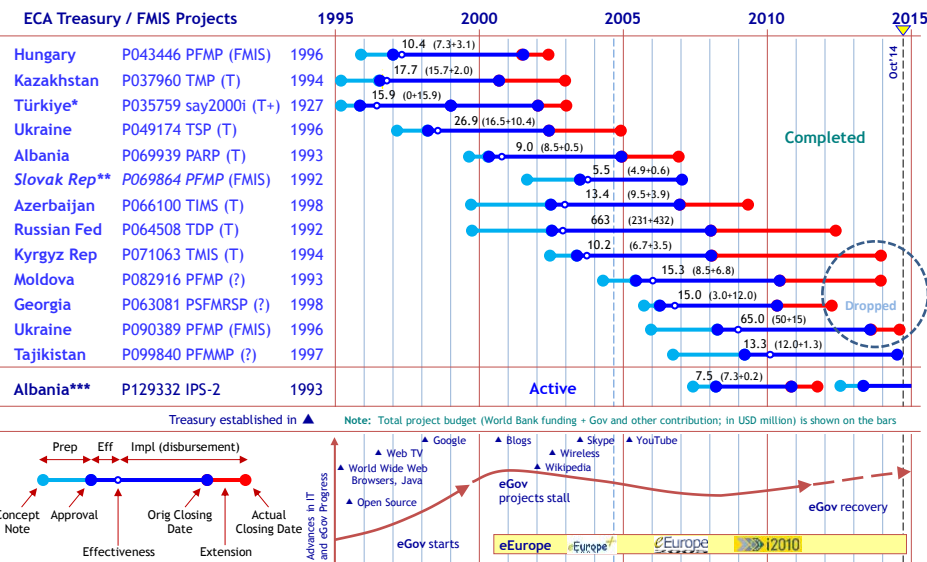
The WBG has a steadily growing portfolio of FMIS projects

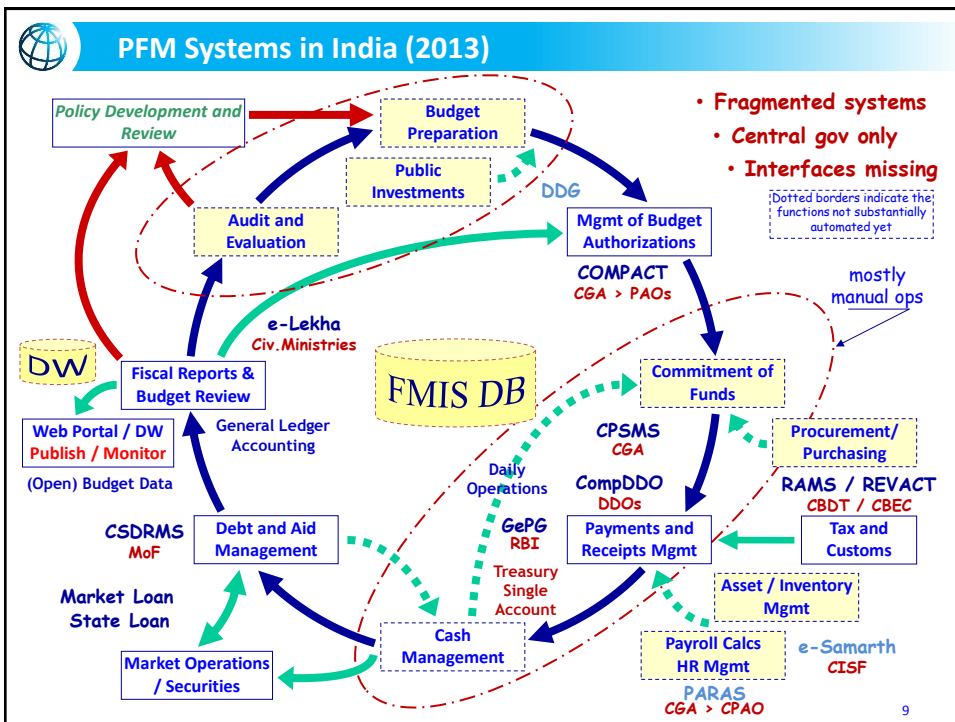
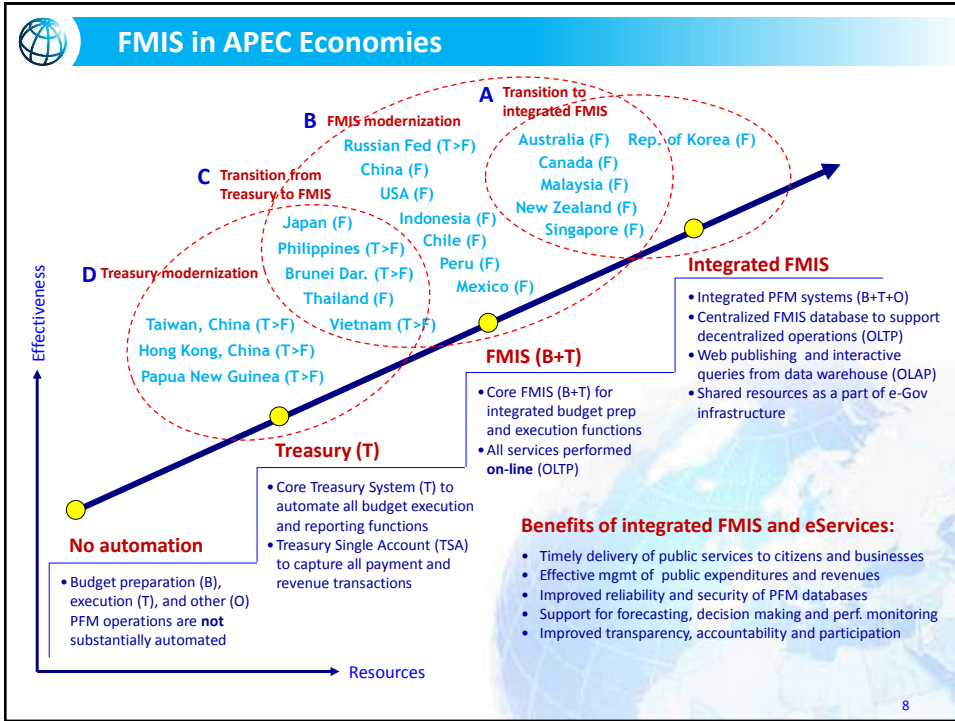
- About **10 large investment projects** are initiated each year to support the implementation of PFM (ICT) solutions
- There are more than **120 active PFM / e-Gov projects** with ICT components (Jul'14 estimate)

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ECA Treasury/FMIS Projects







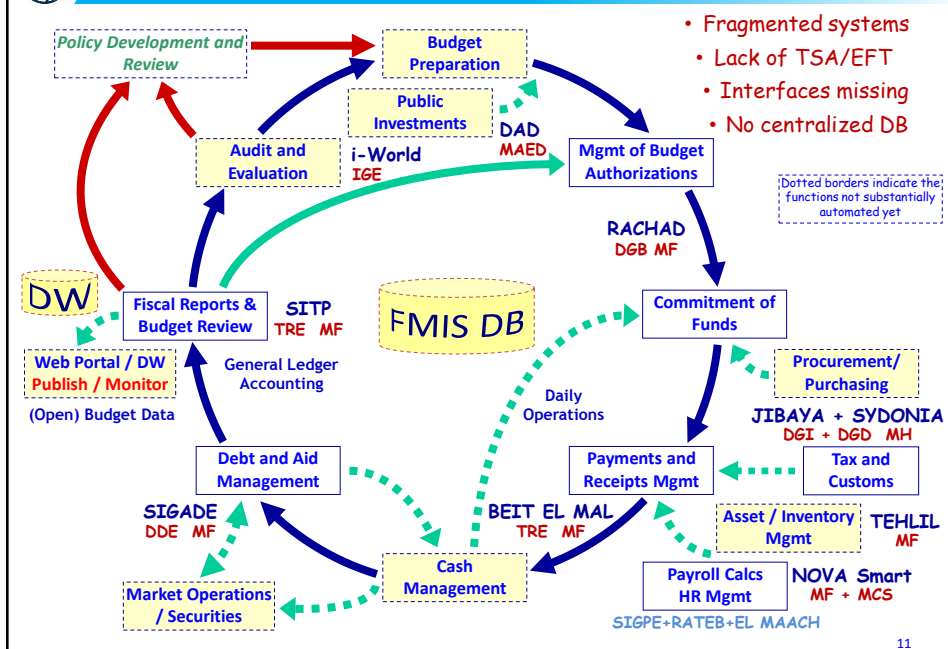
Observations > India

FMIS Prerequisites	Current Status (India)
<p>Functional aspects</p> <ul style="list-style-type: none"> • Improvement of budget classification (BC) • Development of a unified chart of accounts (CoA), integrated with budget classification • Improvement of treasury single account (TSA) operations • Development of commitment control and monitoring mechanisms • Establishment of cash management functions <p>Technical aspects</p> <ul style="list-style-type: none"> • Establishment of a secure countrywide communication network • Preparation of system/data centers <p>Human resources</p> <ul style="list-style-type: none"> • Presence of a core team of ICT specialists within PFM organizations 	<p>Functional aspects</p> <ul style="list-style-type: none"> ☹ A unified budget classification/chart of accounts is used since 1987 ☹ BC/CoA could be improved for cash/accrual acct & program based + multi-year budgeting ☹ Centralized TSA and electronic payments are operational. TSA optimization possible. ☹ Commitment control/management should be developed ☹ Cash and debt management processes should be improved (arrears + better forecasting + info exchange + integration) <p>Technical aspects</p> <ul style="list-style-type: none"> ☹ ICT infrastructure and information security solutions are in place; could be improved ☹ NIC data centers (main + backup) are available; shared ICT infrastructure missing. <p>Human resources</p> <ul style="list-style-type: none"> ☹ CGA IT capacity could be strengthened; NIC business model and SLA could be improved.

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PFM Systems in Mauritania (2014)



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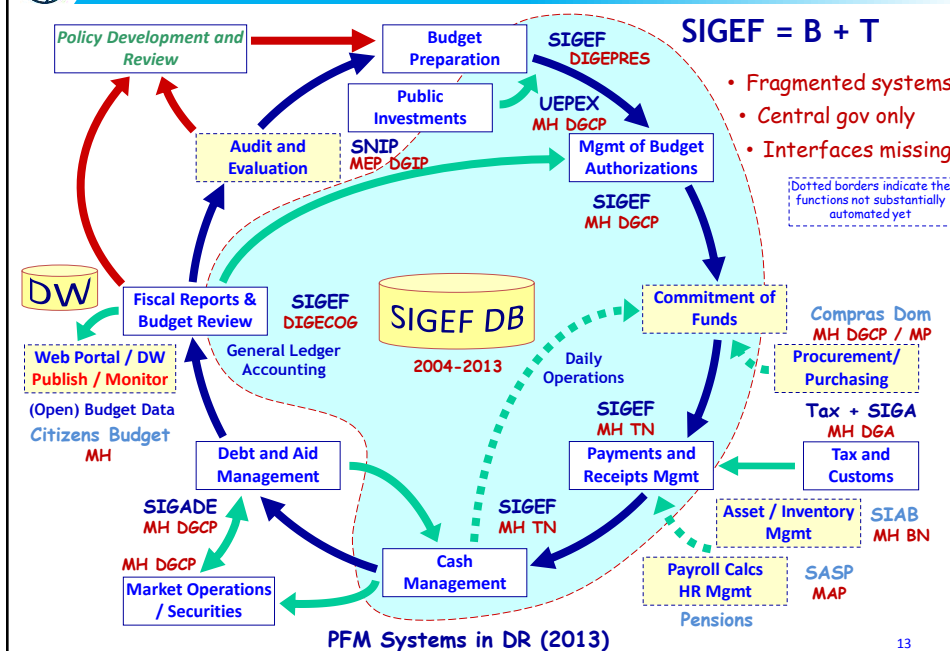
Observations > Mauritania

FMS prerequisites	Current status (Mauritania)
<p>Functional aspects</p> <ul style="list-style-type: none"> • Improvement of budget classification (BC) • Development of a unified chart of accounts (CoA), integrated with budget classification • Improvement of Treasury Single Account (TSA) operations • Development of commitment control and monitoring mechanisms • Establishment of cash management functions <p>Technical aspects</p> <ul style="list-style-type: none"> • Establishment of a secure countrywide communication network • Preparation of system/data centers <p>Human resources</p> <ul style="list-style-type: none"> • Presence of a core team of ICT specialists within PFM organizations 	<p>Functional aspects</p> <ul style="list-style-type: none"> ☹ Stable CoA, but not optimized BC/CoA yet ☹ BC/CoA could be improved for future PFM reforms and multi-year budgeting ☹ Centralized TSA operations and electronic payments are not established yet. ☹ Commitment control and management should be improved. ☹ Cash management process can be improved <p>Technical aspects</p> <ul style="list-style-type: none"> ☹ ICT infrastructure and information security solutions are not sufficiently developed. ☹ Lack of shared data centers (main+backup). <p>Human resources</p> <ul style="list-style-type: none"> ☹ MoF IT capacity should be strengthened

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PFM Systems in Dominican Republic (2013)



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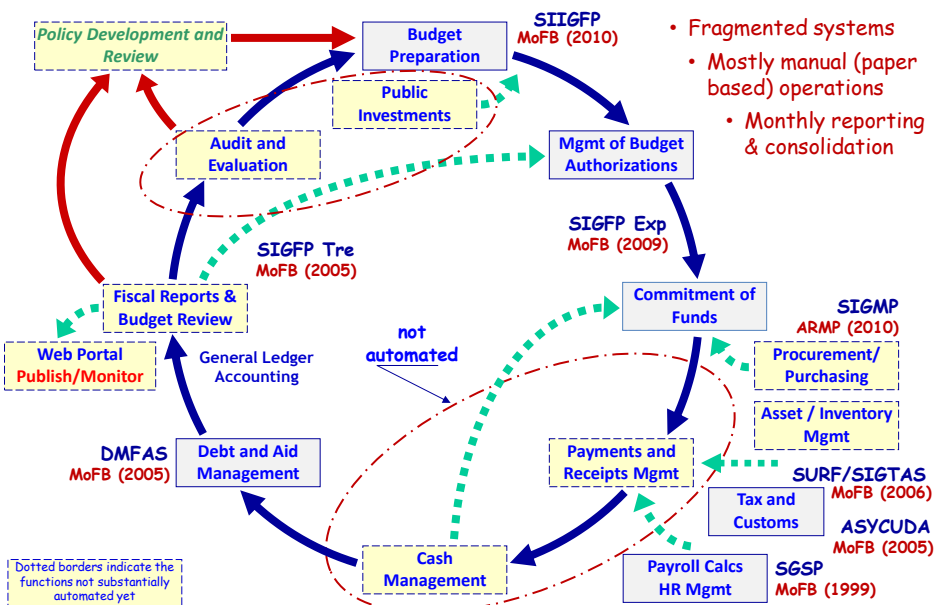
Observations > Dominican Republic

FMIS Prerequisites	Current Status (DR)
<p>Functional aspects</p> <ul style="list-style-type: none"> • Improvement of budget classification (BC) • Development of a unified chart of accounts (CoA), integrated with budget classification • Improvement of treasury single account (TSA) operations • Development of commitment control and monitoring mechanisms • Establishment of cash management functions <p>Technical aspects</p> <ul style="list-style-type: none"> • Establishment of a secure countrywide communication network • Preparation of system/data centers <p>Human resources</p> <ul style="list-style-type: none"> • Presence of a core team of ICT specialists within PFM organizations 	<p>Functional aspects</p> <ul style="list-style-type: none"> ⊕ Budget classification sufficiently developed ⊖ BC/CoA could be improved for cash/accrual acct and multi-year budgeting ⊖ Centralized TSA operations and electronic payments are not fully established yet. ⊖ Commitment control and management should be improved. ⊖ Cash management process can be improved (TSA coverage + info exchange) <p>Technical aspects</p> <ul style="list-style-type: none"> ⊖ ICT infrastructure and information security solutions are not sufficiently developed. ⊖ Lack of shared data centers (main + backup) <p>Human resources</p> <ul style="list-style-type: none"> ⊖ MoF IT capacity could be strengthened.

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PFM Systems in Madagascar (2013)



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Observations > Madagascar

FMIS prerequisites	Current status in MG
<p>Functional aspects</p> <ul style="list-style-type: none"> • Improvement of budget classification (BC) • Development of a unified chart of accounts (CoA), integrated with budget classification • Improvement of treasury single account (TSA) operations • Development of commitment control and monitoring mechanisms • Establishment of cash management functions <p>Technical aspects</p> <ul style="list-style-type: none"> • Establishment of a secure countrywide communication network • Preparation of system/data centers <p>Human resources</p> <ul style="list-style-type: none"> • Presence of a core team of ICT specialists within PFM organizations 	<p>Functional aspects</p> <ul style="list-style-type: none"> ☺ Budget classification sufficiently developed ☹ Unified BC / CoA for cash/accrual acct; optimization needed. ☹ Centralized TSA operations and electronic payments are not fully established yet. ☹ Commitment control exists; insufficient monitoring mechanism ☹ Cash management process is not automated (no daily monitoring of cash position) <p>Technical aspects</p> <ul style="list-style-type: none"> ☹ ICT infrastructure and information security solutions are not sufficiently established ☹ Main system centers need to be improved. <p>Human resources</p> <ul style="list-style-type: none"> ☹ MoF IT capacity should be strengthened

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Global Trends

Observations from Rapid Diagnostics in the Regions

- ▶ PFM information systems are fragmented and not effectively used (parallel systems and manual interventions).
- ▶ There is a risk of perceiving IFMIS as the integration of existing information systems only, while designing new solutions.
- ▶ Changing the culture of PFM organizations to benefit from improved processes and modern web-based ICT solutions is a difficult task.
- ▶ Introducing digital signature (legislation and infrastructure) before large scale integration projects is important .
- ▶ There is a growing interest in improving access (internal/external) to Public Finance information, and publishing open budget data from IFMIS.
- ▶ Integration of FMIS is considered as a part of broader e-Governance agenda and there is a better focus on interoperability & resource sharing.
- ▶ Implementation of Integrated Solutions linked with other e-Gov platforms require high level commitment and the mobilization of substantial resources.

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Integrated PFM Solutions

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- ▶ **Technical and Adaptive Challenges**



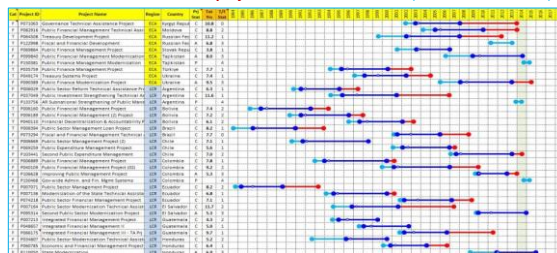
Challenges

Client Country Expectations

(some of the important country specific needs identified during meetings with government officials and project teams)

- ▶ Rapid **assessment** of PFM practices and information systems (**quick diagnostic tools**)
- ▶ Developing **integrated FMIS solutions (FMIS + Data Warehouse)** for performance monitoring and decision support, as well as publishing open data
- ▶ Advice and hands-on support during the **development of next generation e-Gov applications**
- ▶ Developing **capacity** for addressing complex technical & adaptive challenges in PFM reforms
- ▶ Learning more about the **global experiences** for better results

Timeline of consecutive **FMIS projects** in selected countries (from FMIS Database)



- Most of the PFM + e-Gov systems were developed over the years with little focus on interoperability, total cost of ownership, and sustainability.
- Currently, PFM systems are fragmented and not effectively used in many countries.
- **Next generation PFM systems are being designed as shared web-based platforms** for cost effective integration of transaction and analytical processing, monitoring, decision support, and reporting functions.



Challenges

FMIS Design and Implementation Challenges

- ▶ Long term political commitment and ownership of the borrower
- ▶ PFM reform needs and priorities > Clear definition of the problem
- ▶ Allocating enough time and resources for project preparation
- ▶ Identifying critical **technical** and **adaptive** challenges early in the process
- ▶ Large scale **change management** and **training** activities to strengthen institutional capacity for PFM reforms
- ▶ Developing necessary skills to implement and sustain FMIS solutions
- ▶ Decision about the type of FMIS application software, and using shared ICT infrastructure
- ▶ Readiness for **procurement** and **contract management** activities

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Challenges

Top 10 FMIS Procurement Challenges

- ▶ Short project preparation periods, leading to:
 - Lack of a clear strategy during project (system) design
 - Insufficient detail in activity descriptions, I/O, and implementation plans
 - Inadequate or No procurement planning
- ▶ Lack of decision on the type of application software (COTS/locally developed)
- ▶ Incomplete FMIS functional and technical requirements/specifications due to lack of sector-related IT expertise
- ▶ Inadequate level of sophistication - inability to make proper use of 1 vs 2 stage bidding (International Competitive Bidding)
- ▶ Favoritism
- ▶ Lack of IT Procurement expertise to properly prepare bidding (ICB) documents
- ▶ Inadequate monitoring of the publication of procurement notices (mismatch in the category and type of bidding process, short bid submission periods, etc.)
- ▶ Composition of the Borrower's evaluation committee members
- ▶ Complexity of ICB documents
- ▶ Lack of a comprehensive procurement/contract database for large ICB contracts

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Challenges

Top 10 FMIS Contract Management Challenges

- ▶ Inadequate understanding of the needs/requirements by the suppliers
- ▶ Mismatch between software capabilities and business requirements, and excessive customization
- ▶ Complex and untested technical architectures proposed by suppliers
- ▶ Development and testing approach: on-site vs. off-site
- ▶ Qualifications and experience of supplier and sub-contractor teams
- ▶ No agreement on frozen requirements date
- ▶ Change requests during contract implementation (improperly managed)
- ▶ No application of contractual remedies (liquidated damages, dispute resolution)
- ▶ Close monitoring needs and verification/validation support
- ▶ Lack of an ICT specialist in task teams starting from the project identification phase (excessive use of consultants, who then cannot assist the Borrower during evaluation and verification of solutions)

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Challenges

Country Specific Challenges

What are the key challenges in transition to integrated FMIS platforms?

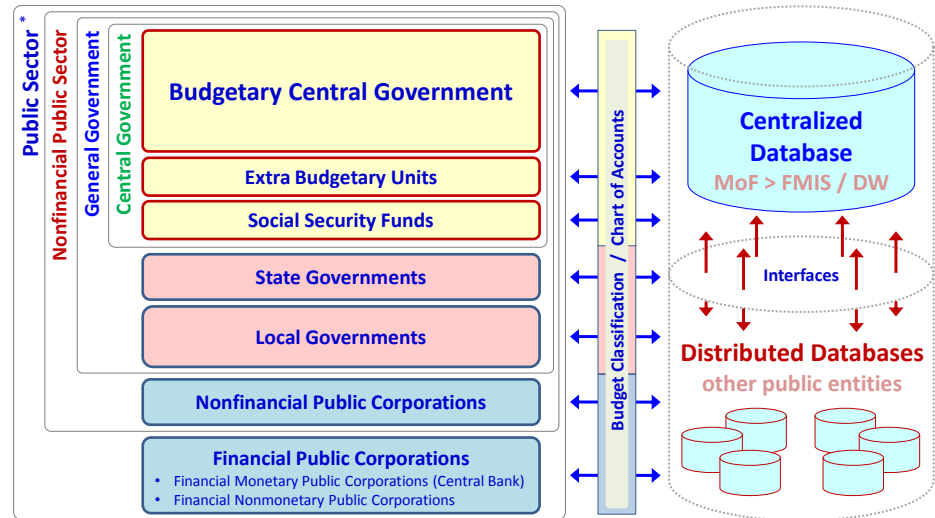
- ▶ Unification of Budget Classification / Chart of Accounts
- ▶ Improving BC / CoA segments to record & report all PF data with adequate disaggregation (capturing program/activity and sector/regional spending)
- ▶ Centralized Treasury Single Account (TSA) operations for daily monitoring of revenues and expenditures
- ▶ Simplification of PFM procedures and reporting requirements
- ▶ Capturing all PF transactions (on a daily basis), and consolidation of results (weekly/monthly) for accounting and reporting needs of all public sector
- ▶ Conversion of country specific PF data into IMF GFS or COFOG or other internationally accepted formats (bridge tables)
- ▶ Roles and responsibilities in producing and publishing PF data on the web (legal and administrative frameworks)
- ▶ Integrity and reliability of information systems and databases used for producing Open Budget Data

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Challenges

How to Automate the Consolidation of Public Finance Data?

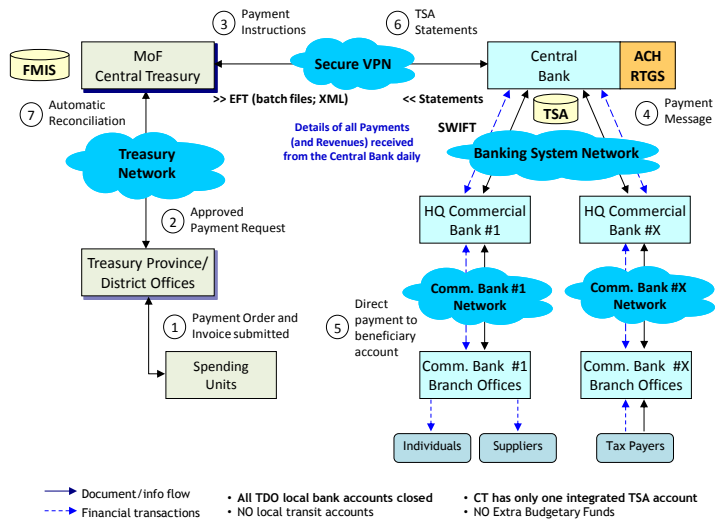


* Institutional structure of "Public Sector", as defined in the IMF Government Finance Statistics 2001 Manual



Challenges

How to Introduce Centralized Treasury Single Account?



- Document/info flow
- Financial transactions
- All TDO local bank accounts closed
- NO local transit accounts
- CT has only one integrated TSA account
- NO Extra Budgetary Funds



TSA Benefits

Reported TSA Benefits

- ▶ New Zealand ¹ : “... Compared with the previous system where departments kept idle balances in their bank accounts, the new system generates yearly savings of about **US\$ 20 million.**”
- ▶ Kenya ² : “... The opportunity cost of the net (idle) balances of the Government accounts in CBK amounted to some **US\$ 43 million** in 2008.”
- ▶ China ³ : “... Centralized treasury management allowed MoF to detect fiscal malfeasances in 61 central ministries amounting to 2.96 billion Yuan (**US\$ 358 million**) in 2002-2003.”
- ▶ Russian Federation : “... Around **US\$ 233 million** of revenue from interests on cash balances of the budget funds at TSA in 2011 (until Sep 2011).”
- ▶ Indonesia : “... Direct financial benefit to the Treasury of the consolidation of government cash balances and the introduction of a remuneration paid by the Central Bank showed gains of approximately **IDR 4 trillion (US\$ 400 million)** per annum (reported in 2013).”

¹ Graham S. Scott, “[Government reform in New Zealand](#)”, IMF, 1996

² Alan Gustafsson and Mohan Joseph, [Improving cash management in Kenya](#) East Africat Report, March 2009

³ Yuen Yuen Ang, “[Centralizing Treasury Management in China: The Rationale of the Central Reformers](#)”, Published online 24 July 2009 in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/pad.537

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Challenges

How to Publish Open Data from Integrated Solutions?

Public Transparency Portal

Transparency Portal

Public Accounts Portal

Treasury Portal

Chamber of Deputies Portal

Senate Portal

Budget Portal

Despite challenges, a large number of good practices are visible

Source:
Fiduciary Forum (May 2012): From the presentation of
Mr. Regis Cunningham on FMIS Experiences in Brazil

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Lessons Learned

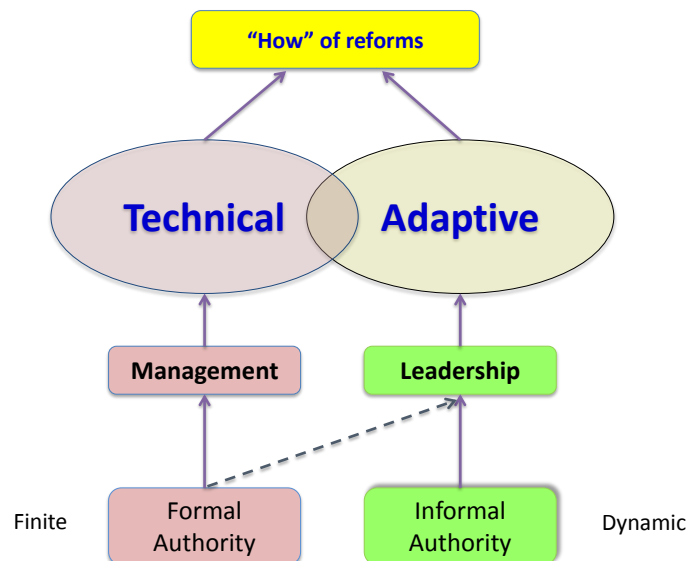
How to Identify Technical and Adaptive Challenges?

- ▶ Most of our client countries are faced with **technical and adaptive (non-technical) challenges** while developing FMIS solutions.
- ▶ Project/task teams are usually supported by technical specialists who are capable of reviewing the functional & technical requirements and monitoring the execution of contracts based on a well defined methodology to address **technical challenges**.
- ▶ However, despite all efforts to strengthen the institutional capacity, many project teams experience difficulties in **change management**, and substantial delays are observed during PFM reforms.
- ▶ Therefore, there seems to be some room for improvements in defining the **adaptive (non-technical) challenges** during design, and address change management issues properly during implementation of projects.
- ▶ Applying the principles of **Science of Delivery** (an evidence-based, outcome-focused approach based on rapid evaluation, learning and adjustment cycles) may help in the resolution of these challenges.

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FMIS Challenges



Source: Definitions used in the Greater Than Leadership (GLT) program for FMIS by Manuel E. Contreras

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Technical vs. Adaptive Challenges

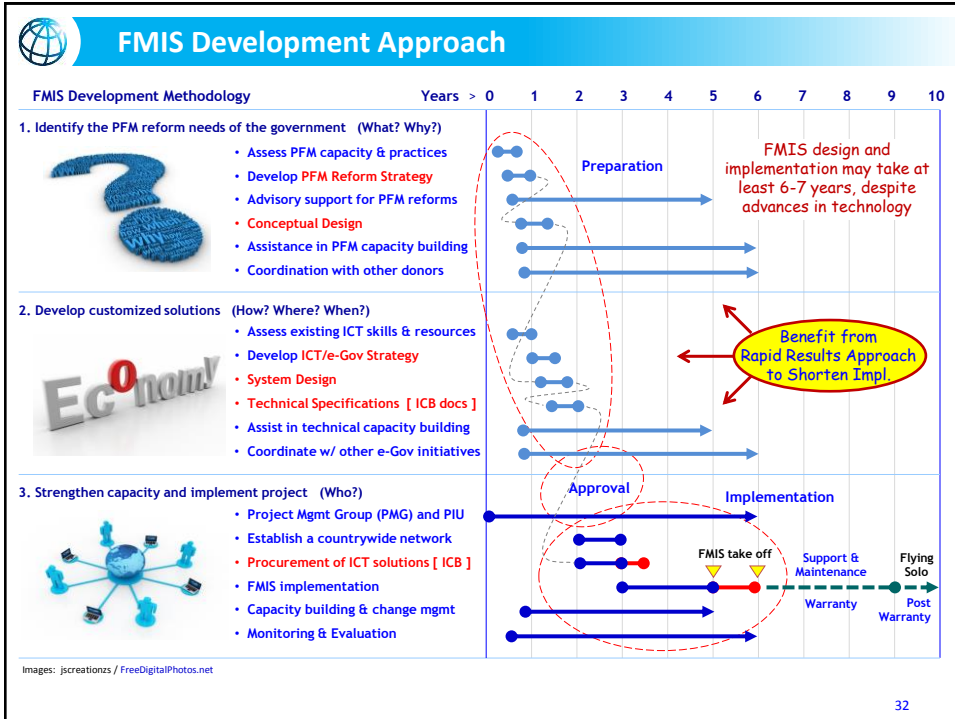
Technical Problems	Adaptive Challenges
Often lend themselves to solutions that have worked in the past.	Require changes in values, behavior, roles, relationships, and approaches.
Who? Often solved by an authority or expert.	Who? People with the problem work on the solutions.
People are generally receptive to technical solutions.	People often resist to adaptive challenges; they fear loss.
Require change in just one or a few areas.	Require change in many areas across usual organization boundaries.
How? Solutions can often be implemented quickly—even by edict.	How? “Solutions” require learning new ways (experiments and new discoveries); can take a long time to implement.

Source: Definitions used in the Greater Than Leadership (GLT) program for FMIS by Manuel E. Contreras (Adapted from [GroupSmith](#))



How to Address Technical Challenges?

- ▶ Project/task teams should be supported by **technical specialists** who are capable of reviewing the business processes, functional & technical requirements, and monitoring the execution of contracts, based on a well defined methodology to address **technical challenges**.
- ▶ A **methodology** and related project design check lists are available to guide the project teams during the **design and implementation of FMIS** (OLTP) solutions (FMIS Study, Apr 2011).
- ▶ Key challenges in **publishing Open Budget Data from FMIS** platforms were also studied, and new guidelines were published in Sep 2013, to assist the project teams in the design of public finance web sites linked with FMIS and Data Warehouse solutions (OLTP+OLAP).
- ▶ Also, the **FMIS CoP** is available as a knowledge sharing and learning platform since Sep 2010.



Adaptive Challenges

How to Address Adaptive Challenges?

► **Leadership for Development (L4D)**
is one of the practical options. Initiated in 2012. Initial results were demonstrated by Albania, Philippines, Vietnam in October 2013.

Preparation
(Three weeks)

Recognize adaptive challenges and technical problems; refine team composition

Workshop
(One week)

Gain a deeper understanding of and practice leadership approaches and tools to mobilize coalitions for reform

Results Lab
(11 months)

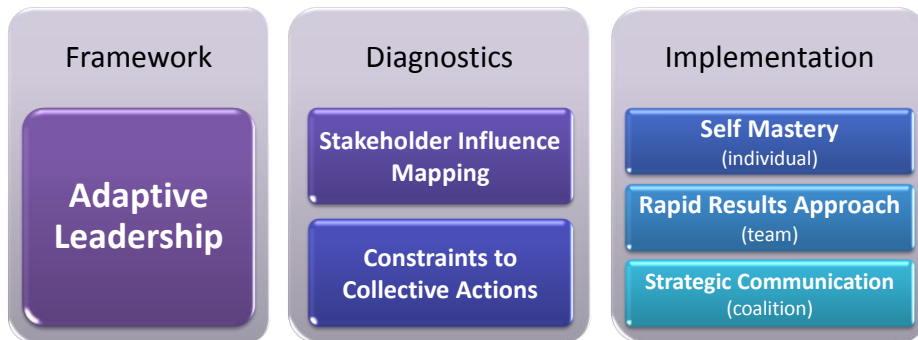
Provide real-time support as teams navigate through the program implementation

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FMIS > Leadership for Development Workshop

(3 to 5 days)



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Conclusions

- ▶ FMIS is a complex system, which constantly evolve and expand in parallel to changes in PFM needs and advances in technology. Leadership, collaboration and innovation are important to develop Integrated FMIS Solutions.
- ▶ It is very important to clarify key 'design parameters' and identify 'which solution fits which problem in what situation' at early stages of the project/system design.
- ▶ There is a growing interest in the development of new customizable platforms based on open source software and other innovative solutions to meet core FMIS requirements at a reasonable cost.
- ▶ Publishing reliable PF data on government web sites benefiting from FMIS is very important to improve the accountability and transparency in PFM domain.
- ▶ Performance of FMIS projects can be improvement through knowledge sharing and learning events among countries involved in FMIS development (communities of practice / peer learning platforms in various regions).

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PEMPAL TCoP Questions

► Design and implementation issues

- Quality assurance
- Cost of implementation
- Web portal for supporting decentralized operations
- Web publishing >>> open budget data
- Testing and operational acceptance
- Training + Phased implementation

► Post implementation challenges

- Maintenance and support
- Managing changes in source code
- Customer relationship management
- Quality of service
- Additional training

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Thank You

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