Islamic Republic of Afghanistan

TERMS OF REFERENCE

FOR

Logistic Management Information System (LMIS)

2019

Contents

1.   Introduction

Logistics is a process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. As Afghan Post is moving towards modernization in order to bring efficiency and effectiveness at its services, to our work, there is an increased need for user-friendly tools and software packages to support the timely and accurate collection and reporting of logistics management information.

Postal logistics is a way of lowering postage costs, speeding delivery of packages and ensuring track of each mail/packages from source to destination for both outgoing and incoming mails. The benefit of the system is connected to the mail entry point from post office to destination and reverse in Afghanistan and outside. The LMIS consist of both Hardware and software and data that will prepare trays. System components are consisting of fully automated scan band, tray handling and sorting, electronic manifest reconciliation, automatic tray log-out, adjustable tolerance for weight reconciliation.

This information can be used for operational decision making, advocacy. Automation of a logistics management information system (LMIS) can greatly facilitate the work of relevant Afghan Post personnel, reducing human error in calculations; and by allowing for visibility of data up and down the supply chain. Reducing the time required for packages collection, transmission, and aggregation results in data being available more quickly for timely decisions and actions to help ensure products are available where and when needed.

Using LMIS should ensure quantity and quality of packages processing, routing using the most time-efficient transportation by utilizing advanced air & surface assignments. Using the system AP should be able to calculate number of incoming and outgoing packages within complete details, allow Post employees to track packages & receive notification from package delivery status inside and outside the country. This system should easily integrate within the Mobile tracking application of Post to ensure packages delivery for customers. LMIS should completely routs the packages in central, provincial and international level.

The overall objective of the system is to better alignment of Logistic services to customers and packages shipment and distribution with the technology. The shipment component of the LMIS are routing of shipments, collection, dispatch, transport, scanning tray labels, capture weight and interfaces with Air & surface Management System (Currier) for assignments, arrival and delivery of packages. The current postal logistic operations are carried out in three levels:

 The LMIS consist of both Hardware and software components.

The aim of this document is to gather and analyze and give an in-depth insight of the complete LMIS. The detailed requirements for LMIS are provided in this document.
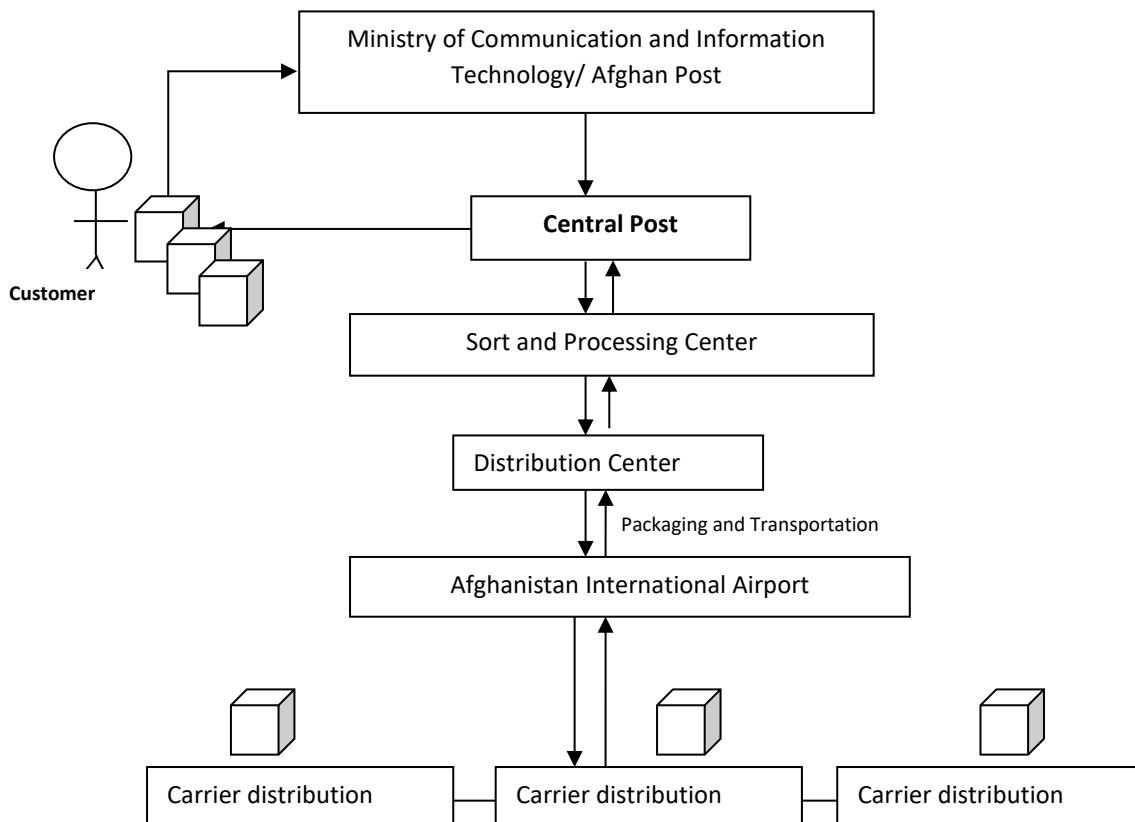
Figure.1. Current parcel/mail processing flow in Local Post office Kabul

During the transfer of shipments from the sender to the recipient, numerous logistics activities and processes are detected: transport, transfer, processing (sorting), preparation for shipment, as well as design of all supporting information flows. Logistics processes in the postal sector represent range of logistics management activities: informational, technological, organizational and controlling and all have their goals which are harmonized with the goals of postal service as a superior business system. The effect of logistics processes as a series of successive and parallel logistics activities is measured through logistics performance. The goal of performance measurement and control activities in the logistics is to monitor logistics performance versus operating plan and in that way identification of opportunities to improve the effectiveness and efficiency.
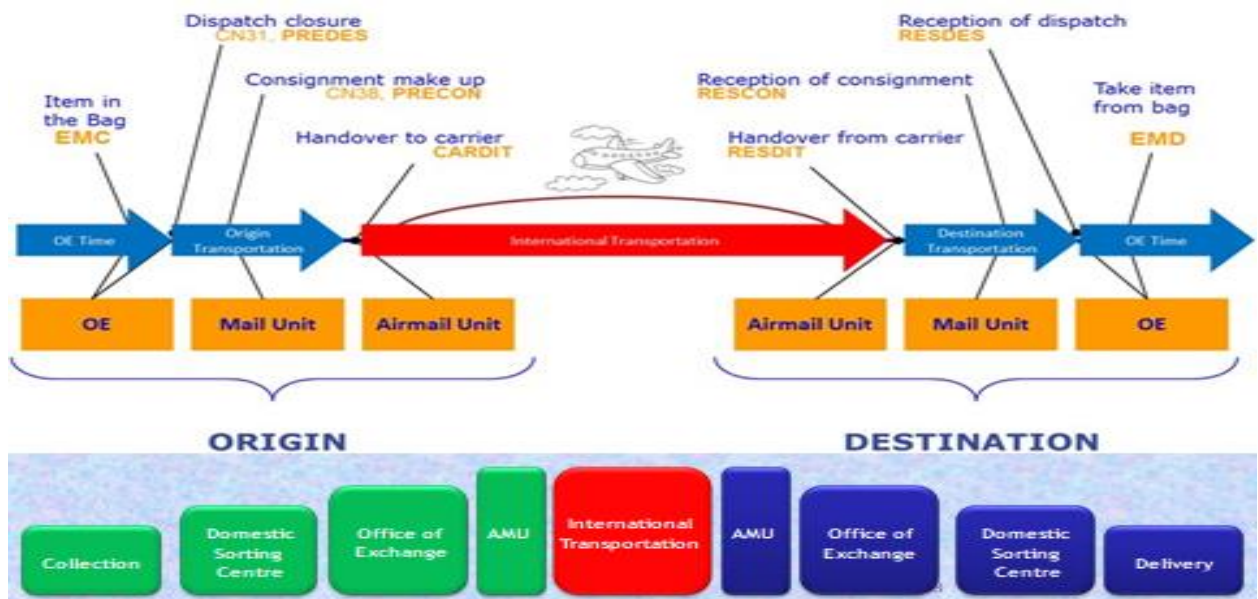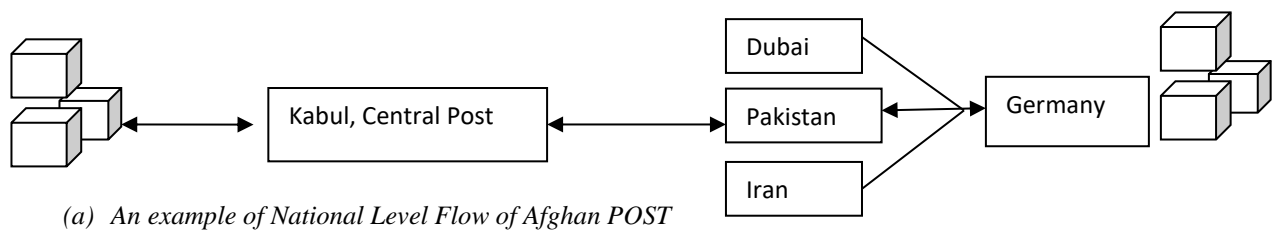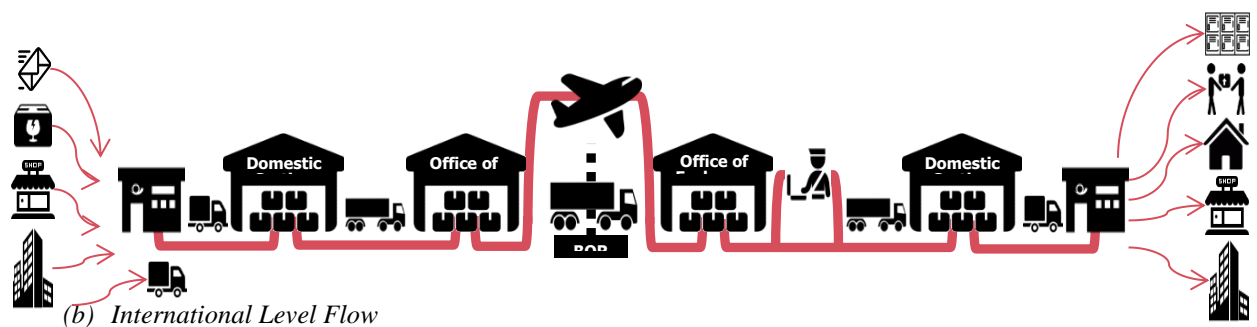
Figure 2: EDI message exchange Int'l system

Within the new e-logistic management system, Afghanistan post will be able to control and Logistic flow as follow:

(a) An example of National Level Flow of Afghan POST

(b) International Level Flow

Figure 3: Acceptance, sorting, air transportation, sorting and delivering of mail items Int'l system

Software development and, more specifically, the automation of an LMIS can and should follow project management and information technology (IT) best practices. These documents are written for Afghanistan Post as a reference when considering starting an LMIS automation project, planning for one, and executing that plan. This document is developed for software developer to take decisions an automation of LMIS and help them to understand the steps required to develop a complete Logistic System to facilitate Management of Afghanistan Post transactions inside and outside the country.

The Afghanistan Post currently process the shipment of parcels/packages to/from the world, in addition within new online shopping system AP will be dealing within shipment of the items to the customers inside and outside Afghanistan. The LMIS should be developed in

order to control both shipments of packages from customers by visiting the post office and manage the items purchased online. The LMIS should be functionalized in manner of to control and manage these two shipments on time. In the LMIS functions should be allocated to control and monitor transportation and logistics servers to Post customers and AP online shopping system.

In order to ensure rigor is brought to the project management process, the automation process follows the software development life cycle (SDLC) methodology, a best practice approach toward articulating and constructing software solutions. For development LMIS the spiral model should be followed as the information and requirement is not complete there for there should be method of re-starting however with this model we can achieve it .Figure 4 shows one example of the software development lifecycle.

Hosting –The platform has three component (APEC, LMIS, PMIS) will be hosted in-house national data center of Afghanistan in a single server and second server will be considered for backup within the following specification.

Server: (PowerEdge R940 2x Intel® Xeon® Gold 6138 2.0G,20C/40T,10.4GT/s 3UPI,27M Cache, Turbo, HT (125W) DDR4-2666, 24GB RAM, 1TB SSD HDD, 1G NICx4 core8 or higher, Windows Server 2016 Standard 64 bit or higher within license key provided by the company).

Backup: (Server: PowerEdge R940 2x Intel® Xeon® Gold 6138 2.0G,20C/40T,10.4GT/s 3UPI,27M Cache, Turbo, HT (125W) DDR4-2666, 24GB RAM, 1TB SSD HDD, 1G NICx4 core8 or higher, Windows Server 2016 Standard 64 bit or higher within license key provided by the company) .

Anti- virus: two packages Kaspersky anti-virus for two servers (Hosting and back-up) within license key for three years.

Configuration: the company shall provide a full set-up and configuration of the servers and host the requested system inside it.

2.   Objectives of the assignment

- Collect requirement, design, develop, install and maintain for the LMIS
- To design LMIS components and prototype it
- To develop Logistic Management Information System for Afghanistan Postal Service for registration of incoming and outgoing packages in central, provincial and international packages level
- Networking of the system with postal offices inside, regional and province base
- Facilitation of Packages and Post vehicles routing in national and international level
- Integration of the LMIS with PEC(Post e-commerce) platform and Post tracking mobile application
- To provide an effective method collection and sorting of parcels, reliable delivery, effective and efficient transport.
- To implement hub location and vehicle routing model.
- Introduce a new way of distributing parcels by creating regional parcel centers hub through system and parcel posts involving the separation process of parcels for the local area and directing mail shipments to freight parcels on scheduled routes.

- To develop components and features of LMIS such as stuck management (inventory management), warehouse management, content management system(CMS), payment management and any other LMIS components requested by AP
- To monitor shipment status, count number of packages per day, shipped country/province, packages details(incoming & outgoing) and more
- Transportation and delivery status monitoring of the packages
- Generating reports and designing of graphs to facilitate decision making to show Stock/available parcel on hand for delivery, available months of stock, and average monthly consumption

3. Scope of Services

LMIS Infrastructure consists of both Hardware and Software components, specifies the corresponding service level requirements, and describes the management and operations of the whole system. It may comprise briefly of the following components at a very abstract level include but not limited to:

- **LMIS central post office** – Post personals can access to LMIS and Control & monitoring of incoming/outgoing packages, packages distribution, collection, vehicles control, currier status, schedule, transportation forecast, weather forecast from central post offices and other logistic operations.
- **LMIS regional post offices** – Post regional personals can access to LMIS and Control & monitoring of incoming/outgoing packages, packages distribution, collection, vehicles control, currier status, schedule, transportation forecast, weather forecast from central post offices and other logistic operations.
- **LMIS for Provincial post offices** - Post provincial personals can access to LMIS and Control & monitoring of incoming/outgoing packages, packages distribution, collection, vehicles control, currier status, schedule, transportation forecast, weather forecast from central post offices and other logistic operations

Hosting –The LMIS will be hosted in-house (national data center of Afghanistan) in server mentioned in first section.

4. Initial functional requirements will be:

LMIS should easily integrate to any other system such third party application the bank payment getaway and PEC system of Post. Details documents shall be provided upon request of Software Company in terms of system functionality app design, structure and other features.
LIMS main functions and features are as follows but not limited to:

- Registration of outgoing and incoming packages such type, registration timing, delivery method, payment details, destination and other information provided later
- Registration of customers details into system e.g. name, package tag, destination tracking number etc.
- Registration of Post personals based on their login to the system

- Registration of vehicles and transportation delivering the packages and relevant staff involving the operation etc.
- Calculation of packages and assign schedule to the vehicles
- Display currier information such status, fly date and time
- Provide options for Customer and internal personnel Support.
- Delivery confirmation notification
- Detailed invoice for customer registering a package
- Automate addressing while package registration(as of now the customer have to write the address manually within the system customers can share the address with Post Personnel and entered to the system based on that system should generate automatic address label to be used on up-front of the package.
- Provide easily address management facility to the customers
- Generating tracking code where based on that system notify from status of package both AP and customer can track using tracking mobile application of Post.
- Online tracking of shipments
- Allow multiple payment methods.(as current method is by cash but AP intent to implement mobile money system)
- Details map of each packages and all relevant information should be displayed into the system
- Generate reports and statics daily/weekly/monthly base from number of registers packages, revenue, packages arrived to AP, number of packages shipped by different currier and other types of reports as per need of AP
- Automatic price calculation of the packages based on the weight shown
- LMIS should be available in three languages (Dari, Pashto and English)
- These functions might be revised and more functionality will be requested by AP, the company should have agreement of any further features development requested by AP.

5.   None-functional Requirement

13.2   Web/Mobile application User Interface

The LMIS should follow a standard responsive design and coloring on based on Post Logo as well content accordingly. The interface should have a user-friendly look. Regard the number of components and users will be discussed on pre-bid meeting. The platform should have capacity of handling 1000 users in one time. There should be no dependency that user one data affect another. The system should have back-up functions and store information.

13.2   Cost

The cost for maintenance of servers, licenses and other hardware and software is responsible of the company. License cost and its renewal policy should be provided by company.

13.2   Accessibility

The application should provide easy accessibility from all around the world. Since the application is complete online, highest and latest security protection policy should be applied so that both website and customer's data are saved.

13.2   Reliability

This system should keep the database information's consistently. The application part of the system should never fail. In the database side, failures should be minimal and there should be crash recovery systems in order not to lose information in a potential database failure. System should display informative messages when its components don't work properly.

13.2   **Availability**

The platform should be available 100% for the users and is used 24hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 day of a week. The application should be connected to the GPS device or post tablets or other tracking method concept provided by the company. System should be tested against probable failures before publishing the first version or updated versions of application. Published version should be error free. In database side, in case of a failure, system should recover any information for user and system.

13.2   **Supportability**

The application should be available in three languages. The prices should be shown in both Afghani and USD. When the customer changes the language all the content should be shown in accurate translation in Pashto and Dari languages. The application should support all browsers such (Chrome, Mozilla safari, explorer etc.)

13.2   **Security**

This application should be secured within the latest and highest technology. The back-end server shall only be accessible to authenticated administrators. The application back-end databases shall be encrypted. All connection between the application and sub-system, third party application (payment gateway) shall be end to end connection. Data that come from the application should encrypt again in the database side.

13.2   **Maintainability**

Repair time should be no more than an hour. The application should be easy to extend. The code should be written in a way that it favors implementation of new functions. In order for future functions to be implemented easily to the application. SVN software should be used in development phase in order to reduce complexity, make the system traceable and recover the code from an unwanted crash while more than one developer is dealing with the code. Design elements should be documented well. All parts of the code should be easy to read.

13.2   **Portability**

The application will respond to the size of the screen and/or window the application is running in. The application should take less than 4 seconds when running on Windows. The application will run fine until the user begins to multi-task between 3 or more processes.

13.2   **Integrity**

LMIS should easily integrate with current e-commerce platform (PC), USPS surface-air management system, Post tracking application and other systems for getting the data or updates.

6.   **Terms and Condition of System Maintenance**

The company should provide maintenance services for one year after the system deployment. During this period if any error or system failure occur the company is responsible to solve the problem on the spot.

7.   **Liaison with MCIT and Afghanistan Central Post**

The Consultant shall maintain close liaison with Postal Development Project Manager in coordination with Post director. The Director of AP appointed by Ministry of communication and information technology for the sole purpose of the services. The Director of AP shall be the primary contact point of the ministry for the Consultant.

8. Additional Responsibilities of the Consultant

- In section 3 a details expectation from the platform and responsibility of the consultant are mentioned. In addition to that the consultant is responsible to provide an initial requirement gathering survey before development stage
- Collect requirements, analysis, design, develop and implementation(Installation) of the system
- Development of a standard LMIS within its component and features based on request of the AP as mentioned in this document
- Providing both software and hardware mentioned in section 3.2. Since the version of the devices are not specified however should be supportive of Windows server 2016.
- Purchasing of the devices mentioned section 3.2 within latest version as of 2018
- Development of system component such as stuck management (inventory management), warehouse management, client relation management(CRM), content management system(CMS), payment management, Database management system, Middleware management and any other component required
- The LMIS should be made in Dari, Pashto and English languages
- Complete training LMIS different stages entitled on how to use the LMIS.
- Complete Installation of the LMIS and hosting server with related component in national data center of Afghanistan
- AP will receive source codes, licenses for servers and relevant software and hardware along with complete platform devilry by end of project.
- AP will regularly monitor the project system development process till completion.
- AP should receive project progress report and update of development each component on weekly bases of system development.
- Apply any further functions & features if requested by AP that are not mentioned here, these features do not affect the project cost.
- Wither the company does not meet AP expectations, AP have the right to request for changes based on the requirements and specification as needed by Post.
- Complete Installation of the platform and hosting server with related component in national data center of Afghanistan
- Purchase and Configuration/set-up of two servers for hosting the platform with specification of (Server: PowerEdge R940 2x Intel® Xeon® Gold 6138 2.0G,20C/40T,10.4GT/s 3UPI,27M Cache, Turbo, HT (125W) DDR4-2666, 24GB RAM, 1TB SSD HDD, 1G NICx4 core8 or higher, Windows Server 2016 Standard 64 bit or higher within license key provided by the company) .
- Afghan post (AP) will receive License for servers and relevant software and hardware along with complete platform devilry by end of project.
- Complete configuration and setup of the servers should be provided by the company

9.   Obligation, Duties and Responsibilities of the entity

The AP is responsible for the flow of information between the relevant stakeholders in the requirement gathering phase, software development phase, as well as in the Implementation phase. AP can organize consultative meetings as needed to render the service.

10.   Duration of the Services

The duration of the Services is to extend from the date of effectiveness of the Contract for a period of approximately 5 months.

11.   Equipment to be provided by the consultant

As detailed under Section 5 herein above, the Consultant should arrange all facilities required for the consultancy service to be provided by him and the cost of such provision should be detailed in the Consultant's financial proposal.

12.   Deliverables and Reporting

The main deliveries for this project include:
- Requirement Analysis documents
- System Prototype
- LMIS software packages within components
- LMIS configuration and relevant hardware installation in central, regional and provincial post offices
- LMIS hardware (servers and devices).
- Reports delivery after completion of each phase, requirement gathering phase, development phase and implementation phase.
- The inception and the interim reports shall be submitted electronically and as hard copies to the Director of AP.
- Delivery of Server: PowerEdge R940 2x Intel® Xeon® Gold 6138 2.0G,20C/40T,10.4GT/s 3UPI,27M Cache, Turbo, HT (125W) DDR4-2666, 24GB RAM, 1TB SSD HDD, 1G NICx4 core8 or higher, Windows Server 2016, standard version within license key provided by the company
- Anti- virus: two packages Kaspersky anti-virus for two servers (Hosting and back-up) within license key for three years.
- Hosting server and configuration
- Delivery of the software packages licenses
- User manual in three languages 100 copies
- Providing training materials for system implementation

- *Inception Report*

The inception report must contain a work plan which indicates the phases of the requirement gathering, design, prototyping, development and implementation the timing, key deliverables and milestones. As summary:

- Submission of requirement gathering documents(SRS)
- System Development document
- Software Design and architecture
- Submission of requirement analysis document
- System Testing
- Deploy first demo of the system

- *Initial launch and submission Interim Reports*

The midterm report concludes initial launch of demo of platform. In this stage second enhanced demo of the LMIS should be come live. The technical team of Post will observe the performance of the system and give feedback or request for changes if needed.

- *Presentations of the final products and delivery of hardware*

The consultant should provide presentations of the project activity and development of the system AP employees as well delivery all the hardware and equipment to final system launch. This will help both parties to discuss and improve the system as per the need of entity as well test the system before actual implementation.

- *Approval of Final Report*

This is the final system delivery with complete software and hardware components. As the final part of the project the system should be completely ready for operation. As expected the system should be used by Post employees. The entire license for the products should be submitted by the company to AP.

Payment Terms:

1-70% payment after implementation of the system, delivery of the good, installation configuration and delivery of the source code.

2- 20% payment after providing training for the 40 employees of the Post Directorate.

3- 10% payment shall be given after one year warranty.