



IT Alternatives in Financial Reform & the Ethiopian Experience

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**Presentation to the
International Consortium of Government Financial Management
Conference on 'Use of Financial Management Information Systems to Improve Financial Management
and Transparency in the Public Sector'
Washington, D.C
December 3-4, 2007**



Summary

- **Lucy**—where it ‘All’ began--civilization
- **Evolution**—adapting to environmental constraints
(Opportunities and Threats)
 - Tough environment (4 horsemen of the apocalypse)
 - Changing policy environment (decentralization, foreign aid)
- **Sequencing (Baby Steps not Big Bang)**
 - Sensible (possible)
 - Serendipity
- **Virtue (of sequencing)**
 - Learn what is needed (and works)
 - Learn when to stop, look, and listen—then Change or **STOP**

Ethiopia--Promising Pathway: PFM/IT Choice

Summary

Getting to Good Financial Control *Effectiveness & Efficiency*

- Financial Sequence—the driver of IT Technical Choice
 - *Procedures*—Robust?
 - *Discipline*--Hard budget constraint? Procedural execution?

Effective financial control existed.

Efficient financial control was the objective:

(clean up backlogs, extend PFM to lower administrative levels)

Sequential Business Process Reengineering

- Process change (transaction management—a reporting tool--count the money, especially for foreign aid agencies)
- Process innovation (BPR)

Outline of the Presentation

I. Ethiopia's FMIS

II. IT choices for supporting:

~ Public Financial Management Reform ~

Choosing an IT Solution for a financial reform is contextual.

There is no one right way.

But, there are approaches that are more likely to succeed.

Ethiopia illustrates such a choice—and a promising approach to FMIS's

Experience is the only teacher, unfortunately with FMIS's, the bills are horrific (though some don't pay them) but what is worse, you have to repeat years of school.

I. Ethiopia's FMIS

- **Value of the Case**
 - 12 years of experience
 - First hand knowledge
- **Successful—the system works**
 - Scope (limited)
 - Schedule (demanding but managed—sequence of reform rollout)
 - Budget (very limited and uncertain) (\$3.6 total; \$2.6 million IBEX)
- **Success in a difficult environment**
 - Limited IT capacity of government and market
 - Limited IT infrastructure
 - Enormous geographic scope
 - Decentralized/evolving administrative structure
 - Crowded agenda by foreign aid agencies
 - Not a priority

If it Works in Ethiopia—it will Work Anywhere

FMIS Versions

- **V.1 (yrs 1-8) (BIS/BDA). Replication (Rapid Rollout of Procedures)**
 - IT System brought to the user's system
- **V.2 (yrs 9-11) (IBEX A). Reworked (new capability)**
 - Distributed (WAN/LAN/S-A), low bandwidth
 - MS SQL RDBMS
- **V.3 (yr 12) (IBEX B). Rebuilt (new technical platform)**
 - Shows the Way—a promising FMIS approach**
 - Harnesses the most stable and high performing IT technology (RDBMS—Oracle)
 - Business Rules Approach
 - ü Visual presentation of business rules—for functional leads
 - ü Rapid and simple modification of business rules code
 - ü Operates on an Ultra-Thin Web Architecture (bandwidth)

Lessons Learned

“Being Told is Different from Seeing”

Kenyan Proverb

- Get something moving—maybe not perfection (bureaucratic culture—inertia without accountability)
- Long time frames of PFM reform
 - Technology will change
 - User requirements will change
- Sequencing the *functional* and *technical* platforms
 - V.1 (BIS/BDA) Priority--functional requirements/deployment
 - V.2 (IBEX A) Sequencing the technical—when to redesign?
 - V. 3 (IBEX B) Current upgrading (technical platform—maintenance, rapid functional change reporting)
 - V.4 (IBEX C) Future upgrade—functional changes, BPR, full web deployment)

A Vision of an Appropriate FMIS

- **Functional platform**
 - Functional (not IT staff) leads can design/modify
 - Transitional states—single=>double entry
 - Replicate and evolve existing procedures
- **Technology platform**
 - Rapid coding of functional changes
 - Moderate programming capability needed to maintain
 - Can evolve seamlessly with technology changes (OS,DBS)

Approach: business rules based

- **Performance**
 - Processing principally on the DBS not Application Server
 - Ultra-thin Web Architecture
- **Cost**
 - Low enough to Learn (and throw away if necessary) Single digits 7

The Vision

A High Performance Hybrid (combine Custom/COTS)

Ø truly customizable (not just configurable)

Ø technical platform (proven, high performance)

Ø functional platform (clear, changeable business rules)

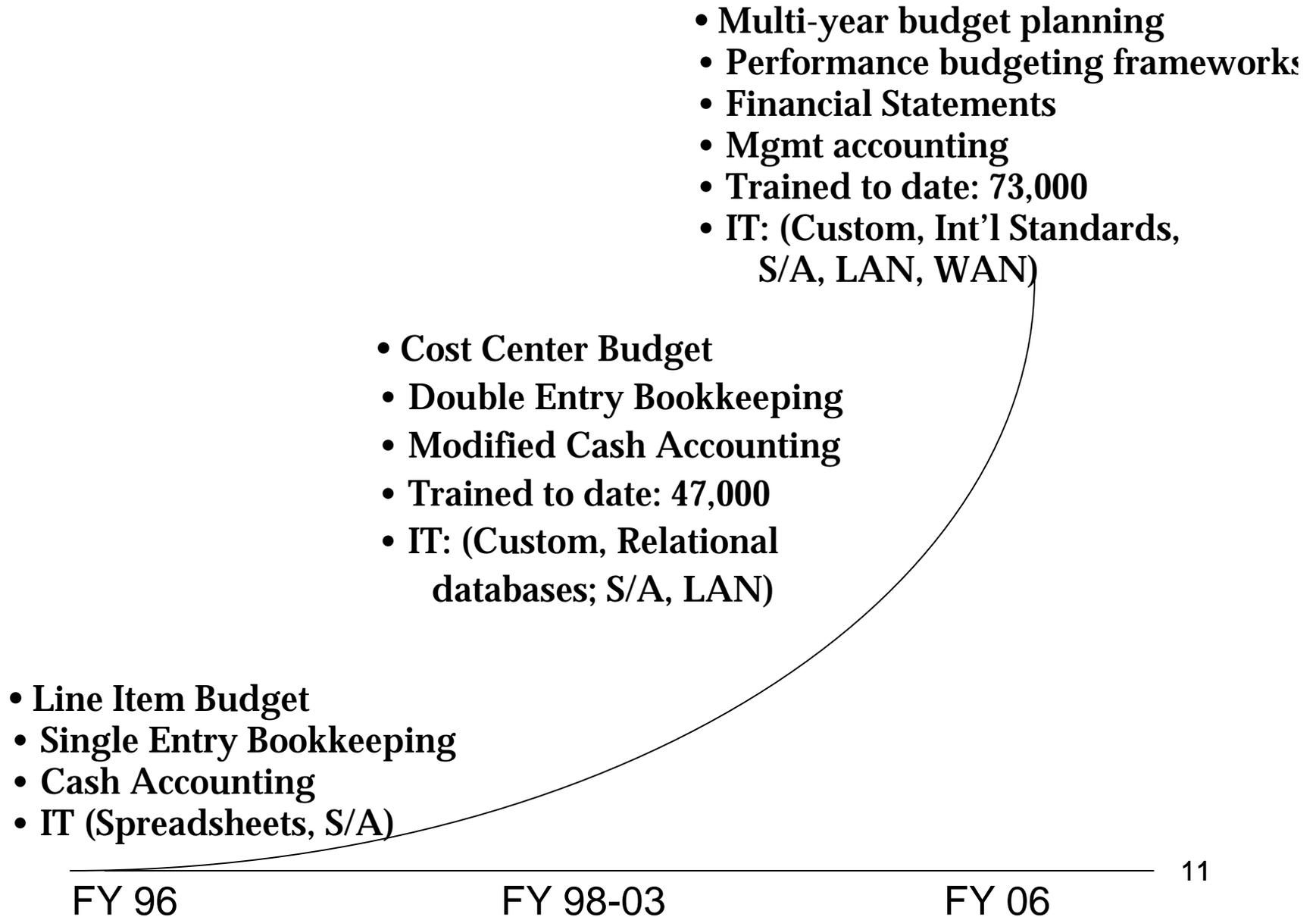
Virtues of this Serendipitous System

- **‘Final’ FIS was to be procured (12 years ago)**
- **Serendipitous System (always temporary/interim)**
 - No choice—implement the reform or wait....
 - No terms of reference
 - No budget (forced to be low cost)
 - No one said no (or yes)
 - No interest by Government IT department/no interference
 - Rapid procurement and deployment
 - Driven by procedural requirements (a full fledged manual system)
 - Very flexible in meeting user requirements
 - Doing the donkey work/demonstrate use to functional departments
 - Sequencing of sophistication (functionally and technically)
 - ‘Optimal Obscurity’—little or no expectations
 - Learn cheaply and quickly

Drawbacks of a Large Scale COTS ...in terms of the Ethiopian Reform

- **Big Bang**
 - Big bucks
 - Big delay (12 years and counting)
 - Big disruption (business process reengineering)
- **Unsuitable to the**
 - Infrastructure/manpower requirements
 - Inflexible to changing requirements
 - Reform task
 - Effective vs Efficiency of Financial Control
 - State of financial business processes
- **Discontinuity**
 - Legacies
 - reform (12 years)
 - financial data

Ethiopia's Pathway of PFM Reform



Sequencing the Reform

Stage 1: Comprehension of existing system

—documentation, massive training, legal framework

Stage 2: Improving the existing system

—forms, FMIS

Stage 3: Redesign new system

-- chart of accounts, budget classification,
center budgeting, double entry bookkeeping,
modified cash accounting, MEFF,
performance framework, unit cost/needs based transfers,
redesigned FMIS

'Platforms' of PFM

(Penrose and Peterson, 2003)

*Sequence of
Implementing
Financial Reform*



**Control
(Inputs)**

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

**Manage
(Outputs)**

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

**Plan
(Outcomes)**

Legislative Platform
Financial law/regulations
Policy
Appropriation
Expenditure Evaluation

Pathway of Ethiopia's PFM Reform

Context:

- Hard budget constraint
- Effective not efficient financial control

Ownership:

- Government designed Civil Service Reform

Purpose:

- Policy (not crisis) driven:
- decentralization; rebuild civil service

Strategy:

- Evolve existing system
- Hybrid approach
- Focus on legal framework, budget, accounts, reporting
- Strong manual controls over commitments, procurement, disbursement

Functional Objective of Ethiopia's FMIS

Effective vs Efficient Financial Control

- **What's the Problem:** procedures and/or execution
- **If Good procedures:** make efficient through automation (process change).
- **If Poor procedures:** redesign manually, reinforce legally, automate selectively
- **Role of automation in improving execution**
 - Controls can be automated (e.g. LPO's and checks)
 - Process can be enforced
- **Developing Countries:** risks of 'BPR'

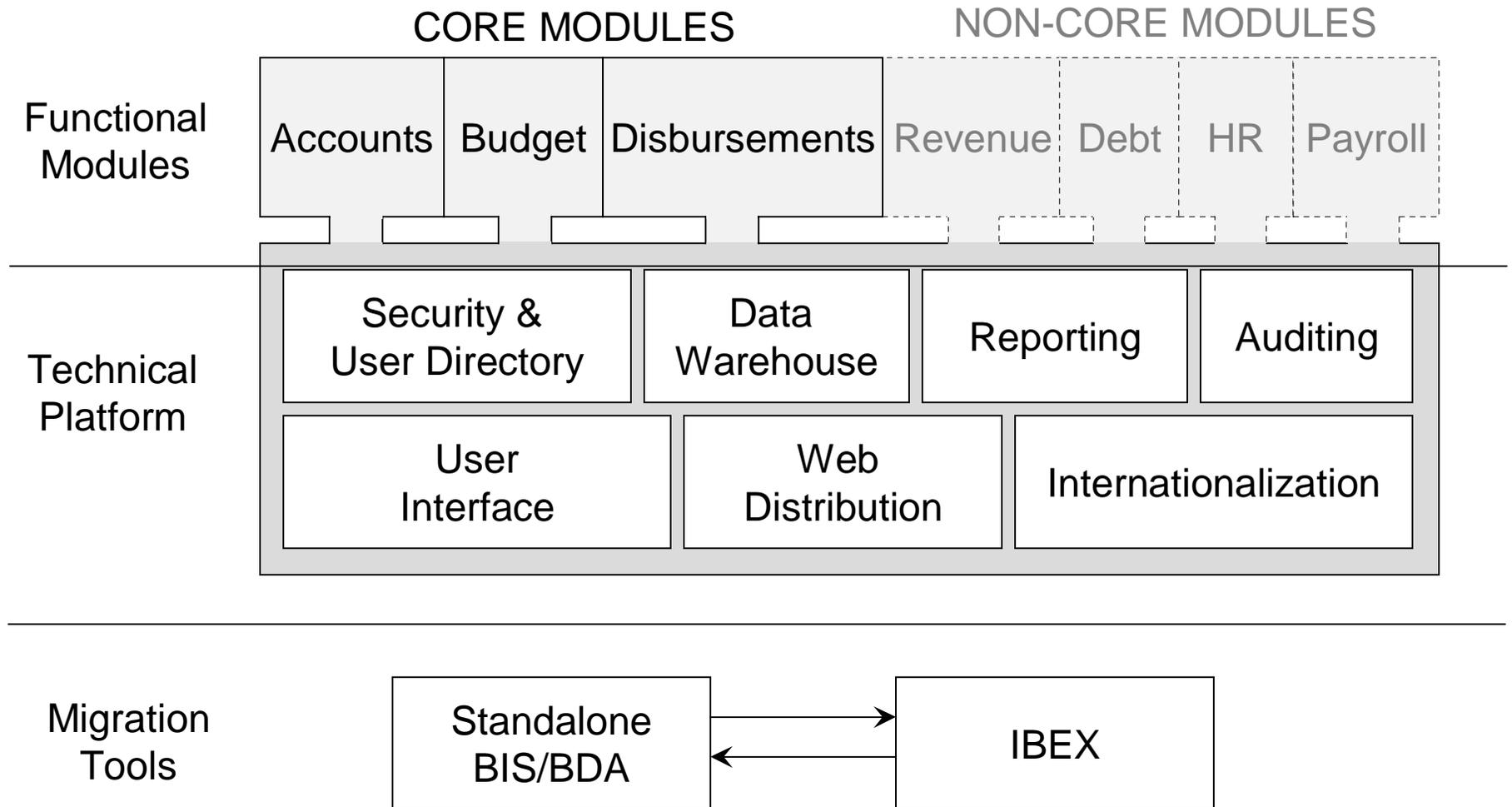
Features of IBEX A

(Decentralization Support Activity Project, 2007)

- 1) **Web based**
- 2) **Bandwidth - lightweight requirement (mostly achieved)**
- 3) **Deployment dual mode capability**
- 4) **Integration between non-networked and WAN**
- 5) **Migration of legacy data**
- 6) **Frameworks preferential use of open source**
- 7) **Declarative reporting framework**
- 8) **Security highly granular**
- 9) **Internationalization completely integrated**

Ethiopia's Integrated Budget Expenditure (IBEX A) System

What it is



The Critical Success Factor of IBEX

CSF equation

A

**standardized procedural reform
embedded across the institutions to be automated**

+

B

**specific domain knowledge
concentrated within the project**

=> Success

Other Critical Success Factors of IBEX

- **Small budget**
- **Patience and time to evolve (twelve years)**
- **Continuity/long term funding support**
- **Small team—very talented team can do ‘big’ things**
- **Right technical lead**
- **Legacy data not lost (manually or in automation)**
- **Focused on Fundamentals (not bells & whistles)**
- **Few ‘cooks in the kitchen’**

What We have Learned....

- Possible to build a workable FMIS in a difficult environment
- A custom system can be low cost, deliver user needs, evolve
- FMIS can support a PFM reform
- FMIS can become the PFM reform and distract from other components of reform (e.g. allocation)
- IT is often a 'lightning rod' for criticism, excuse for delay
- Count on Contractor Failure (at the worst time)
- Sustainability is always a problem
- Risk is always a problem--Takes 'Two' to manage risk
- The virtue of serendipity, flexibility and interim systems
- Requirements change—government, foreign aid agencies
- High level commitment is nice—but rare and fleeting
- Contribution (doing the donkey work) build trust in trenches

'Should Haves' in FMIS in Ethiopia

- **Quality Assurance much earlier** *Between Replication & Redesign*
(Why not—ltd budget, no rolodex, who does it, who does it well?)
- **Full not partial '*Redesign*' of the technical platform**
(Why not: rapid deployment, short contract, ltd budget, capability of the TA team, no external demand/always a temp solution, what are Int'l Best Practices in IT anyway?)
- **Risk Mitigation: periodic knowledge transfer**
(Why not: ltd budget, no rolodex, difficult-- lack of cooperation of IT teams)
- **Ignore 'Vaporware/Vapor projects**
(Why not: assumed rational arguments prevail in PFM reform and foreign aid)

FMIS Policy Lessons

- **When to say STOP. Can you?**
- **Choices are different if done with Foreign Aid**
- **Who to listen to? Conflicting advice about a changing, complicated, expensive and long term decision**
- **Quality Assurance**
- **Procurement—how to accelerate**
- **Redundancy of IT TA**
- **Source code/ownership**
- **Treatment of legacy data**
- **Bandwidth**
- **Avoid ‘Lock’—vendor/implementer
(the technology is rapidly changing)**
- **Technology change does not equal Functional change—stay focused on essentials.**
- **Capability of FMIS should not drive Functional Requirements
(FMIS accrual features should not drive introduction of accrual acct)**
- **No one ever got a silver bullet with a COTS**

IT Choices

Counterfactual: Could a COTS have worked in ET?

- **Possibly**
- **Necessary Features**
 - Low end
 - Simple—select functional modules
- **Why it probably would not have worked**
 - Procurement delays
 - No budget
 - Viewed as a competitor to the proposed IFMIS
 - Duplication of foreign aid by project funders
 - Foreign Aid Agency Perspective
 - FMIS should be Big, should drive the PFM reform
 - No Vendor or Implementer Support
 - Quality of TA available to Ethiopia

Selecting an FMIS

- Failures in both custom and COTS
- COTS is not a guarantee (the Hall of Shame)
- Rarely if Ever a pure COTS: customization
 - Can not fully bring your procedures to the system
 - Legacy data
 - Migration tools
(different configurations—standalone, LAN, WAN)
 - Consolidation
(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: 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 a 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'**

IBEX B

- **If IBEX A was so successful, why B?**
 - Now we know what we really need.
- **Weaknesses only became apparent after deployment**
 - Designers did not really understand finance
 - IBEX not able to completely deal with Infrastructure
 - Scalability uncertain
 - Ease of modification very uncertain
 - poor logical design

IBEX B Strategy

- **Still not a COTS**
 - No COTS will work with Ethiopia's infrastructure
 - COTS not as flexible as advertised
 - Cost would be much greater
- **Business Rules Based Development**
 - All rules visible to the non-technical functional leads
 - True agile response to requirements changes
- **Convert to an Oracle database**
- **Ultra thin web environment**
 - Minimize web traffic
 - Auto failover
- **Better logical design**
- **Flexible Reporting Tool**

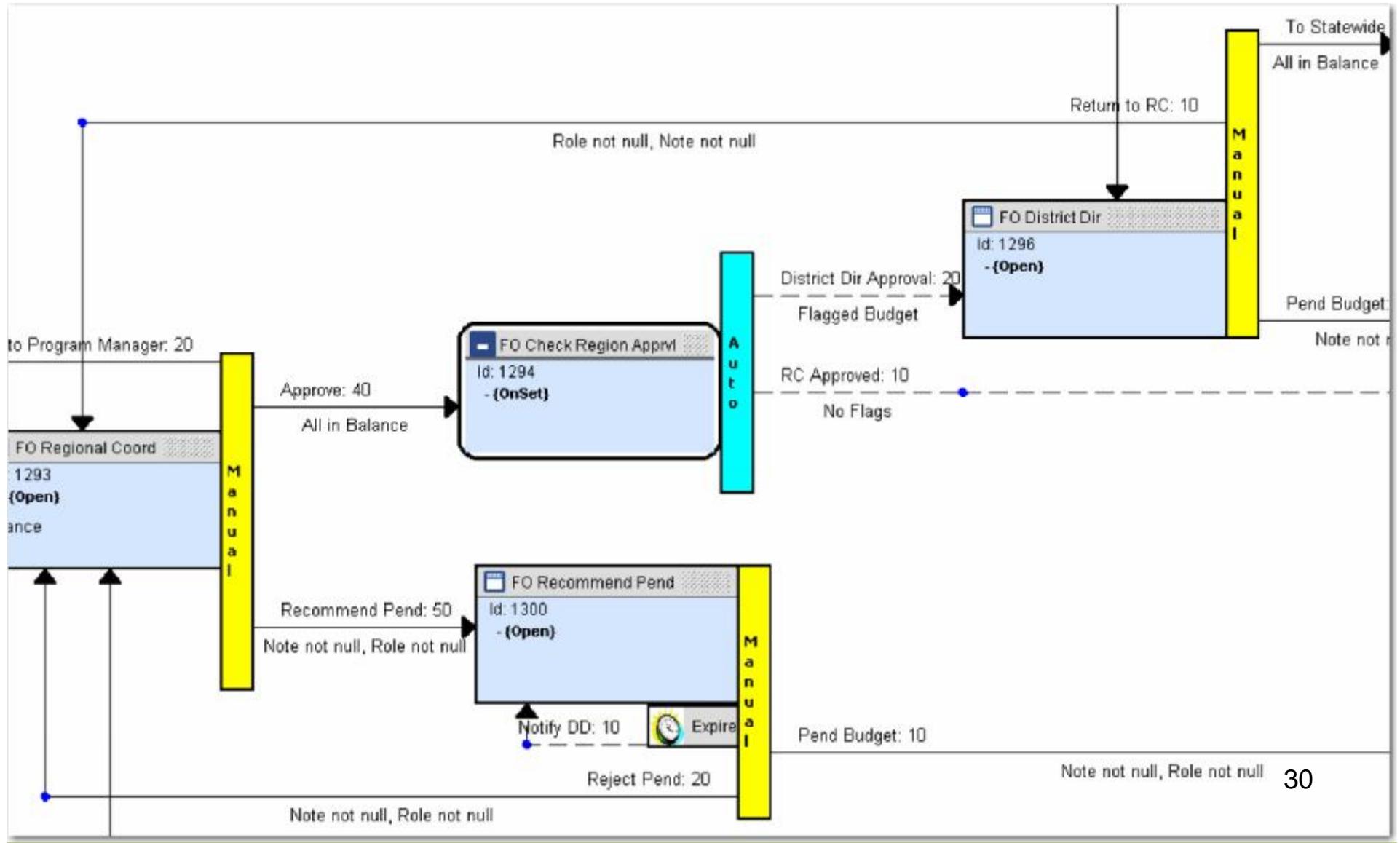
IBEX B Upgrade Plan

- **Freeze non-essential functional development in IBEX A**
- **Focus on build**
- **Greater functional involvement in design**
 - Enabled by rules approach
- **Provide enhanced capability to IBEX A where possible**
 - Expanded reporting capability
 - Improved UI design
- **Insist on no more than 1 year to upgrade**

IBEX B Goals

- **Able to work well as an internet application in Ethiopia**
- **Clean, extendable design that can support the government for 5-10 years (or beyond)**
- **All reporting requirements met for users (government, foreign aid agencies)**

Visual approach to coding Business Rules



Thank you for listening

An Approach to FMIS to consider

From ‘Whales’ to ‘Dolphins’

Keep it Small (but not simplistic)

“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.”

Reading

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Further information about the Ethiopian Reform

- Stephen_Peterson@harvard.edu
- **Harvard University's Ethiopian Project**
www.ksg.harvard.edu/m-rcbg/ethiopia/Publications.htm