THE UNITED REPUBLIC OF TANZANIA

Ministry of Health and Social Welfare

Requirements for the Electronic Logistics Management Information System (eLMIS)

October 2011

Table of Contents

User and Systems Requirements Supporting Business Processes 4
Functional User Requirements 5
Process 1 – Requisition 5
Process 2 – Order Processing 6
Process 4 – Receiving 7
Process 5 – Inventory Management 8
Process 6 – Treatment 9
Process 7 – Forecasting and Supply Planning 10
General System Requirements 11
General Characteristics 11
Management 11
Operations 11
Security 12
Technical Design 12
Reporting 13
Appendix A: Business Process Flow Maps 14

User and Systems Requirements Supporting Business Processes

This section details functional user and system requirements for 6 business processes. Functional user requirements are the statements that describe what an information system needs to do to support the tasks or activities that make up the business process. These 30 requirements are things that a user will see and use and answer the question, "What needs to happen to support the user to complete a work activity?" For the six business processes for which requirements were developed, there are accompanying activities and functional requirements. These requirements, detailed in the subsequent chapters of this document, are organized under each business process and associated with each of the activities they support. They are also labeled to indicate if they are user requirements at the central medical stores level, district level, or service delivery point level.

Not all listed activities within the business process have associated requirements. By showing activities that do not have associated requirements, we capture the complete logical flow of work which will be useful in the subsequent step when translating functional requirements into technical specifications. Creating these technical specifications will then be the work of software engineers, not part of the requirement development process. Each of the business processes are illustrated in a task flow model showing the logical work flow in Appendix A

This section also includes general system requirements which are not associated with a specific activity or business process but rather are requirements that impact the entire system. General system requirements differ from functional user requirements in another important aspect. These requirements most often are not visible to the end user but are essential for the system to be able to perform and support the functionality a user does see and use. These 30 requirements, detailed below, are organized into six categories.

Figure 1. Numbering Schema

Functional and User Requirements	
Reference #	Description
1	Business Process
1.1	Activity
1.1.1.	Requirement
1.1.1.1	Alternative or More Specific Requirement
General System Requirements	
Reference #	Description
99.1	Category
99.1.1	Requirement

Functional User Requirements

Process 1 – Requisition

ID	Process	Activity	Role or Entity	Requirement (The system must or should…)	M=Must or S=Should	Central Level	District Level	Service Delivery Point
1.1.1	Requisition	Estimate Need	Store in Charge	Estimate stock needs according to defined rules	M	X	X	X
1.1.1A	Requisition	Estimate Need	Store in Charge	Based on past consumption data	M	X	X	X
1.1.1B	Requisition	Estimate Need	Store in Charge	Based on minimum / maximum quantity threshold	M	X	X	X
1.2.1	Requisition	Determine Current/Projected Available	Store in Charge	Display current available and usable on hand quantity of each stock item	M	X	X	X
1.4a.1	Requisition	Submit Requisition	Store in Charge	Generate requisition based on need	M	X	X	X
1.4a.2	Requisition	Submit Requisition	Store in Charge	Display lead time for order fulfillment	M	X	X	X
1.4a.5	Requisition	Submit Requisition	Store in Charge	Ability calculate order cost at time requisition is generated	M	X	X	X
1.6.1	Requisition	Validate Requisition	Pharmacy in Charge	Provide approval/rejection mechanism at appropriate levels	M		X	X
1.6.3	Requisition	Validate Requisition	Pharmacy in Charge	Monitor/inquire/maintain order status, approval status, and shipping status	M		X & Region	X
1.13.2	Requisition	Corrective Action	SO	Enable backorder for unfulfilled items (onlyfor specific items)	M	X		
1.14.1	Requisition	Allocate Stock	SO	Display requisition history	M	X		

Process 2 – Order Processing

ID	Process	Activity	Role or Entity	Requirement (The system must or should…)	M=Must or S=Should	Central Level	District Level	Service Delivery Point
2.1.1	Order Processing	Process Receive R&R	Sales Officer (SO) DMO	Receive a stock requisition and/or act on a dispatch plan	M	X		
2.9.2	Order Processing	Corrective Action	SO	Enable backorder for unfulfilled items (onlyfor specific items)	M	X		
2.10.1	Order Processing	Allocate Stock	SO	Display requisition history	M	X		

Process 4 – Receiving

ID	Process	Activity	Role or Entity	Requirement (The system must or should…)	M=Must or S=Should	Central Level	District Level	Service Delivery Point
4.1.1	Receiving	Delivery Notification	Program Manager, DMO, Health Facility In-Charge (HF)	Ability to display notification of arrival of shipment and delivery ETA	M	X	X	X
4.3.2	Receiving	Inspect and Verify Order	Program Manager, DMO, HF	Link shipment information to purchase order or R&R and arrival notification and flag discrepancies	M	X	X	X
4.5.2	Receiving	Corrective Action	DMO, HF	Ability to reject order	M		X	X
4.6.1	Receiving	Record Receipt	DMO, HF	Create receiving report	M		X	X
4.9.2	Receiving	Inspect and Verify Order	Program Manager, DMO, HF	Link shipment information to purchase order or R&R and arrival notification and flag discrepancies	M	X	X	X
4.11.2	Receiving	Corrective Action	DMO, HF	Ability to reject order	M		X	X
4.12.1	Receiving	Record Delivery	HF	Create receiving report	M		X	X

Process 5 – Inventory Management

ID	Process	Activity	Role or Entity	Requirement (The system must or should…)	M=Must or S=Should	Central Level	District Level	Service Delivery Point
5.2.3	Inventory Management	Monitor Stock Environment	Logistician	Record VVM status	M		X	X
5.3.4	Inventory Management	Manage Stock	Logistician	Display and transmit alerts and notifications for pending expiries	M		X	X
5.3.5	Inventory Management	Manage Stock	Logistician	Display and transmit alerts and notifications for stock outs, overstock, understock	M		X	X
5.3.8	Inventory Management	Manage Stock	Logistician	Ability to update stock record	M		X	X

Process 6 – Treatment

ID	Process	Activity	Role or Entity	Requirement (The system must or should…)	M=Must or S=Should	Central Level	District Level	Service Delivery Point
6.4.1	Treatment (Generic)	Referral	Health Worker	Ability to capture unsatisfied demand for each commodity, e.g. stock outs	M			X
6.6.1	Treatment (Generic)	Update Record	Health Worker	Record information on stock register and DAR if appropriate	M			X
6.6.6	Treatment (Generic)	Update Record	Health Worker	Ability to record diagnostic method	M			X
6.6.7	Treatment (Generic)	Update Record	Health Worker	Capture reason for non delivery of service, e.g. refusal, temporary/permanent contraindication, stock out, etc.	M			X

Process 7 – Forecasting and Supply Planning

ID	Process	Activity	Role or Entity	Requirement (The system must or should…)	M=Must or S=Should	Central Level	District Level	Service Delivery Point
7.1.5	Forecasting	Estimate Program Requirements	Forecasting Committee	Gather consumption data	M	X	X	X
7.1.6	Forecasting	Estimate Program Requirements	Forecasting Committee	Show non-reporting facilities	M	X	X	
7.1.9	Forecasting	Estimate Program Requirements	Forecasting Committee	Ability to aggregate data	M	X	X	
7.1.12	Forecasting	Estimate Program Requirements	Forecasting Committee	Ability to export data for analysis	M	X	X	X
7.4.1	Forescasting	Compare Funds Available to Estimates	Forecasting Committee	Ability to record available funding	M	X		
7.7.1	Forecasting	Pipeline Monitoring	National Procurement Working Group	Alert when new data changes procurement plan	M	X		

General System Requirements

There are a number of general requirements that are not business process specific but are important from the perspective of overall system functioning. These requirements describe system capabilities that are necessary to support an LMIS. The numbering schema jumps from the business process order of 1, 2, etc. to 99 to clearly separate them from the functional user requirements that precede them. This list of requirements is not meant to be exhaustive but reflects what was captured in this project. It is highly likely and in fact desirable for a robust list of general system requirements to be developed that are applicable to other systems that a country might deploy like electronic medical record management systems or human resource management systems.

99.1 General Characteristics

99.1.1 Be described in terms of the total cost of ownership including maintenance costs and technical support including repairs indicating service level expectations, and subscription requirements.

99.1.7 Provide access to technical support for the application functions and technical system performance and management and (unless vendor has 24x7 help desk availability) indicate at a minimum the help desk must be accessible during normal business hours LOCAL time.

99.2 Management

99.2.1 Maintain transaction log history

99.2.2 Enable configuration by role of rights to enter data

99.2.3 Enable item master updating by local system administrators

99.2.5 Document the software development life cycle (SDLC) including bug and issue tracking and resolution (on vendor/developer side)

99.2.6 Provide software updates and schedule of future releases and lists of new, changed, and dropped features

99.2.9 Enable customization to any national and subnational administrative structure or number of levels

99.2.10 Provide means to add additional languages, currencies, and calendars

99.3 Operations

99.3.3 Support synchronous and asynchronous updates allowing the ability to work offline and upload later

99.3.5 Be deadlock free, described as a situation where two or more competing actions are each waiting for the other to finish, and thus neither ever does

99.3.6 Enable access to the central system from all levels of the health system with proper authorization/access level

99.3.8 Enable deployment in an environment subject to power loss (Further investigation to clarify possibilities – expect if multiple remote servers they would switch to alternate location)

99.3.9 Enable deployment in an environment subject to loss of connectivity (further investigation to clarify possibilities)

99.3.10 Application whould not require high bandwidth only devices and should allow for client devices with low bandwidth or irregular connectivity

99.4 Security

99.4.1 Support definitions of unlimited roles and assigned levels of access, viewing, entry, editing, and auditing

99.4.2 Require each user to authenticate by role before gaining access to system

99.4.3 Provide flexible password control to align to national policy and standard operating procedure

99.4.4 Protect system servers with an internet and systems firewall

99.4.5 Be secured against viruses and malware

99.4.8 Provide encrypted communication between components

99.4.9 Provide alert/notification of security breeches

99.5 Technical Design

99.5.1 Exchange data with other approved systems

99.5.5 Provide access from internet-enabled devices

99.5.11 Accept data from multiple input methods including paper (Scanning with OCR), online web forms, PC asynchronously, PC synchronously, interactive voice response, bar code, RFID, SMS, MMS

99.5.12 Log transactions at time of data entry

99.5.13 Provide asynchronous and synchronous data synchronization

99.5.15 Enable flexible sorting and search criteria (with wild card search capability) for accessing transactions by any data element including item number, requisition, vendor, date, location, status, etc.

99.5.17 Provide appropriate calculations at time of data entry

99.6 Reporting

99.6.1 Provide an interface to a third-party report-generation tool

99.6.6 Enable user defined reports

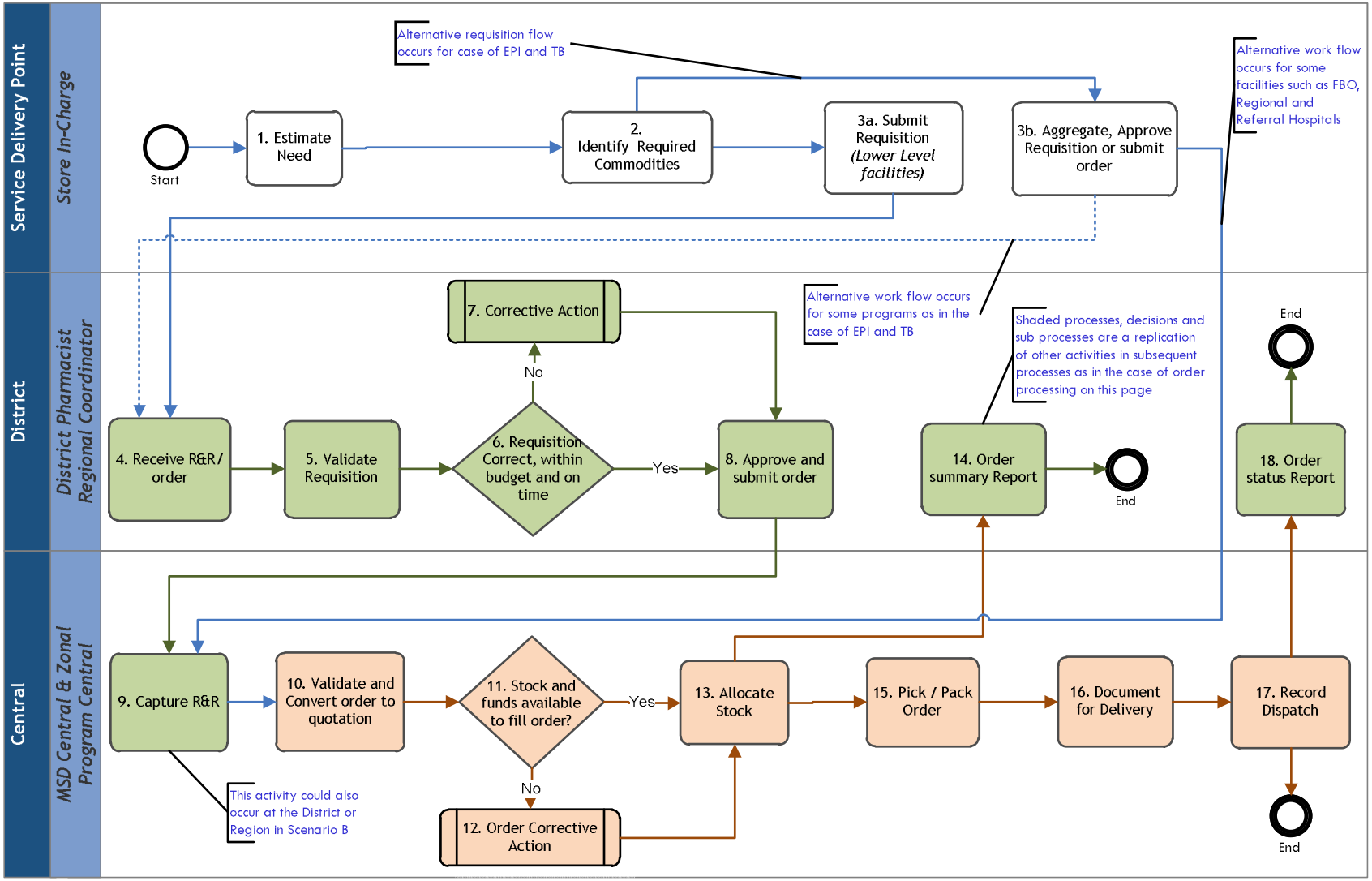
99.6.7 Generate log and audit reports

99.6.9 Generate performance management reports based on user defined KPIs

Appendix A: Business Process Flow Maps

No. 1 Requisition Business Process

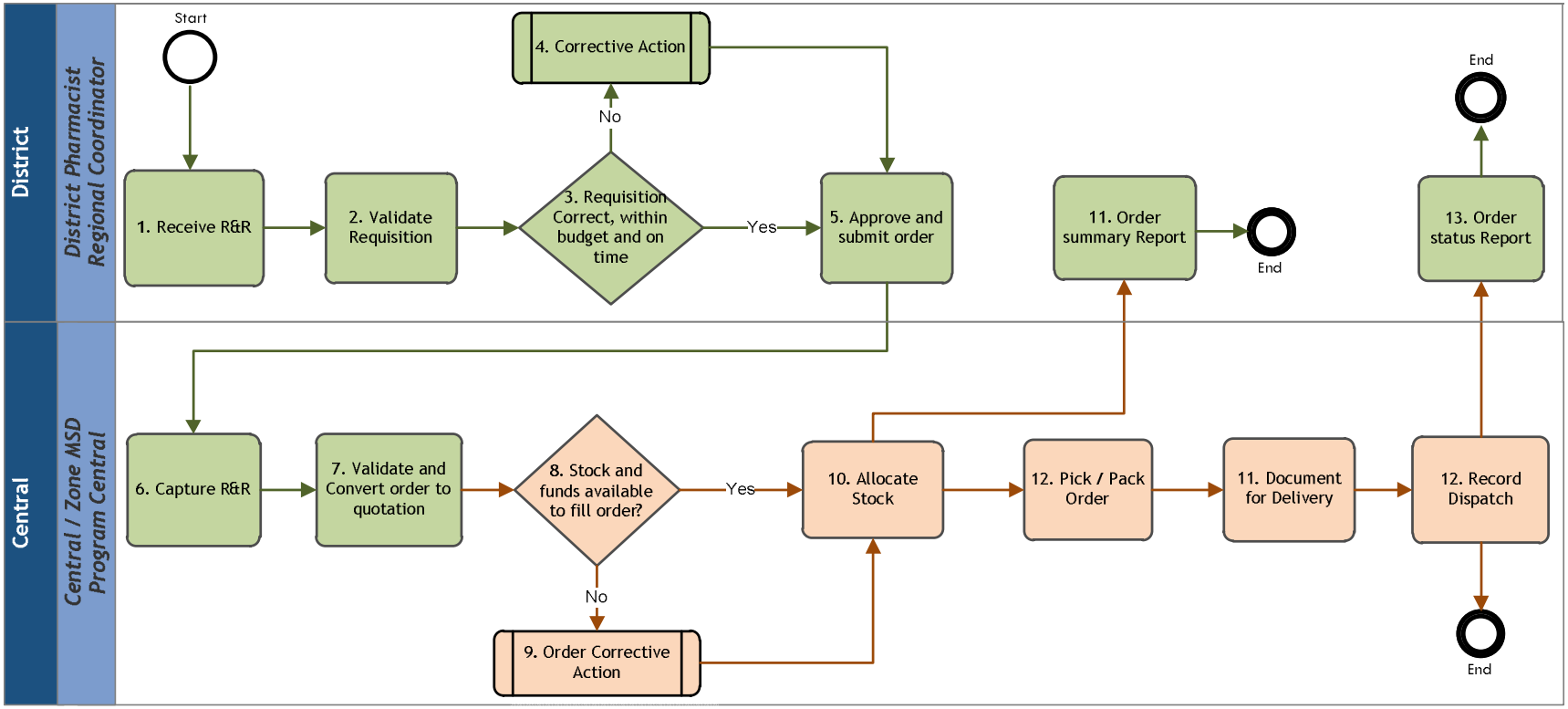
Tanzania electornic Logistics Management Information System (eLMIS)



eLMIS Task Flow Version 1.0 21/9/2011

No. 2 Order Processing Business Process

Tanzania Electronic Logistics Management Information System (eLMIS)



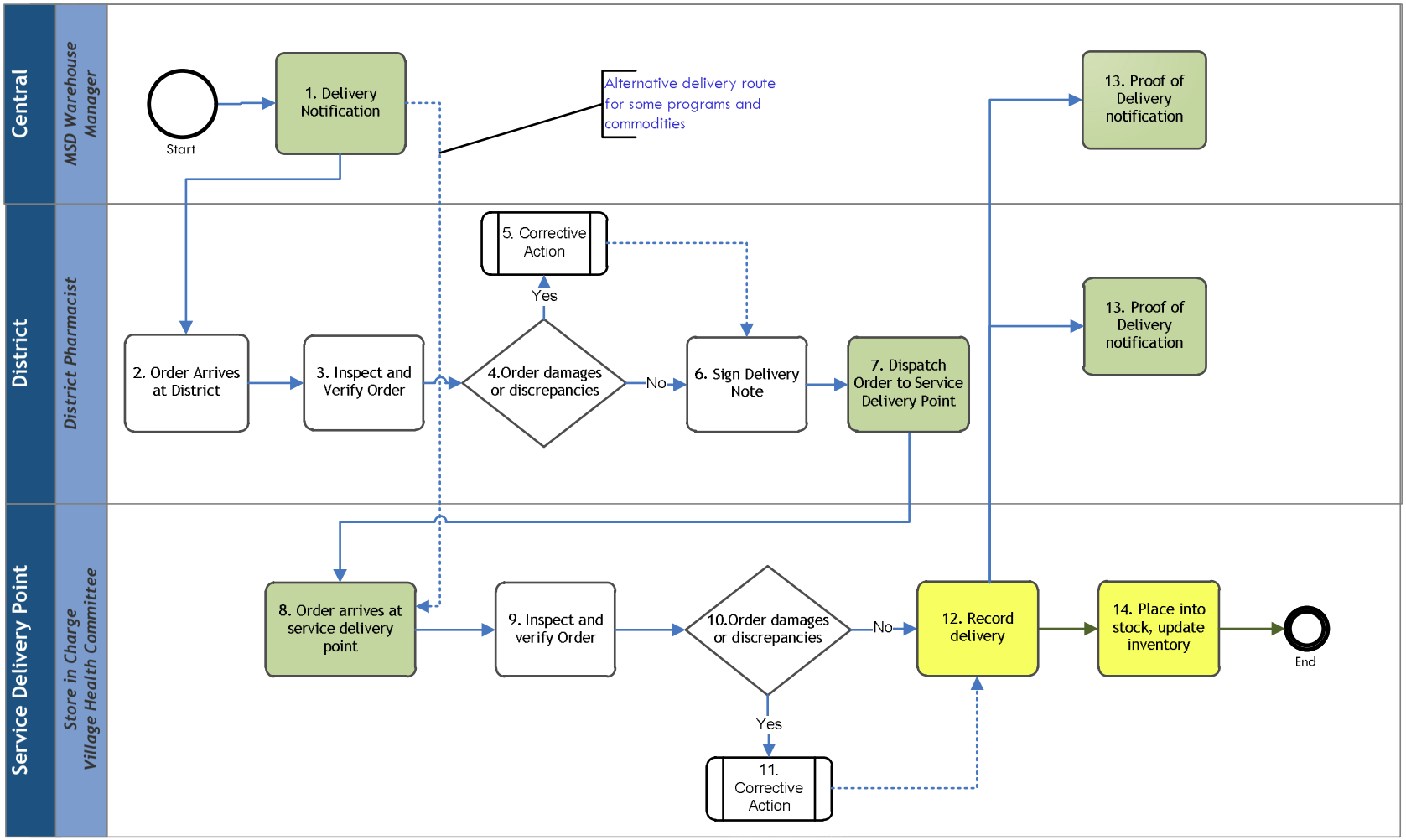
eLMIS Task Flow Version 1.0 21/9/2011

Color legend

- eLMIS repeated processes
- High level Medical store department (MSD) ERP processes

No. 4 Receiving Business Process (District / SDP)

Tanzania electronic Logistics Management Information System (eLMIS)



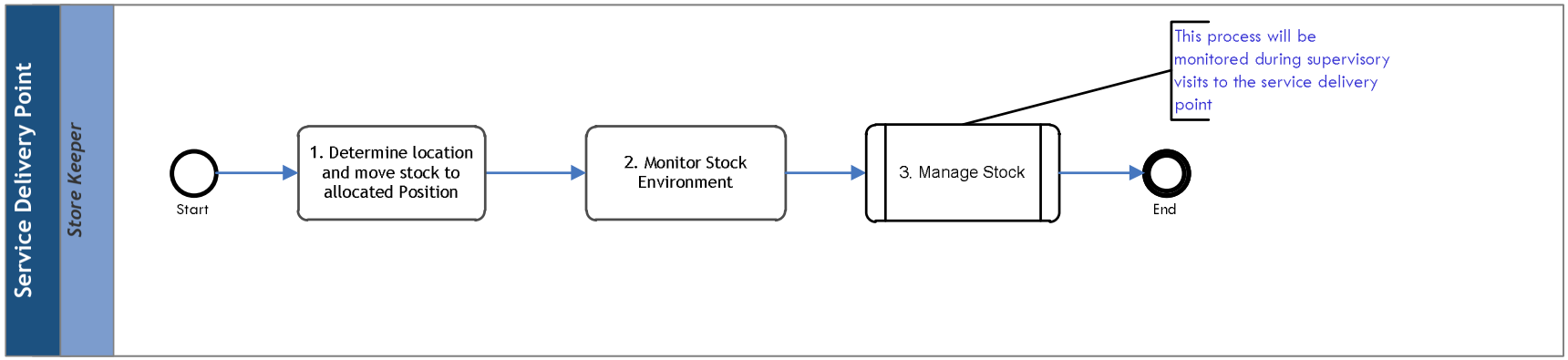
Color legend

- eLMIS repeated processes
- Service Delivery Point system processes

eLMIS Task Flow Version 1.0 21/9/2011

No. 5 Inventory Management Business Process

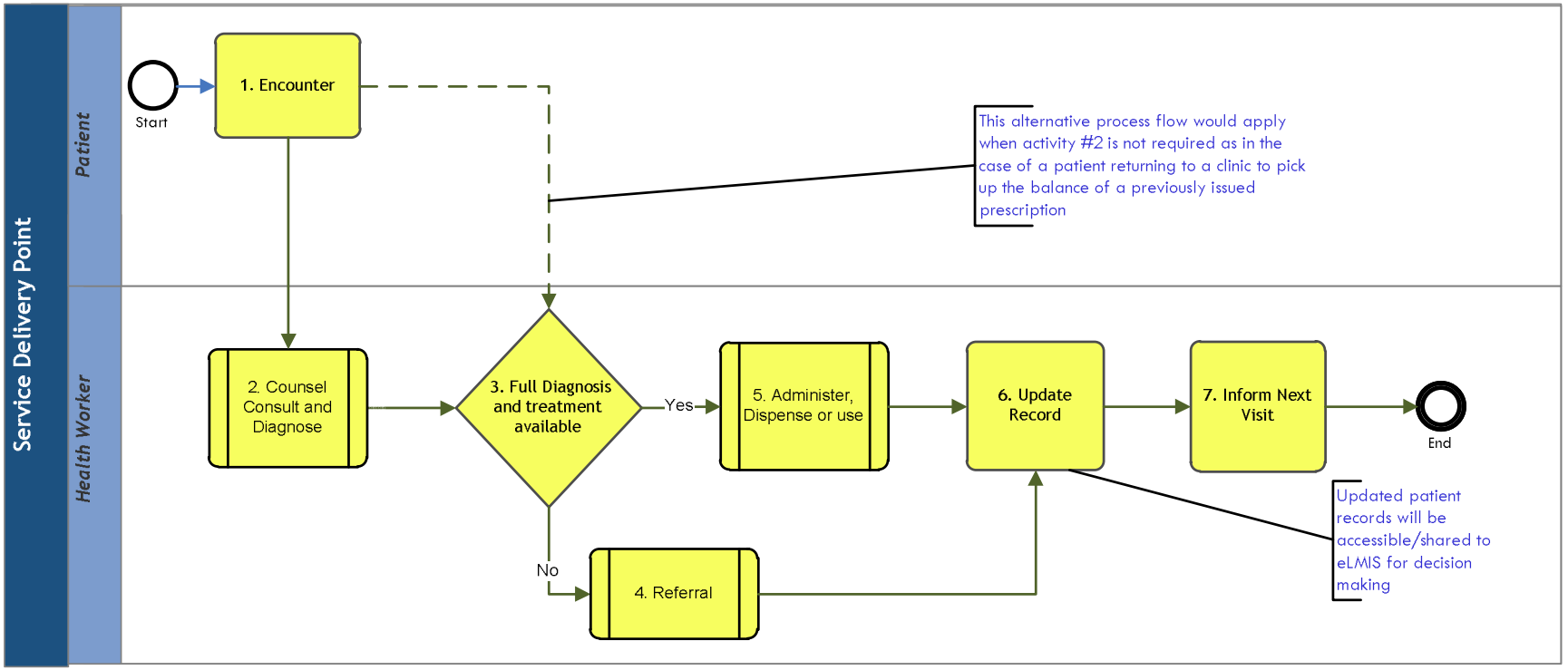
Tanzania electronic Logistics Management Information System (eLMIS)



eLMIS Task Flow Version 1.0 21/9/2011

No. 6 Treatment Business Process (generic)

Tanzania Electronic Logistics Management Information System (eLMIS)



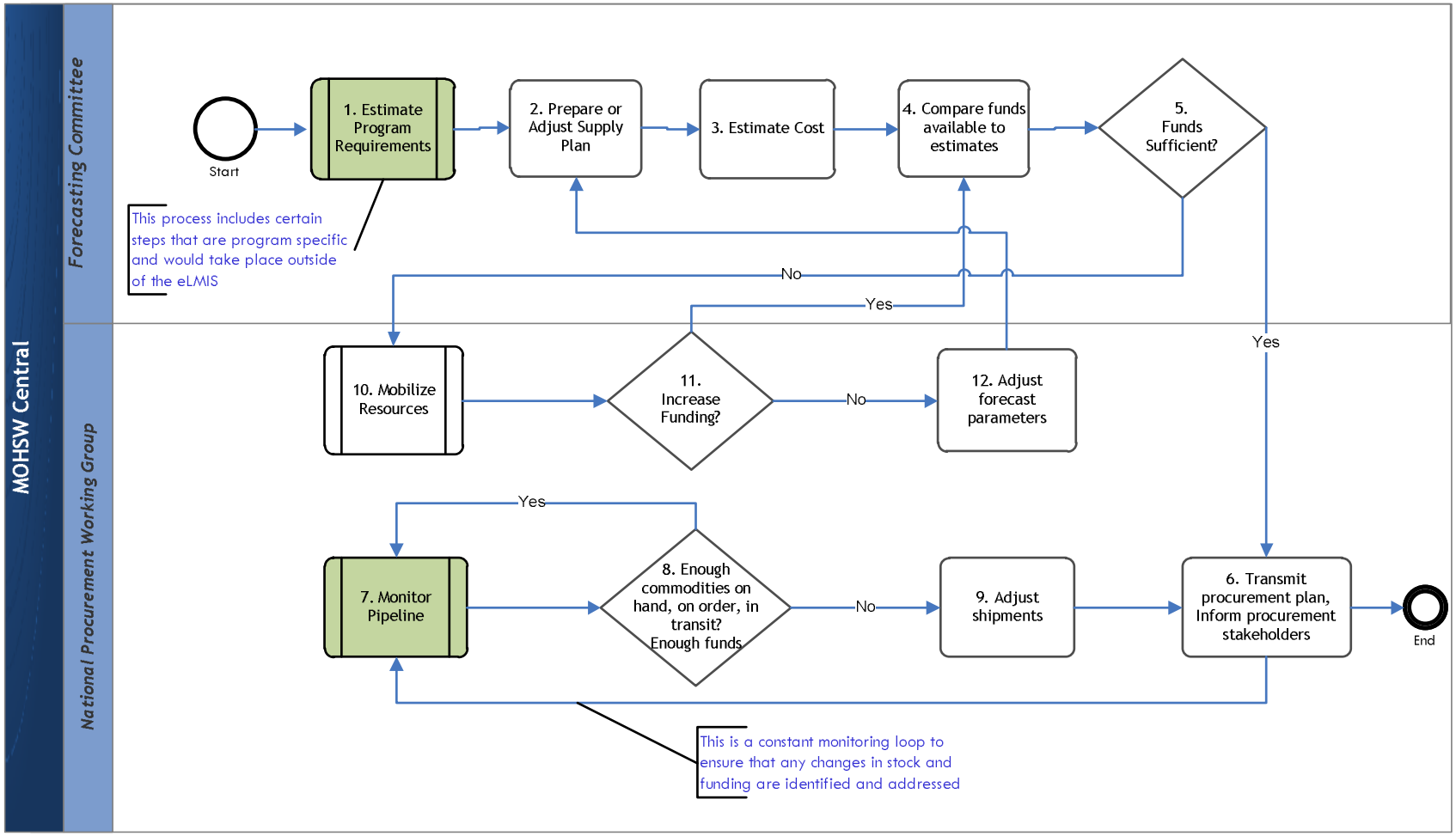
Color legend

- Service Delivery Point level system processes

eLMIS Task Flow Version 1.0 21/9/2011

No. 7 Forecasting & Supply Planning Business Process

Tanzania Electronic Logistics Management Information System (eLMIS)



eLMIS Task Flow Version 1.0 21/9/2011

Color legend

- eLMIS repeated processes