

Trends in Implementation of Financial Management Information Systems (FMIS)

Cem Dener



PEM-PAL Treasury Community of Practice Workshop
Chisinau, Moldova
18 May 2010

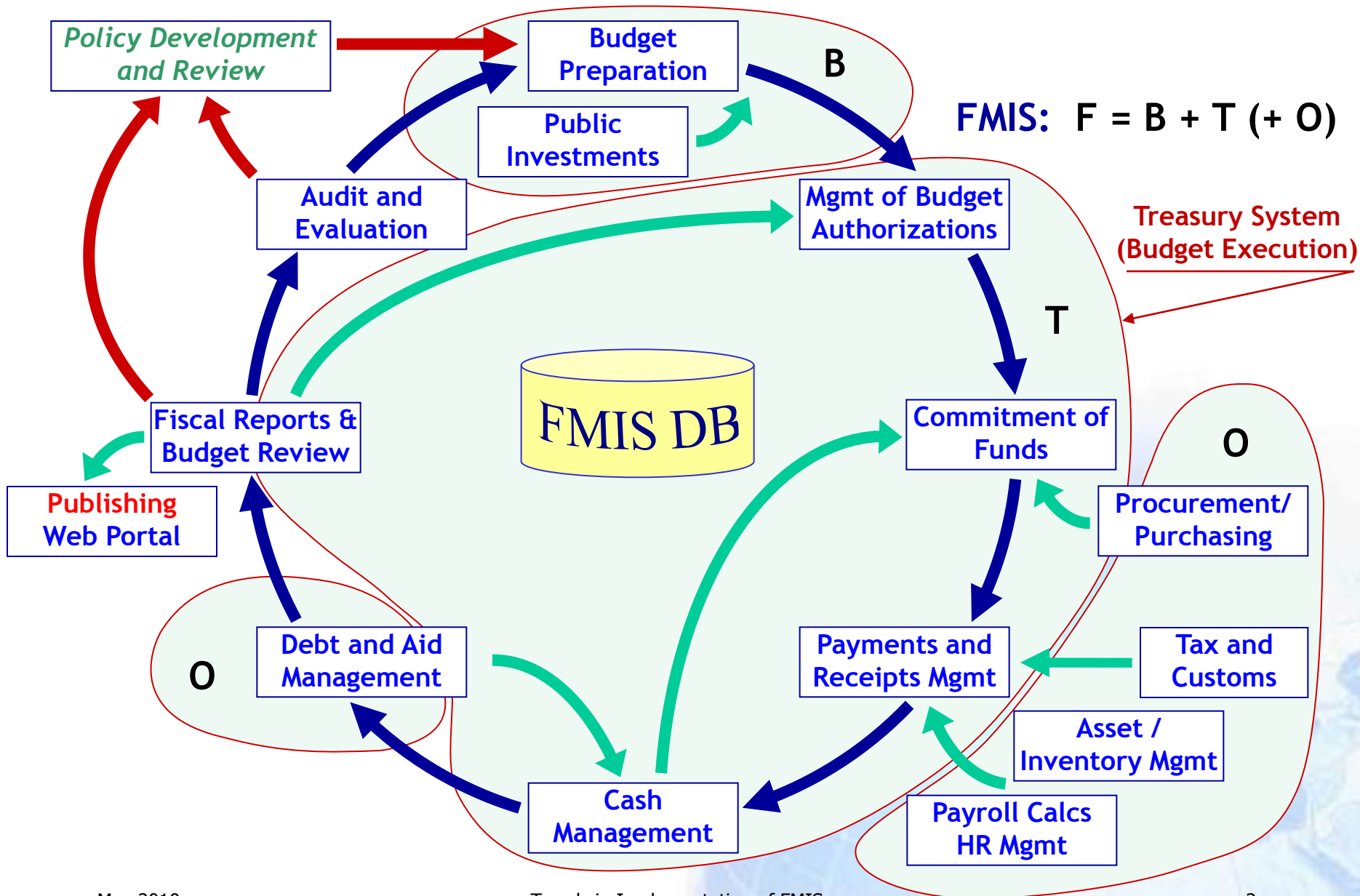


Presentation

- **What if FMIS?**
- **FMIS Implementation Approach**
- **Design & Implementation of FMIS Solutions**
- **Treasury Single Account**
- **FMIS Technical (ICT) Solutions**
- **FMIS Timeline**
- **Treasury/FMIS Projects (1984-2010)**
- **Monitoring and Knowledge Sharing**
- **Challenges and Conclusions**



What is FMIS?





Approach

1. Identify PFM reform needs (What? Why?)

Assess Readiness + Define Strategy → Conceptual Design

Identify “Priorities” and “Sequencing” of PFM Reforms

2. Develop necessary solutions (How? Where? When?)

Functionality + Tech Architecture + Specs → System Design

Identify “FMIS Prerequisites”

3. Project management (Who?)

Implement + Monitor + Evaluate + Coord → FMIS Implementation

Strengthen “Institutional Capacity” for Procurement, FM, ICT



Integrated FMIS Development Phases

Integrated FMIS Development : years

0 1 2 3 4 5 6 7 8 9 10

1. Identify PFM reform needs

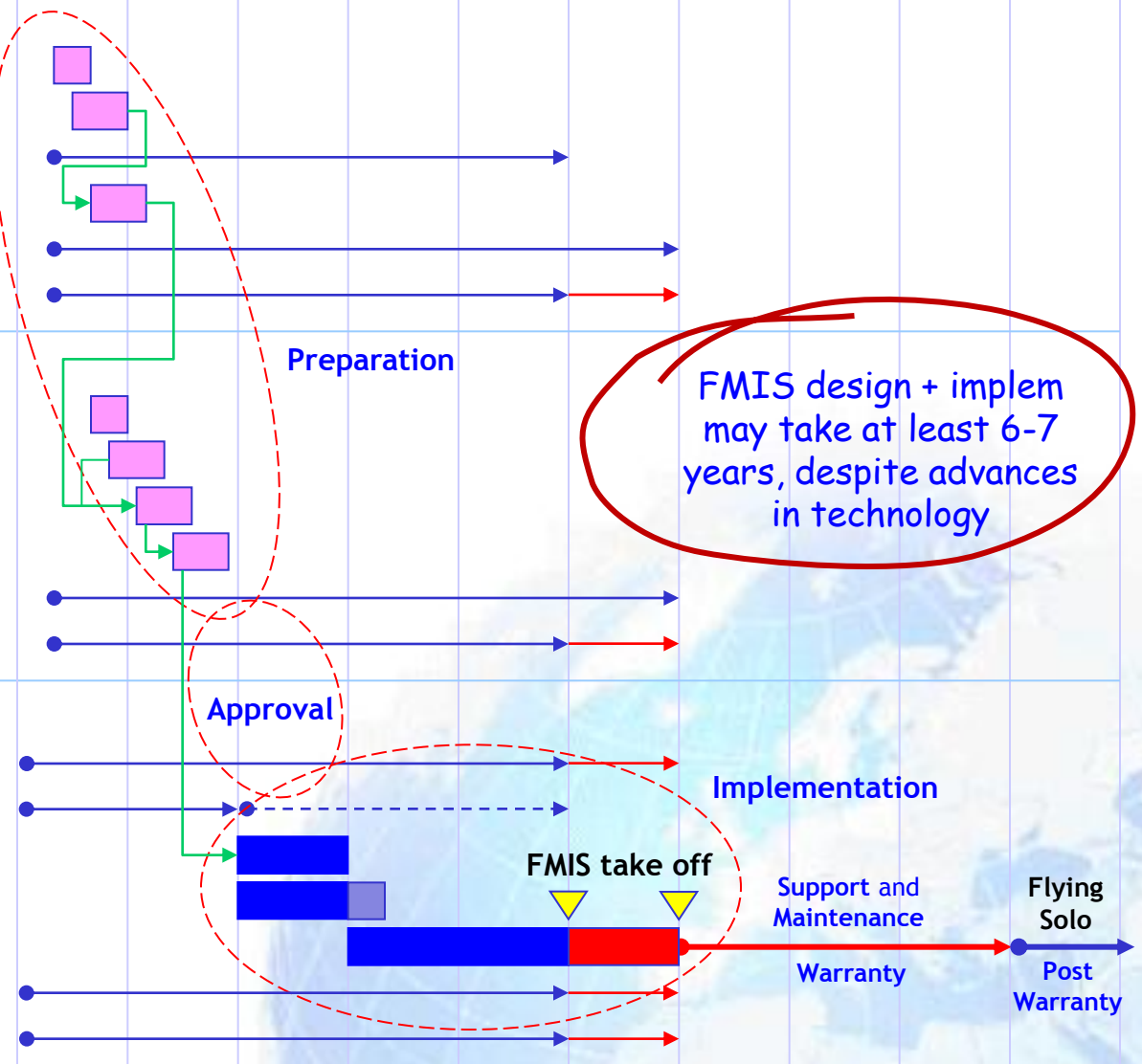
- Assess existing capacity & practices
- Develop PFM Reform Strategy
- Advisory support for PFM reforms
- Conceptual Design**
- Coordination with donors / other projects
- Assistance in PFM capacity building

2. Develop necessary solutions

- Assess existing ICT skills and resources
- Develop ICT/e-Gov Strategy
- System Design**
- Technical Specifications [ICB docs]**
- Coordination with e-Gov / other ICT prj
- Assistance in technical capacity building

3. Project management

- Project Management Group (PMG)
- Administration of Trust Funds (if any)
- Procurement of ICT solutions [ICB]**
- Establishment of a countrywide network
- System implementation, test, acceptance
- Monitoring & Evaluation
- Capacity building & Change Management





FMIS Functionality / Implementation Options

FMIS Functions

- Macroeconomic Forecasting
- Budget Preparation
- **Core Treasury System**
 - ▶ Expenditure Management
 - ▶ Revenue Management
 - ▶ Accounting (General Ledger)
 - ▶ Cash / Fund Management
 - ▶ Commitments / Purchasing
 - ▶ Financial Reports
- Operational Support for SUs
- Internal Debt Management
- External Debt and Aid Mgmt.
- Asset / Inventory Management
- Personnel Database / Payroll
- Support for Auditing
- Web Publishing (Web Portal)
- Decision Support Tools (MIS)

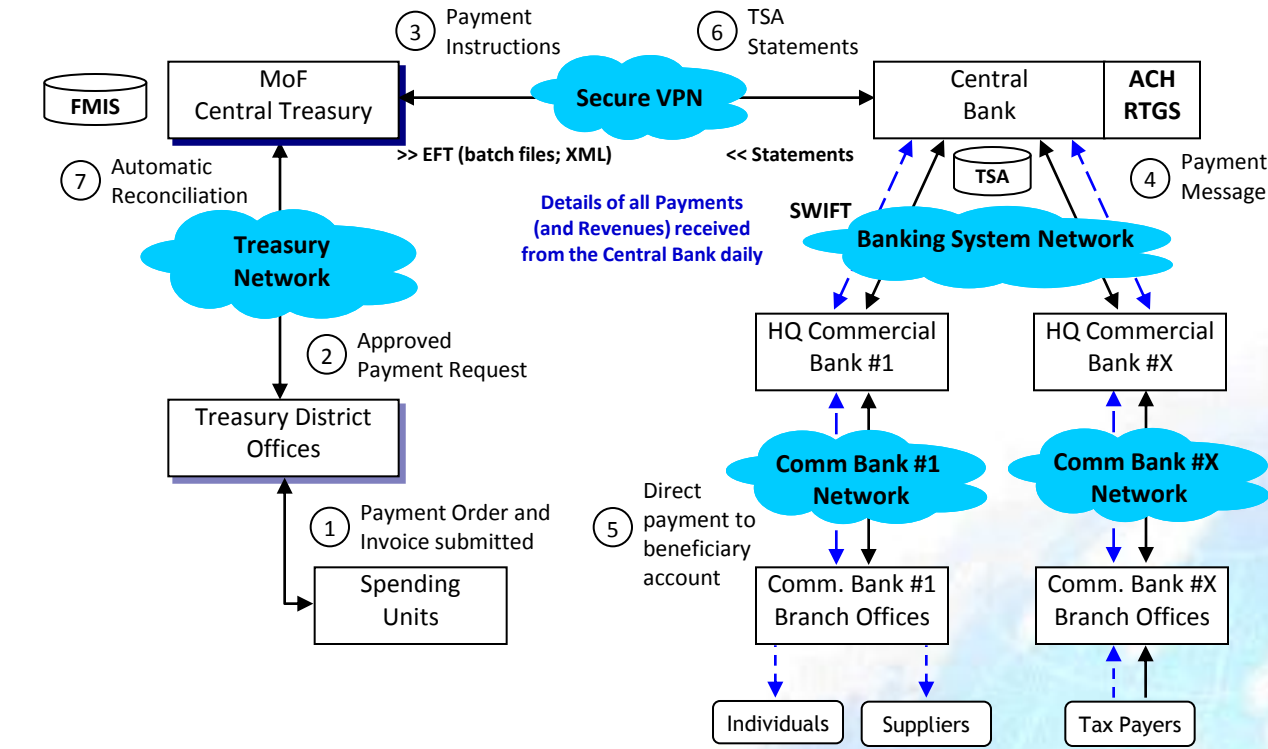
Common Implementation Options

- LDSW / Existing Models
- LDSW / COTS
- COTS (customized)
 - + Interface w banking system (TSA)
 - + Interface w revenue collection
 - + Interface w banking system (TSA)
 - + Interface w procurement agency
- LDSW for Spending Units (via Web Portal)
- LDSW / Interface with Debt Mgmt System
- Interface with Debt Mgmt System
- LDSW / COTS
- LDSW / COTS
- Custom developed reports
- LDSW
- COTS / LDSW

[COTS : “customized” Commercial-off-the-Shelf Software LDSW : Locally Developed Software TSA : Treasury Single Account]



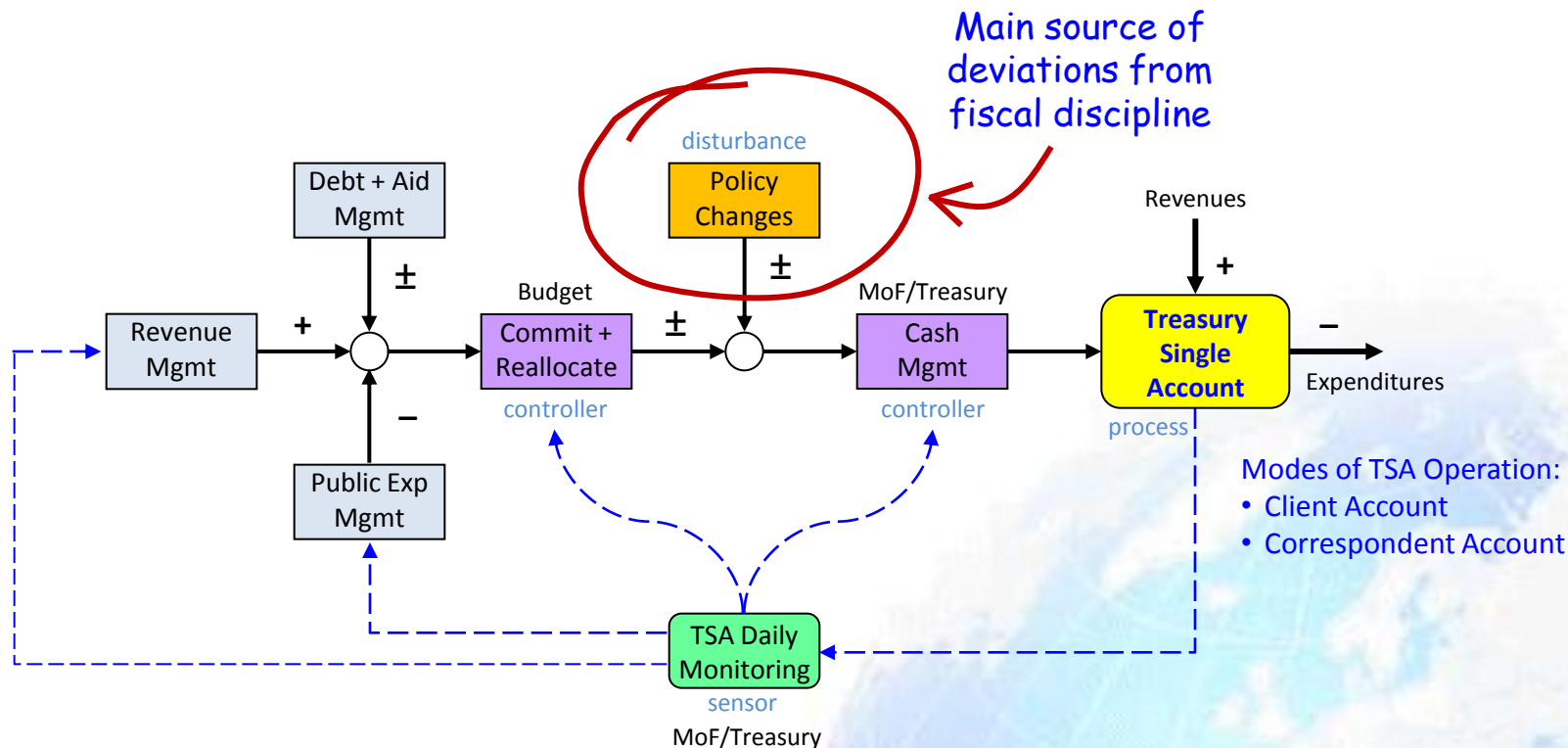
Centralized TSA Model



- 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



Core Treasury Operations (Stochastic Process)



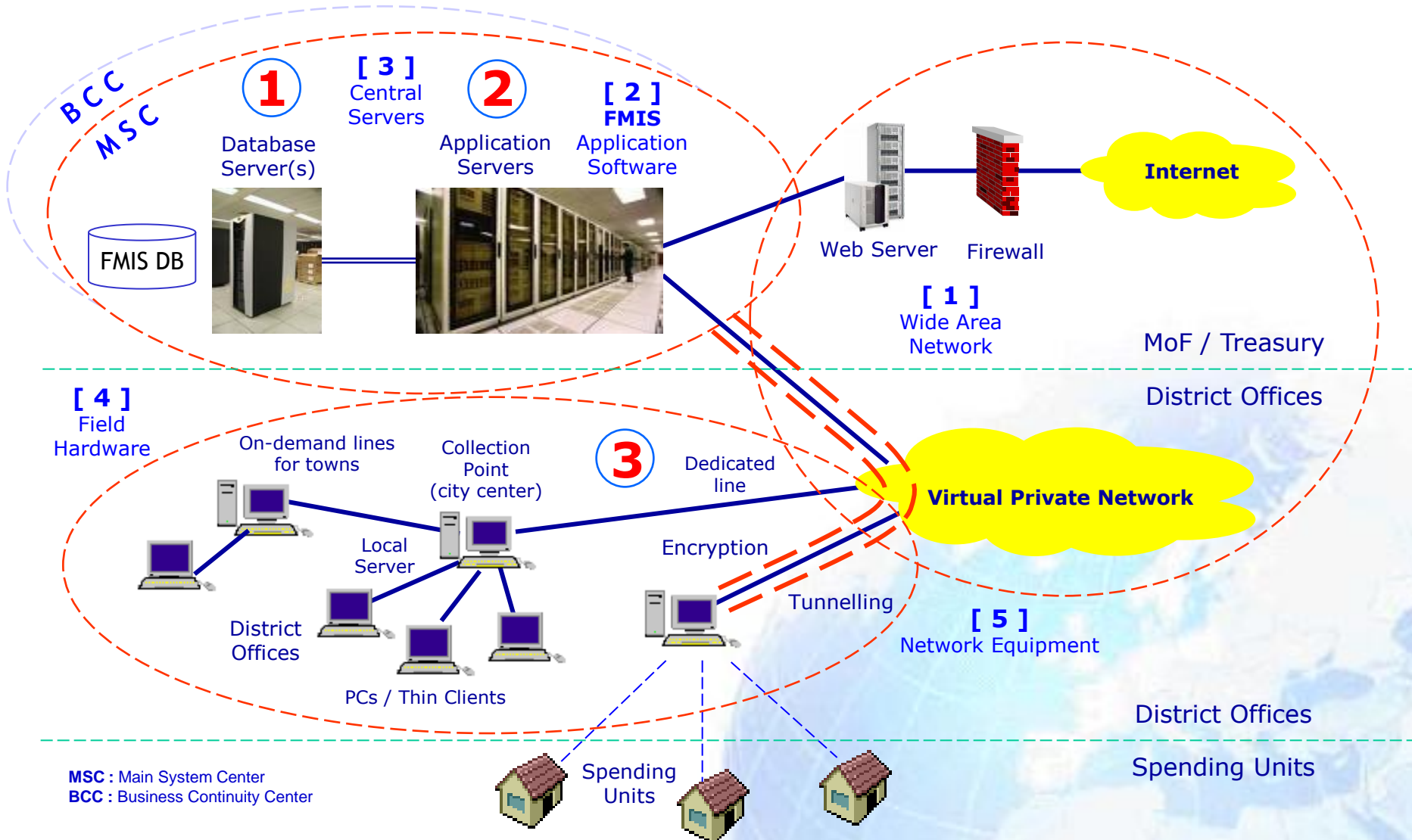


- **Modern integrated FMIS systems are designed and implemented as centralized web-based applications, supporting decentralized operations**
- **Implementation of the FMIS includes the following ICT components:**
 - [1] Establishment of countrywide network connections (communications lines) usually as a Government contribution.**
 - [2] Development of web-based Application Software (ASW) as a combination of customized COTS package + locally developed software (hybrid solution).**
 - [3] Installation of central servers (database & application servers) and data storage units (fiber disk arrays) at the Main System Center & Business Continuity Center.**
 - [4] Installation of standard field hardware (domain servers, user workstations and peripherals) in central and field offices.**
 - [5] Installation of network equipment, system security and user management tools and engineering support solutions.**



FMIS Technology Architecture

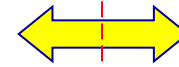
A typical 3-tier web-based implementation and [ICT] components



MSC : Main System Center
 BCC : Business Continuity Center



Web-based FMIS Model



Database Server

1

Application Servers

2

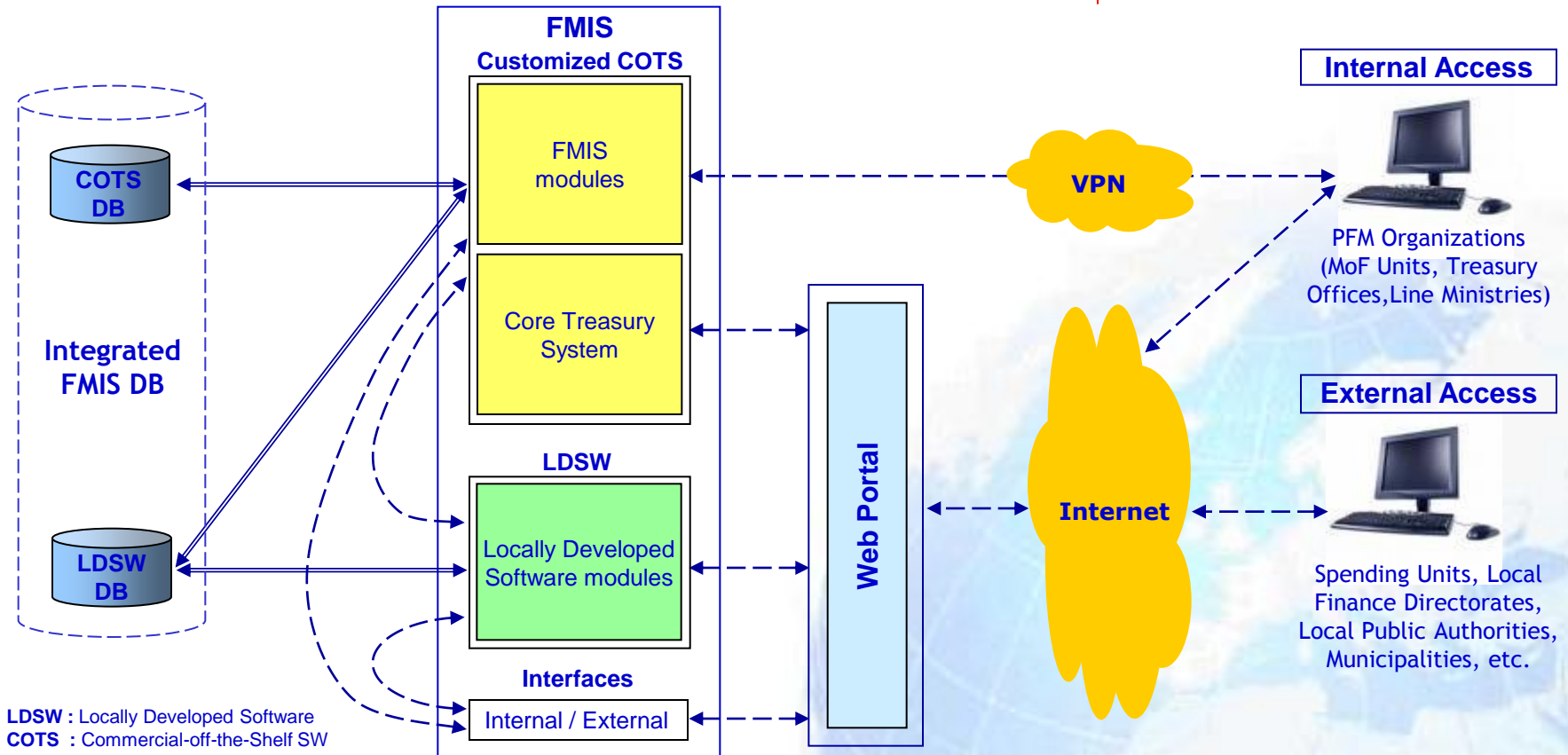
Web Server

3

User Terminals

System Center

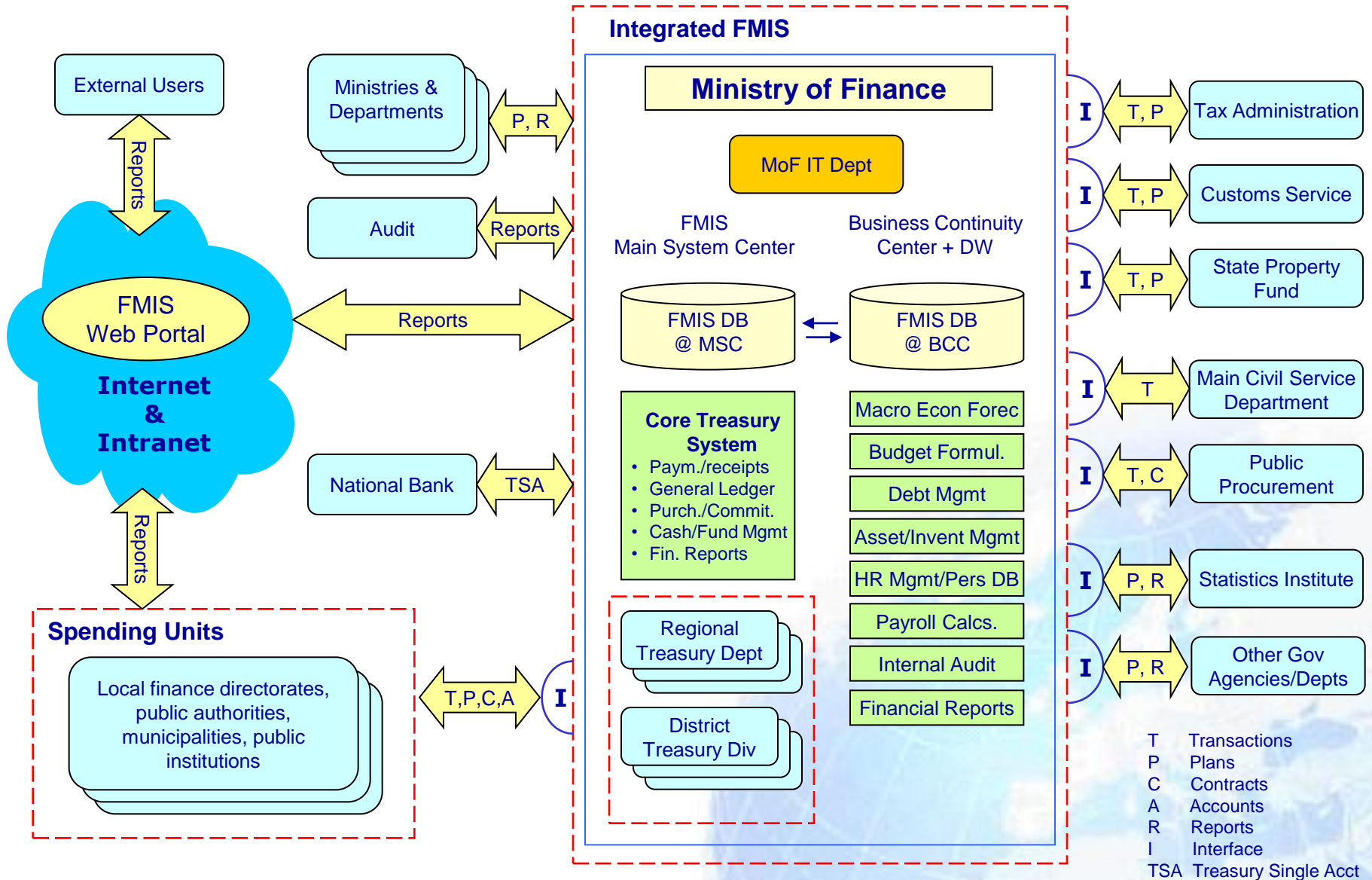
Users



LDSW : Locally Developed Software
COTS : Commercial-off-the-Shelf SW

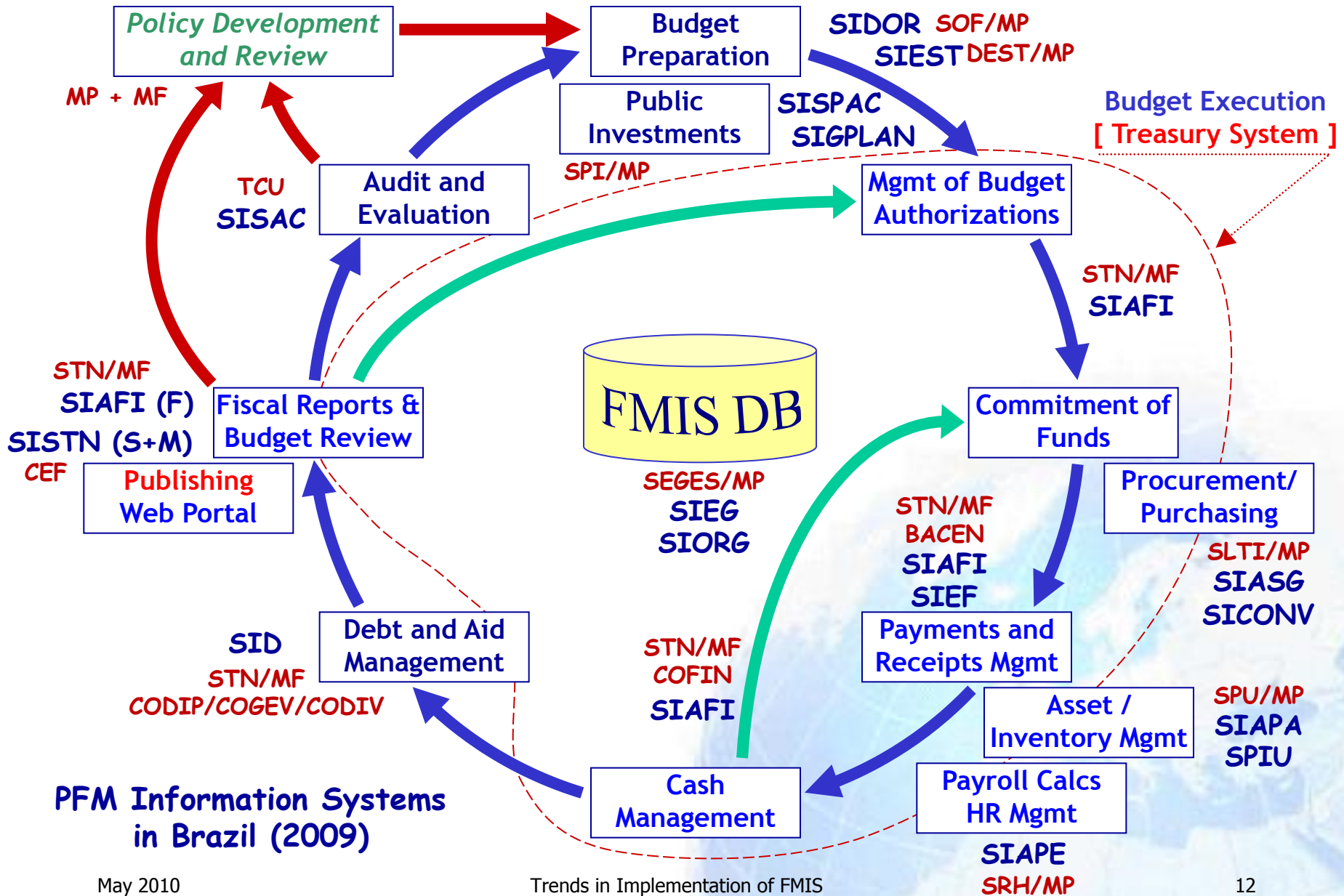


FMIS Functionality (Ukraine)





FMIS in Brazil





FMIS Projects (1984-2010)

WB Funded Treasury/FMIS Projects		Closed	Active	Pipeline	Projects
Africa					24
1	Burkina Faso	1	1		2
2	Cape Verde	1			1
3	Congo, Democratic Republic of		1		1
4	Gambia, The	1		1	2
5	Ghana	1			1
6	Kenya	1	1		2
7	Liberia		1		1
8	Madagascar	1	1		2
9	Malawi	2			2
10	Nigeria	1		1	2
11	Sierra Leone	1	1		2
12	Tanzania		1		1
13	Uganda	2	1		3
14	Zambia	1	1		2
East Asia and Pacific					11
1	Cambodia		1	1	2
2	China	1			1
3	Indonesia	1	1		2
4	Lao People's Democratic Republic		1	1	2
5	Mongolia	1	1		2
6	Timor-Leste		1		1
7	Viet Nam		1		1
Europe and Central Asia					14
1	Albania	1	1		2
2	Azerbaijan	1			1
3	Georgia		1		1
4	Hungary	1			1
5	Kazakhstan	1			1
6	Kyrgyz Republic		1		1
7	Moldova		1		1
8	Russian Federation		1		1
9	Slovak Republic	1			1
10	Tajikistan		1		1
11	Türkiye	1			1
12	Ukraine	1	1		2

WB Funded Treasury/FMIS Projects in 51 Countries

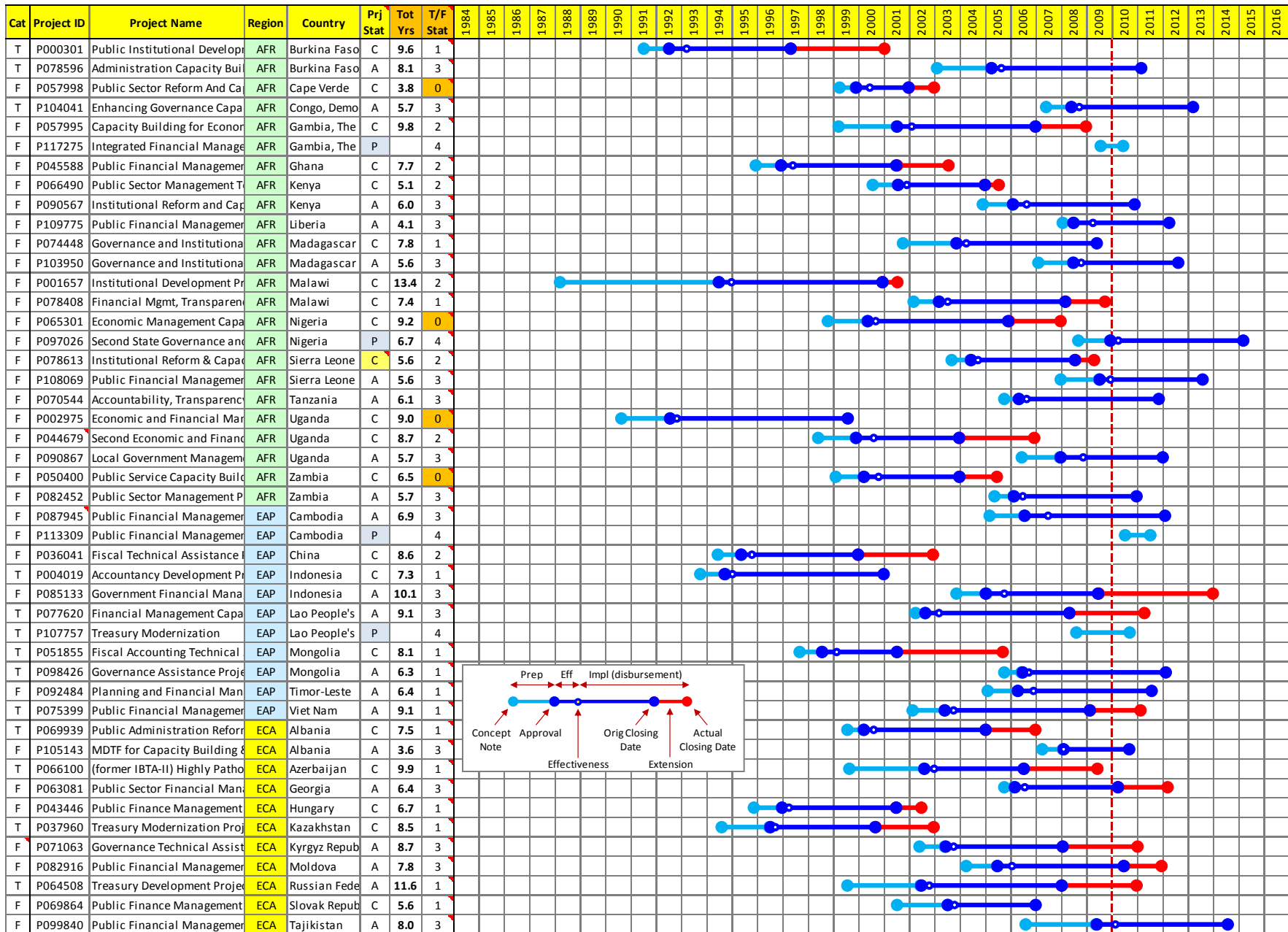
WB Funded Treasury/FMIS Projects		Closed	Active	Pipeline	Projects
Latin America and Caribbean					32
1	Argentina	2			2
2	Bolivia	3			3
3	Brazil	2			2
4	Chile	2	1		3
5	Colombia	2	1		3
6	Ecuador	3			3
7	El Salvador	1		1	2
8	Guatemala	2	1		3
9	Honduras	2		1	3
10	Jamaica	2			2
11	Nicaragua	3		1	4
12	OECS countries		1		1
13	Venezuela, Republica Bolivariana de	1			1
Middle East and North Africa					3
1	Algeria	1			1
2	Yemen, Republic of		1	1	2
South Asia					7
1	Afghanistan	3	1		4
2	Maldives	1			1
3	Pakistan	1	1		2

51 countries	54	29	8	91
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The review of WB funded FMIS projects was initiated by Dorotinsky (SM, ECSP4) in Sep 2009, to revise/update the FMIS Report drafted in 2002 with contributions from Watkins, Rozeira, Arizti, Bellver, Arrobbio, Ossio, Howard and Dener, as well as other interested specialists.

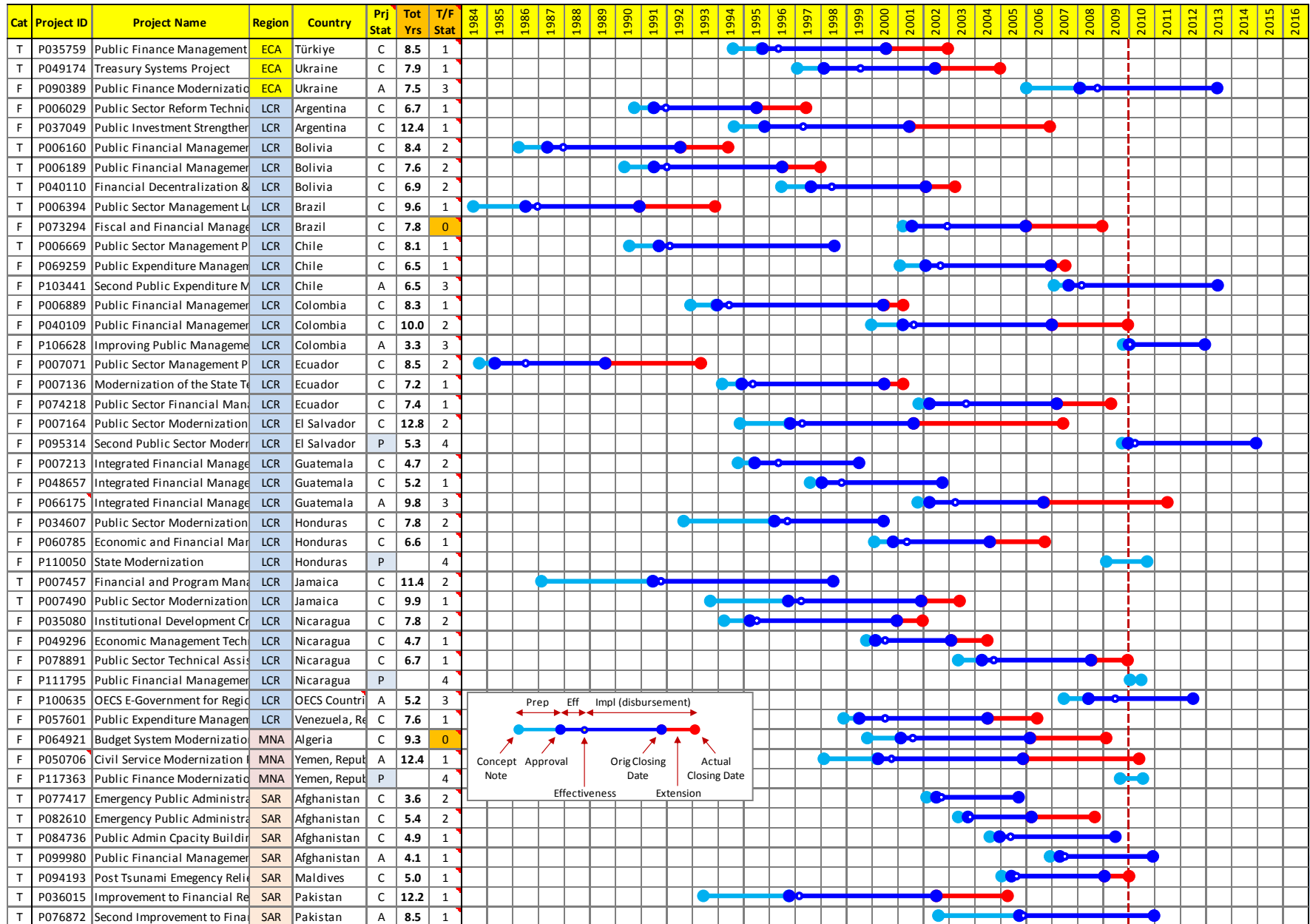


Timeline of FMS Projects - I





Timeline of FMIS Projects - II





FMIS in Operations - I

#	Cat	Region	Country	Prj Stat	T/F Type	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016																							
1	T	AFR	Burkina Faso	A	1																	●	→	→	→	→	→	→	→	→	→	→	→	→	→																										
2	F	AFR	Cape Verde	C	0																					⊗																																			
3	T	AFR	Congo, Democrat	A	1																															●	→	→	→	→	→																				
4	F	AFR	Gambia, The	P	1																																						●	→	→	→	→	→	→	→	→	→	→	→	→						
5	F	AFR	Ghana	C	1																							●	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→																		
6	F	AFR	Kenya	A	5																						●	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→																		
7	F	AFR	Liberia	A	3																																●	→	→	→	→	→	→																		
8	F	AFR	Madagascar	A	1																																																								
9	F	AFR	Malawi	C	1																				●	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→																		
10	F	AFR	Nigeria	P	2																																																								
11	F	AFR	Sierra Leone	A	1																																																								
12	F	AFR	Tanzania	A	2																																																								
13	F	AFR	Uganda	A	1																								●	→	→	→	→	→	→	→	→	→	→	→	→	→	→																		
14	F	AFR	Zambia	A	2																									●	→	→	→	→	→	→	→	→	→	→	→	→	→																		
15	F	EAP	Cambodia	A	1																																					●	→	→	→	→	→	→	→	→	→	→	→								
16	F	EAP	China	C	1																					●	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→																		
17	T	EAP	Indonesia	A	1																				●	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→																		
18	T	EAP	Lao People's Dem	A	1																																						●	→	→	→	→	→	→	→	→	→	→	→							
19	T	EAP	Mongolia	A	1																																																								
20	F	EAP	Timor-Leste	A	1																																						●	→	→	→	→	→	→	→	→	→	→	→							
21	T	EAP	Viet Nam	A	1																																						●	→	→	→	→	→	→	→	→	→	→	→							
47	F	MNA	Algeria	C	0																																																								
48	F	MNA	Yemen, Republic of	A	1																																					●	→	→	→	→	→	→	→	→	→	→	→								
49	T	SAR	Afghanistan	A	3																																						●	→	→	→	→	→	→	→	→	→	→	→							
50	T	SAR	Maldives	C	3																																						●	→	→	→	→	→	→	→	→	→	→	→							
51	T	SAR	Pakistan	A	1																																						●	→	→	→	→	→	→	→	→	→	→	→							

T	18	14	AFR	Closed	17	42
F	33	7	EAP	Active	29	3
	51	12	ECA	Pipeline	5	3
		13	LCR		51	0
		2	MNA			1
		3	SAR			2
	51					51

- T/F Operational (Completed)
- T/F Expected Go-Live (Active)
- T/F Planned (Pipeline)
- T/F Not Implemented

Notes:

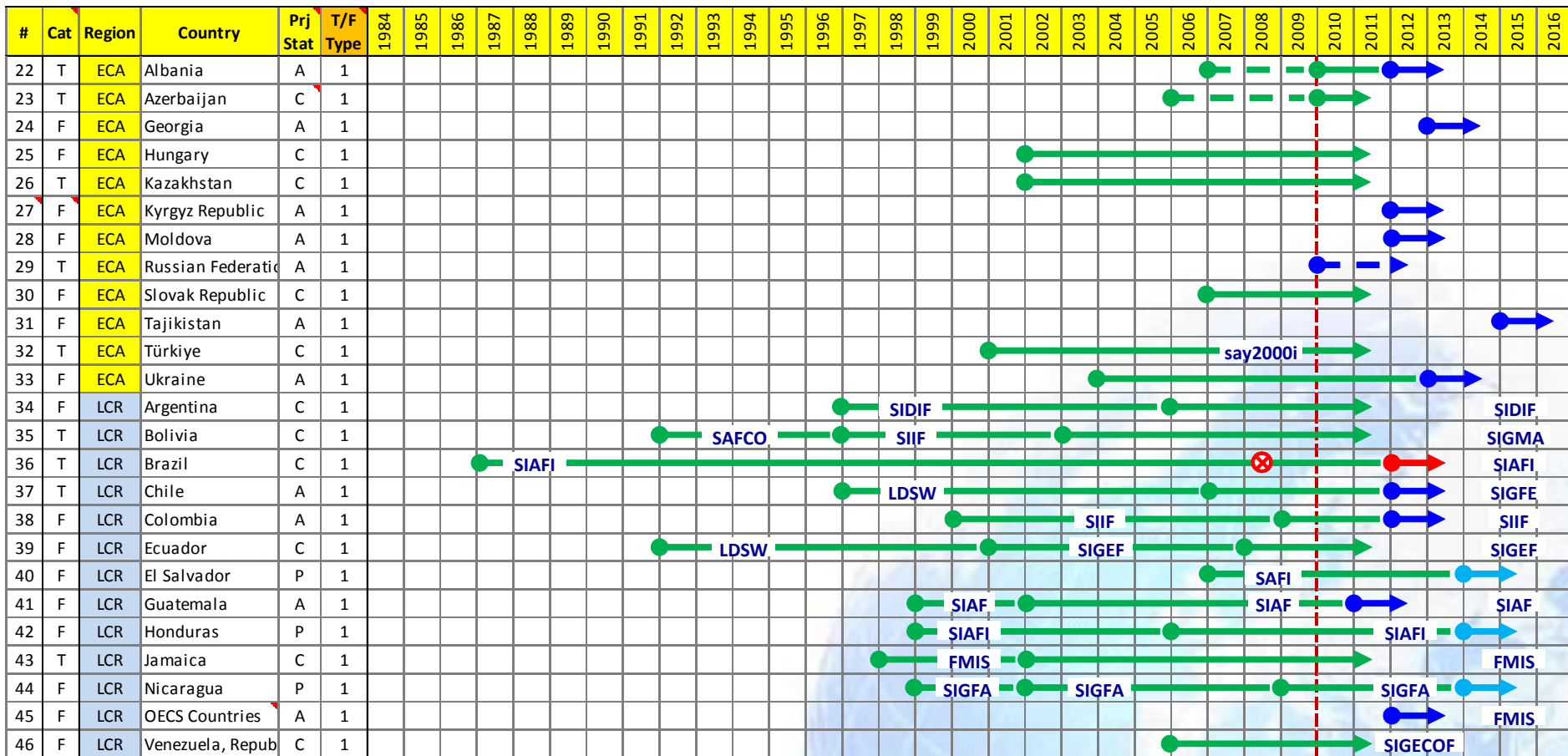
- Above timelines denote the operational period of T/F systems developed through Bank funded projects.
- In some countries, several consecutive projects were implemented to expand or upgrade existing T/F.
- Dashed lines denote the transition to full scale operations.



FMIS in Operations - II

ECA: 14 T/F projects completed in 12 countries vs LCR: 25 projects in 12 countries

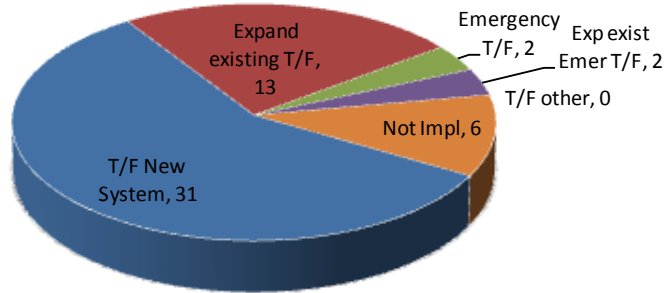
WWW
 Open Source
 Google
 eGov Appl
 Blogs
 Wireless
 Skype
 YouTube



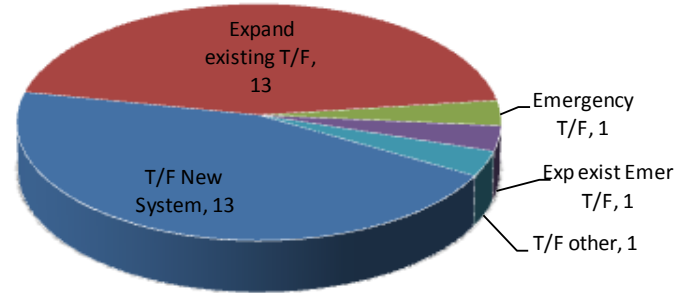


Type of FMIS Projects

Type of Completed Treasury/FMIS (54 prj)



Type of Active Treasury/FMIS (29 prj)

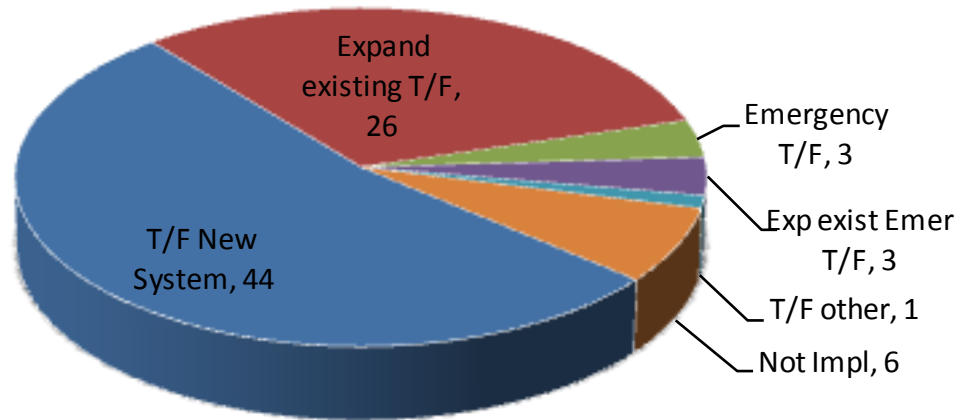


ECA: 7 new (5 T + 2 F) vs LCR : 14 new (5 T + 9 F)



ECA: 7 new (1 T + 6 F) vs LCR : No new project

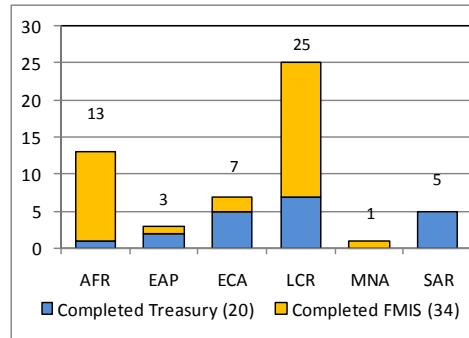
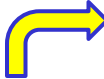
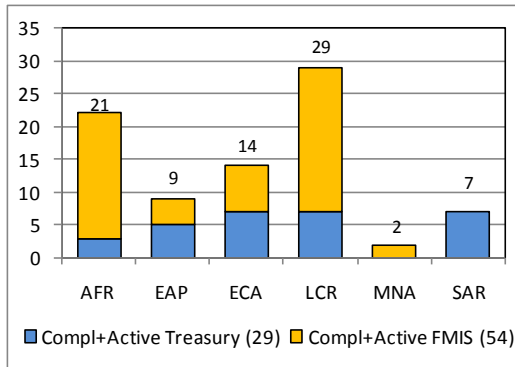
Type of Comp+Active Treasury/FMIS (83 prj)





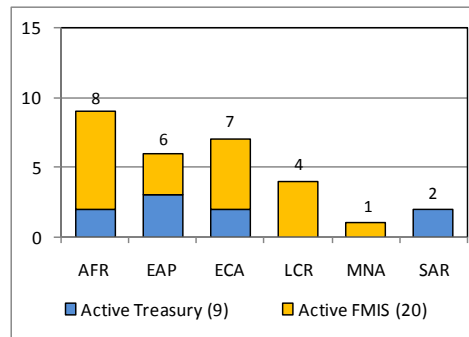
Status of FMIS Projects

Completed + Active (83)



Completed (54)

Active (29)

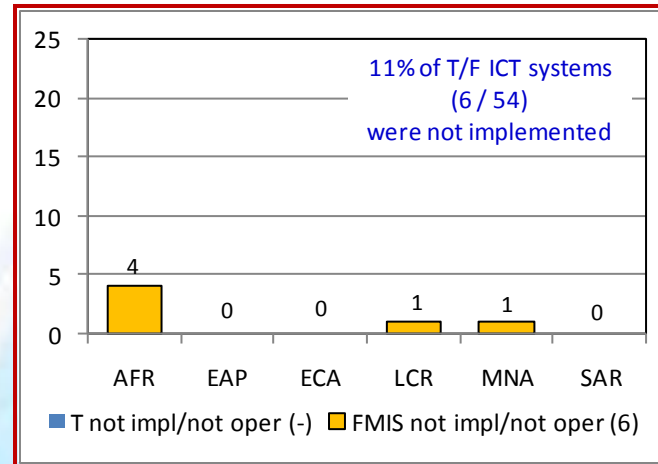
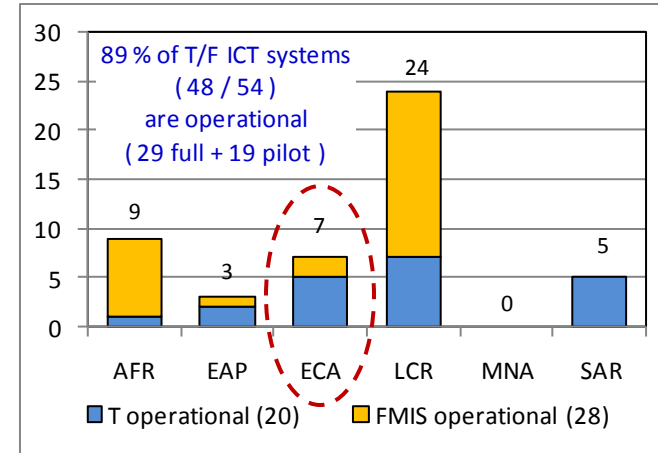


Operational

89%



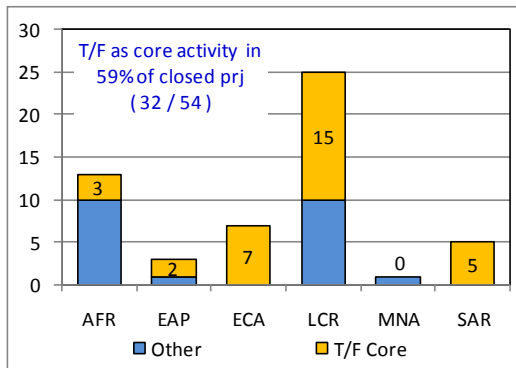
11% Not Impl.



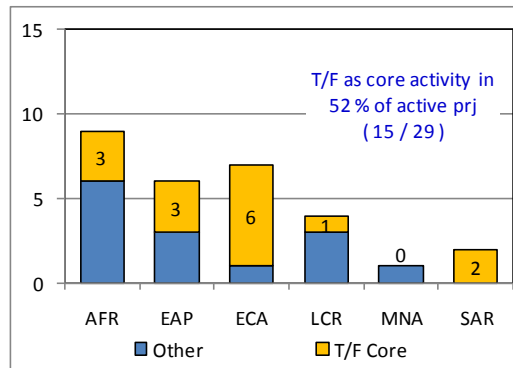


FMIS Projects (1984-2010)

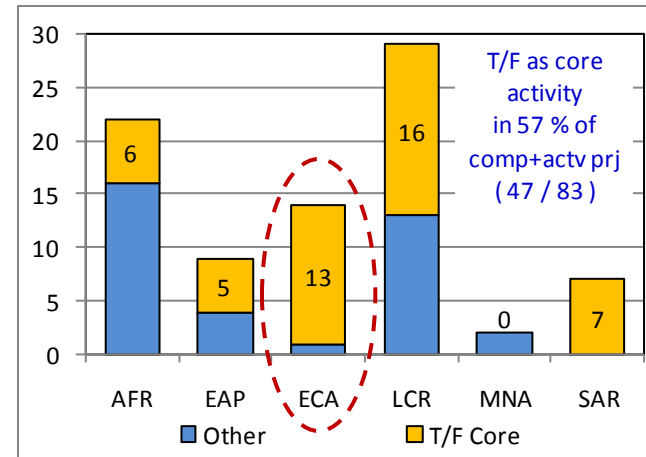
Weight of Treasury/FMIS Activities in Projects



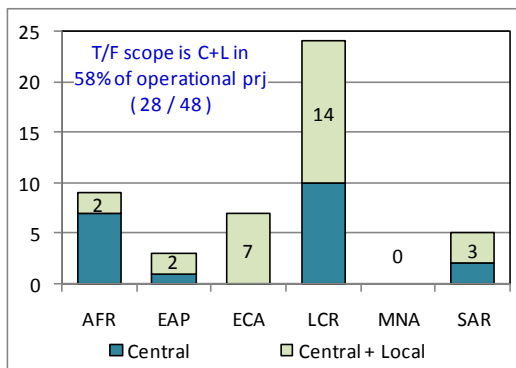
Completed (54)



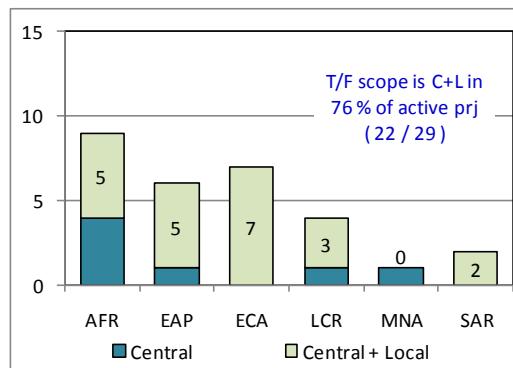
Active (29)



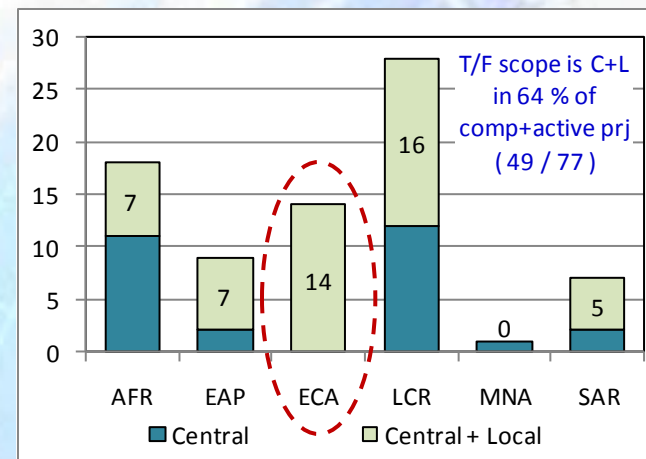
Scope of Treasury/FMIS Projects



Operational (48)



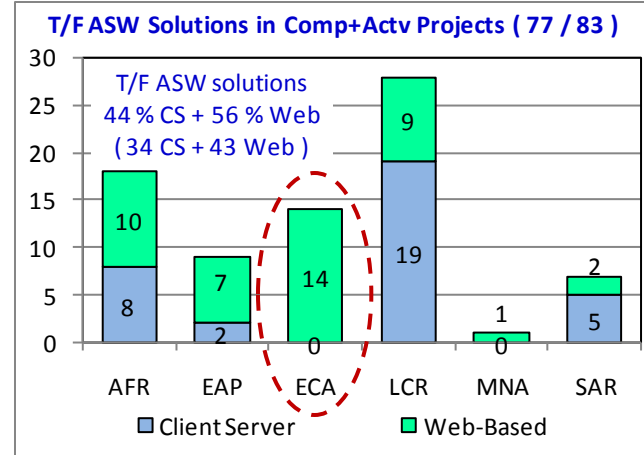
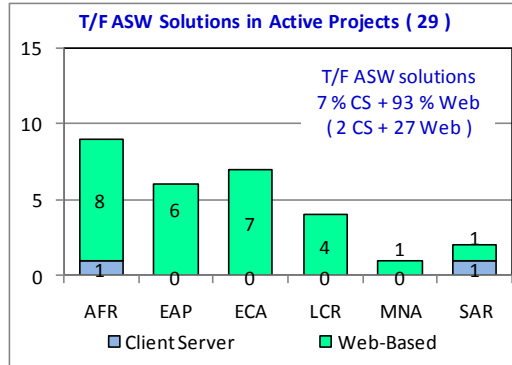
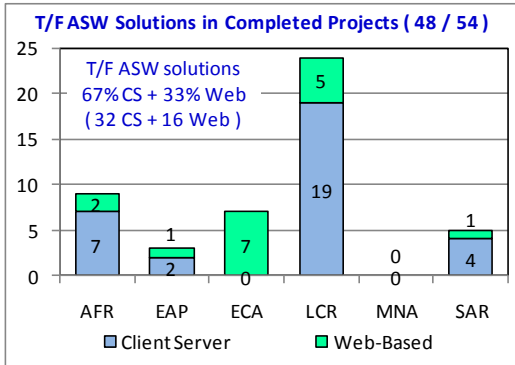
Active (29)



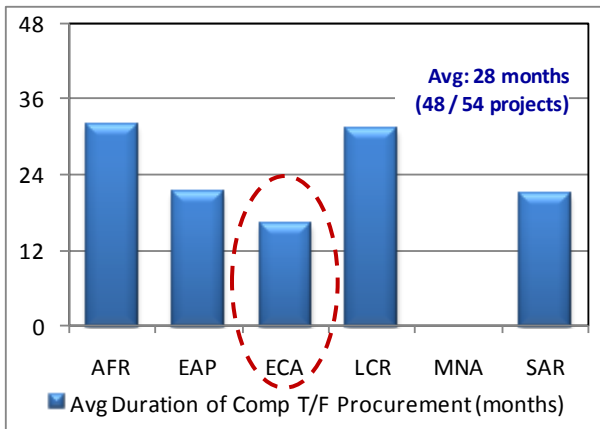


FMIS Projects (1984-2010)

Treasury/FMIS Application Software Solutions



Duration of T/F Procurement



T/F Application Software Solutions (Completed)

Region	# C	COTS	Other	LDSW	?
AFR	9	9	3		
EAP	3	2		1	
ECA	7	4		3	
LAC	24	1	1	23	
MNA	0				
SAR	5	5			
Totals	48	21	4	27	0

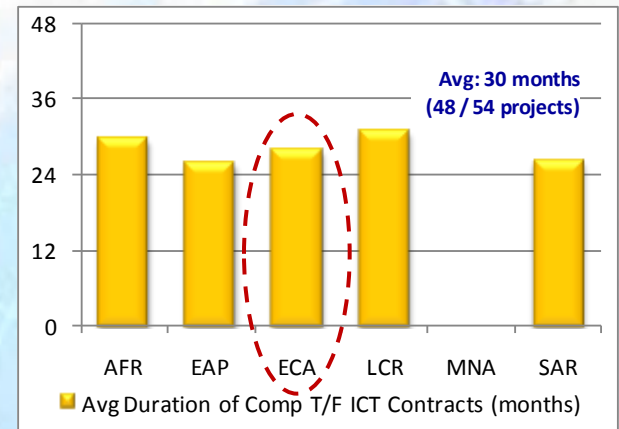
T/F Application Software Solutions (Active)

Region	# A	COTS	Other	LDSW	?
AFR	9	8	1		1
EAP	6	5			1
ECA	7	4			3
LAC	4	2	1	2	
MNA	1			1	
SAR	2	2			
Totals	29	21	2	3	5

T/F Application Software Solutions (Comp+Active)

Region	# C+A	COTS	Other	LDSW	?
AFR	18	17	4	-	1
EAP	9	7	-	1	1
ECA	14	8	-	3	3
LAC	28	3	2	25	-
MNA	1	-	-	1	-
SAR	7	7			
Totals	77	42	6	30	5

Duration of T/F Contracts





FMIS Projects (1984-2010) - Initial Observations

- ▶ Appears to be four distinct regional T/F design & impl approaches:
 1. LAC : Start centrally, expand gradually; first T, then F; mainly LDSW
 2. ECA : Countrywide; first T, then F; hybrid COTS+LDSW; ICT specialist in TTs
 3. AFR, MNA : Mainly for central gov; mostly F; based on COTS
 4. EAP, SAR : Countrywide; mostly T; based on COTS

T/F Design and Implementation - Regional Approach

Region	# Cnty	# Prj	T/F	Scope	ASW	T/F Core	T/F #PP	ICT in TT
LAC	13	29	T >> F	C >> C+L	LDSW	Mixed	> 3	TT+Cons
ECA	12	14	T >> F	C+L	COTS+LDSW	Yes	<=3	TT
AFR	14	22	F	C	COTS	No	> 3	Cons
MNA	2	2	F	C	COTS	No	> 3	Cons
EAP	7	9	T	C+L	COTS	Mixed	<=3	TT+Cons
SAR	3	7	T	C+L	COTS	Yes	<=3	Cons
	51	83						



- ▶ 89% of completed T/F operational (29 full + 19 pilot impl)
- ▶ LCR is the most experienced region in design & implementation of FMIS

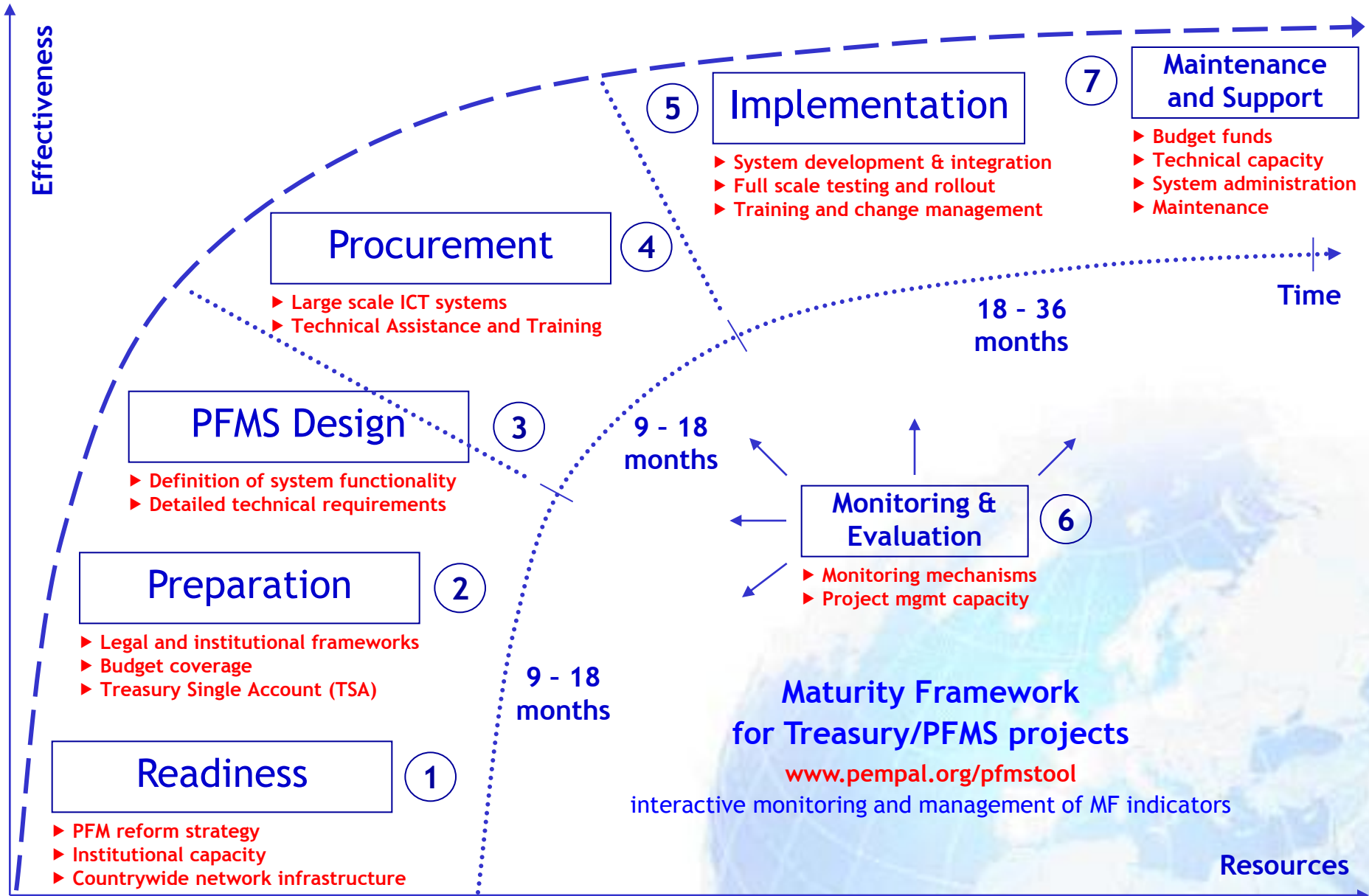


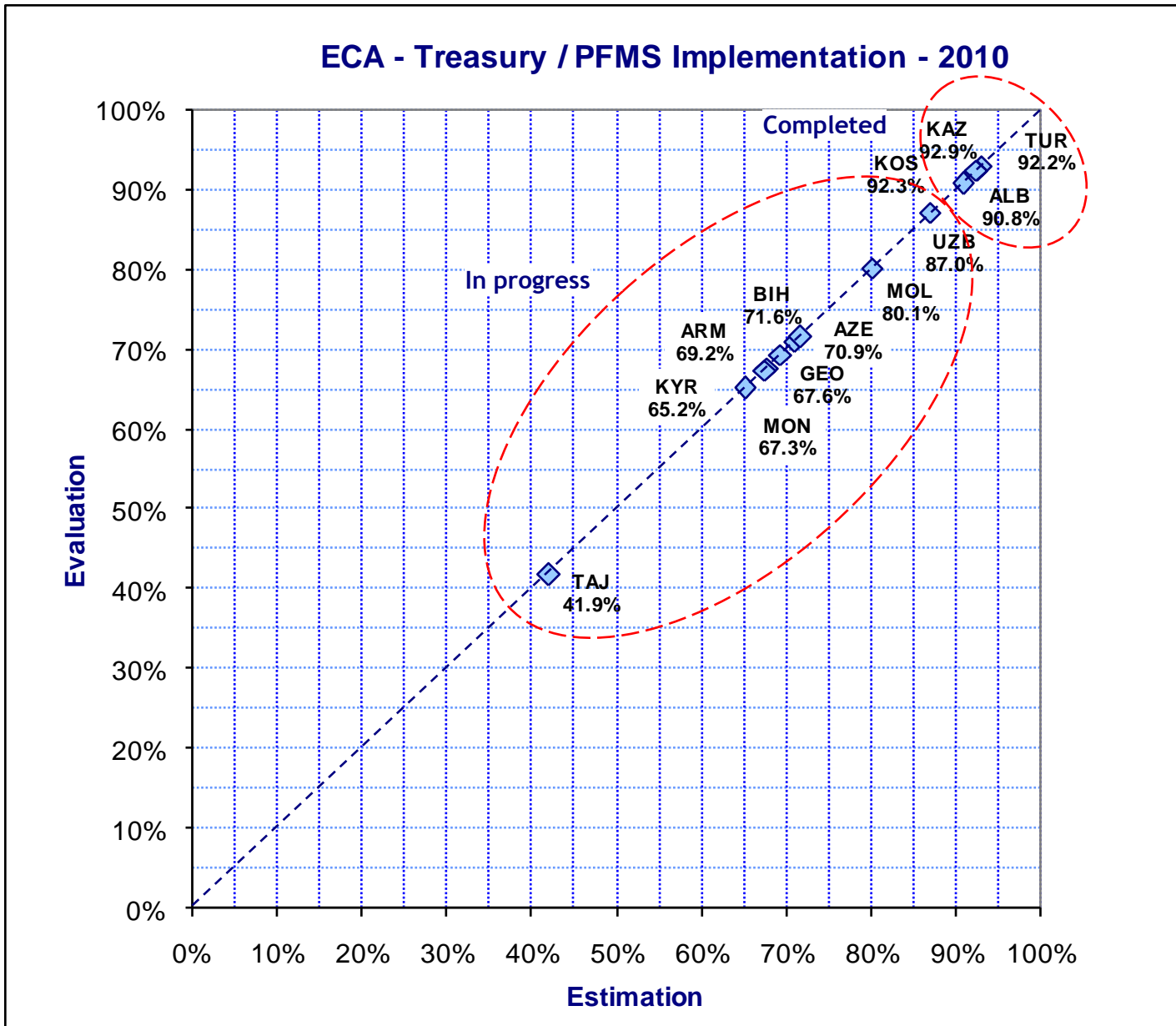
Maturity Framework for Treasury/PFMS projects

- ▶ A Community of Practice for Treasury Managers was established in June 2006 as part of the **Public Expenditure Management-Peer Assisted Learning (PEM-PAL)** program (www.pempal.org)
- ▶ The Treasury / FMIS Maturity Framework (MF) was developed during the "**PEM-PAL Workshop for Treasury Officials**" in Ljubljana, Slovenia (June 2006) and updated twice so far (last update in May 2010).
- ▶ The Maturity Framework was designed to enhance learning and knowledge sharing among Heads of Treasury and related key officials in public expenditure management from **16 ECA countries**.
- ▶ The Bank prepared a web site to publish the results and to facilitate interactive monitoring and management of proposed indicators (www.pempal.org/pfmstool currently being transferred to Ljubljana).



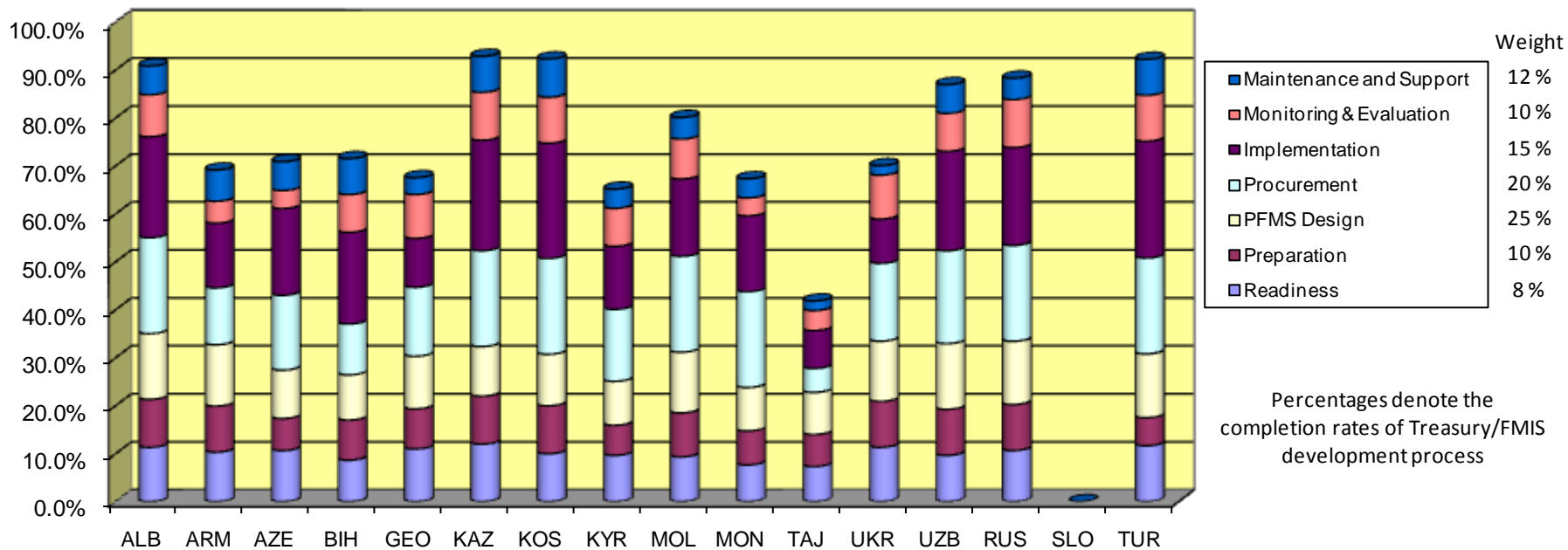
Treasury/FMIS Maturity Framework







ECA - Treasury/PFMS Development Indicators - May 2010



For Bosnia & Herzegovina, 2008 MF indices are shown, since the 2010 updates were not submitted yet.



Summary of Progress

- ▶ **Albania:** Treasury system fully operational in 2010. Expansion for FMIS (MTEF, Public Investment Mgmt, Integrated Planning System) is expected to be completed in **2011**.
- ▶ **Armenia:** Preparations for FMIS mostly completed. New project is expected to initiate implementation soon.
- ▶ **Azerbaijan:** Treasury system pilot tested and is being improved. Roll-out is expected to be completed in **2011**.
- ▶ **Georgia:** FMIS procurement phase initiated. FMIS is expected to be operational in **2013**.
- ▶ **Kazakhstan:** Preparations for FMIS initiated in **2009**.
- ▶ **Kosovo:** Treasury system is being expanded to all districts in **2010**.
- ▶ **Kyrgyz:** FMIS contract signed in 2009. FMIS is expected to be operational in **2012**.
- ▶ **Moldova:** FMIS contract signed in 2009. FMIS is expected to be operational in **2012**.
- ▶ **Russia:** Treasury system roll-out initiated in Jan 2010 (FTAS active in 5 regions) and is expected to be completed by Jan **2012**. Preparations for integrated FMIS will start in **2010**.
- ▶ **Tajikistan:** Core Treasury and Budget Systems are being implemented. FMIS preparations will start in 2011. FMIS is expected to be operational in **2015**.
- ▶ **Ukraine:** FMIS procurement will be initiated in Jun/Jul 2010. FMIS is expected to be operational in **2013**.
- ▶ **Uzbekistan:** FMIS procurement announced in 2010. Expected to be operational in **2013**.



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Brasil República Federativa do Brasil

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Comunidades

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OSOR.eu - Open Source Observatory and Repository

The Open Source Observatory and Repository for European public administrations (OSOR) is a platform for exchanging information, experiences and FLOSS-based code for use in public administrations.

New web conference tool from OSOR.eu

Dear OSOR.eu users,

Register Your Project

OSOR forge currently hosts 152 projects and you can search 2192 projects through the federated national forges.

Want your project to be



Challenges

- ▶ Government ownership and adequate budget support
- ▶ Stability of PFM rules and regulations (frequent legal/policy changes)
- ▶ Recruitment and sustainability of ICT specialists in public sector
- ▶ Existence of a reliable countrywide network infrastructure
- ▶ Realistic ICT cost estimates to reduce procurement risks
- ▶ Web based applications & **open systems** to reduce cost & duration of implementation
- ▶ Proper requirements for Records Management, Information/System Security and Digital Signature in design
- ▶ Coordination with e-Gov activities (interoperability & resource sharing)
- ▶ Strengthening project management, monitoring and evaluation skills



Conclusions

- **Commitment and support:** High level commitment and proper budgetary support is essential for successful implementation and sustainability of FMIS.
- **From Treasury to Integrated FMIS:** Within the last decade, emphasis has been given to the development of integrated FMIS solutions after the initial Treasury development projects, benefiting from the developments in secure web-based PFM systems and open-source applications.
- **Capacity building:** Implementation of integrated FMIS solutions requires capacity building, proper training and professional technical assistance.
- **FMIS vs e-Government:** Integrated FMIS technical solutions need to be designed and implemented as a part of e-Government strategy/program.
- **Financial Management Information System:** Integrated FMIS is not only a tool to improve operational efficiency and accountability, but also a key decision support mechanism for public financial managers.



Thank You