

2021 IFMIS Capacity Building Program

RWANDA IFMIS Design Experience



MUKWENDE Placide
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Organized by



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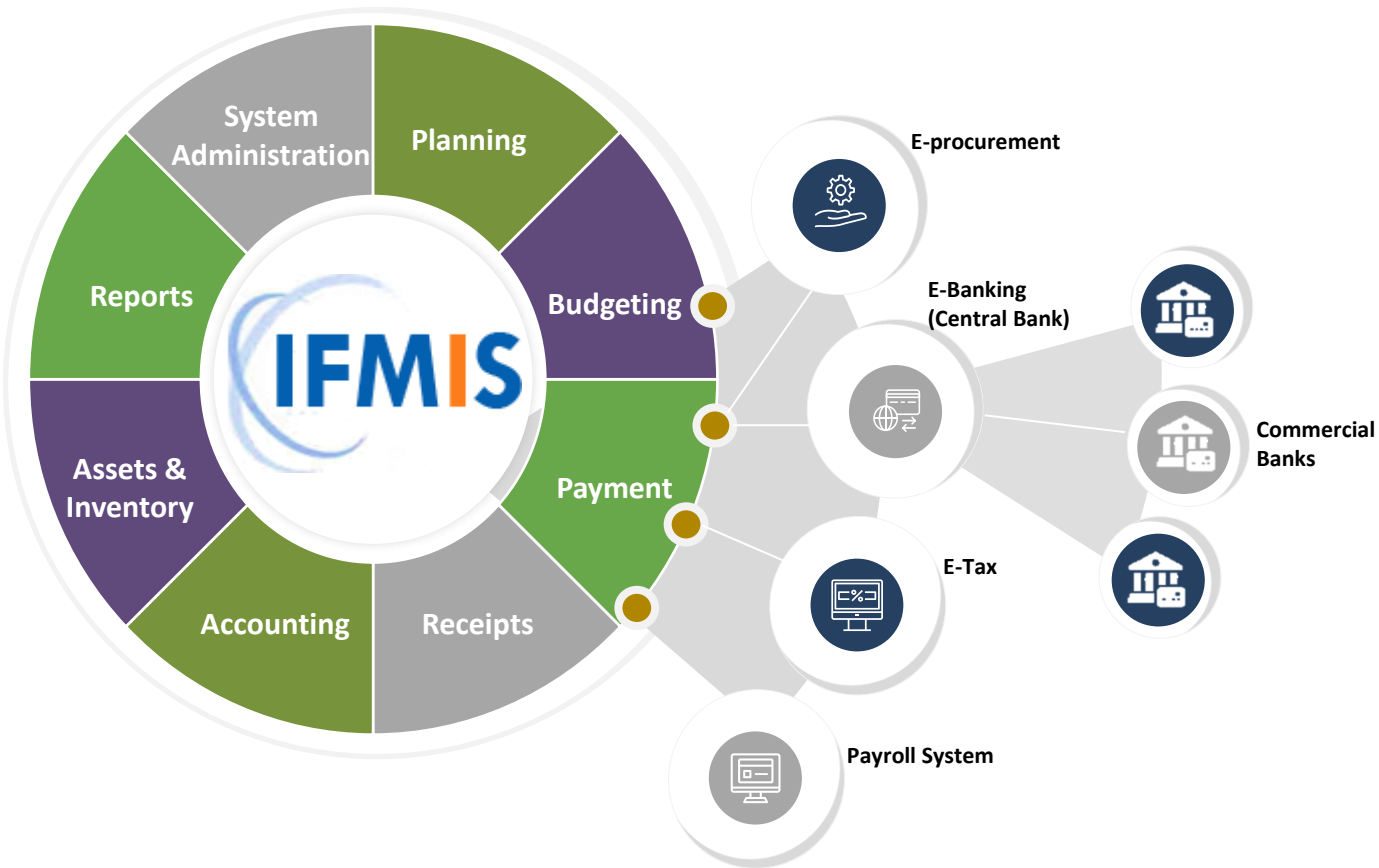
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Rwanda IFMIS:

Functional Coverage & Integration



In-house developed system under the Ministry of Finance



Web-based application accessible over the internet




Cover the whole Public Financial Management Cycle



Support Cash-Less payments

Rwanda IFMIS:

Institutional Coverage

 4,108
Entities

 12,385
Users



RWANDA: IFMIS Overview

System name: SmartIFMIS

System modules: Planning, Budgeting, Payments, Receipts, Assets Mgmt, Accounting, Consolidation, Reporting and System Administration.

Interfaces: e-Procurement, e-Tax, Payroll System and Central Bank's Core Banking and.

Application SW: Custom developed

Use of open source: ZK8, Spring5, Hibernate 5, Drools, Apache Shiro, Apache CXF2, GigaSpaces XAP15, MongoDB, PostgreSQL, NGINX Plus and ActiveMQ.

Scope: Central government (all), local government(districts, sectors, hospitals, health centers, and schools)

of system users: 12,385

of concurrent users: 4,128

of central gov entities connected: 240

of local gov entities connected: 3,868

Operational since: July 2010

Hosting environment: MINECOFIN's Data Center and National Data Center.

Gov service bus & APIs: In-House developed Enterprise Service Bus based on XAP

Other platform info: The system is being developed by Rwandans only.

Country: IFMIS Results Achieved

- ▶ **Implementation of IFMIS In-house from scratch, which covers the whole PFM Cycle**
- ▶ **Proper integration of planning, budgeting, payments, revenue and accounting that trigger timely financial reporting, automated bank reconciliation and consolidation of government accounts.**
- ▶ **Interfacing of IFMIS with the Central Bank to achieve cash-less payments in all central government and some local government entities.**
- ▶ **Perfect implementation of budget control and treasury cash plan management.**
- ▶ **Automated system control of foreign missions calculation, and usage of debit cards by all government officials while outside Rwanda soil.**
- ▶ **IFMIS that is easy to use based on lot of built-in system controls and intelligence that doesn't require users to have knowledge of accounting and other complicated PFM domain specific procedures.**
- ▶ **Less than 12 hours for preparation, verification and payment or payrolls by budget agencies and central treasury through system interfaces and IFMIS paper-less and cash-less processes.**
- ▶ **IFMIS that can be expanded in terms of functionalities and usage with little staff cost of paying staff salaries and training cost only.**

RWANDA IFMIS: Accounting Transactions Design Model

- ▶ The accounting module of IFMIS is the main pillar that offers a consistent integration of budget execution, payments, revenue management, automated treasury bank reconciliation, automated consolidation of government accounts, and real-time financial reporting for all government institutions using a single multitenant IFMIS.
- ▶ The enabler of this is the main Domain-Driven Design approach adopted during the IFMIS design that came up with an Accounting Transactions Design Model, which is the main core design solution that enabled to get pure accounting engine of IFMIS, using In-house methodology from scratch.
- ▶ Using a single unified chart of accounts, implement Debit as Positive and Credit as Negative. $Assets = Liabilities + Own's\ Equity \rightarrow Assets = Liabilities + Capital - Drawings + Income - Expedites \rightarrow Assets + Expenditures + Drawings - Liabilities - Income - Capital = 0 \rightarrow E + A + D - L - I - C = 0 \rightarrow DEAD \ \& \ CLIC.$
- ▶ This design model offers 100% percent accuracy, consistency and scalability in accounting and transaction processing in multi-tenant systems like IFMIS.
- ▶ It bridges the understanding gap that can exist between software developers and accounting experts; it also easy the programming logic, and therefore eliminate computation errors that can lead on unbalanced trial balance which is the source of other financial statements. It also improve the computation performance.

RWANDA: IFMIS Challenges

Please list key issues experienced during development or operations:

- ▶ Increased cybersecurity attacks during COVID-19 lockdown
- ▶ Balancing between convenience, system growth, security and need of government to cover revenue management and expenditure in all spending government entities.
- ▶ Standard way of using digital signature: signing PDF documents or signing transactional data.
- ▶ Lack IFMIS industry standard that can be used as basis for benchmarking In-house IFMIS product.

RWANDA: Selected key challenge

Lack of standardized planning concepts that lead to issues in development of performance-based planning and budgeting and usage of non-financial information.

RWANDA: IFMIS Modernization Plans & Future Directions

- ▶ **Implantation of IPSAS accrual accounting.**
- ▶ **Implementation of Audit, Inventory and Debt modules.**
- ▶ **Upgrading IFMIS from Management Information System to Expert Information System using machine learning and artificial intelligence, so that it can be used by senior manager and executives like Ministers.**