



## IGAD CENTRE FOR PASTORAL AREAS AND LIVESTOCK DEVELOPMENT

### Milestone 19

#### Terms of Reference

#### Establishing and Strengthening Digital E-platforms for Cross-border Livestock Marketing

##### Introduction

Many interventions have been undertaken to establish cross-border primary and secondary livestock markets infrastructure in order to boost cross-border livestock marketing. While these have increased opportunities for cross-border livestock trade, structural challenges to livestock marketing have remained pervasive, occasioned by among others, poor road networks and insecurity. From the lessons drawn from the successful use of e-platforms for national livestock disease reporting in Turkana, Kenya; access to veterinary service providers in Uganda, and; the operation of an Animal Disease Notification and Investigation System (ADNIS) in Ethiopia, it is proposed in this project to establish and strengthen digital e-platforms for cross-border livestock marketing as a way of mitigating potential shocks such as drought, insecurity, floods and pandemics like Covid -19, which affect livestock marketing in border communities in the two clusters of Karamoja and Mandera. A team of two consultants with training and experience in the design of web-based communication and information sharing platforms will be hired to work with IGAD to develop an android-based digital platform that provides information on estimated weight and prices of livestock to potential buyers, and for buyers to specify their required specifications and quantities to potential sellers. The platform will be designed, presented to stakeholders for comment and feedback, after which the final design will be done. The digital platform will be launched and tested for several supply chains.

##### Deliverables

##### The incumbent consultants will accomplish the following

- i. Design a web-based communication and information sharing platform
- ii. Launch an android-based digital platform for cross-border livestock marketing.
- iii. Test the prototype android-based digital platform in one or two supply chains (live animal, meat or milk)
- iv. Induct ICPALD and member state IT technical staff on usage of the system

##### 1.Design modalities

###### ROLES

##### 1.1 Collection, validation, transmission, sharing and publication

In the general process of collection, validation, transmission, sharing and publication of information used for this project, there are six (6) types of roles:

- Input operators (data submitters): they are in charge of entering data into the system.
- Validators: they are in charge of validating information entered into the system.
- Transmitters: they are in charge of submitting information to the next higher hierarchical level in the administrative or organizational division.

- Publishers: they are in charge of making information publicly available.
- Sharers: they are in charge of sharing available information.
- Locks managers: they are in charge of locking and unlocking of information.

## 1.2 General operation

In the software general operation, there are seven (7) types of roles:

- Group managers: they are responsible for administrative management of an information collection, validation, transmission, sharing and publication entity.
- Module managers: they are responsible for input module management.
- Report, graph and map managers: they are responsible for report, graph and map management.
- Authenticated users: they view available information from a collection, validation and transmission entity, as well as information shared by a collection, validation and transmission entity. This is their default role.
- Translators: they are responsible for the translation of the software (words dictionary).
- Reference data managers: they are in charge of managing reference data.
- User supports: they are responsible for providing user assistance.

## 1.3 Administration

For the software administration, there are two (2) types of roles:

- Administrators: they are responsible for the general administration of the software.
- Super administrators: they are the only ones authorized to access and use critical functions of the software.

## 2. PROJECT DEFINITIONS AND CONCEPTS

### 2.1. Definitions

#### 2.1.1. User account

The user account is the basic element that allows access to the software depending on his role. A user can have several roles.

#### 2.1.2. Dashboard

The dashboard is a collection of information specific to a role. It includes, among other things, all notifications, reports, graphs, maps and statistical information.

#### 2.1.3. Group

A group is a grouping entity in which user accounts, modules, reports, graphs and maps are grouped.

#### 2.1.4. Collection of modules

A collection of modules is a grouping of several modules by themes.

#### 2.1.5. Module

A module is a data collection entity.

#### 2.1.6. Report

A report is a table containing information entered into one module or several modules. Only validated information will appear in reports.

#### 2.1.7. Graph

A graph is a graphic illustration of information entered into one module or several modules. Only validated information can be used to generate graphs.

#### **2.1.8. Map**

A map shows a geographical distribution of information entered in one module or several modules. Only validated information can be used to generate maps.

#### **2.1.9. Visibility**

Visibility makes it possible to see, access and use a module, a report, a graph and a map for a user, a user's group and/or a user's group and all its sub-groups.

#### **2.1.10. Reference table**

A reference table contains reference data. Reference data is data recorded in the software in order to be used as many times as necessary.

A reference table may be linked to another reference table for purposes of creating a link, which will help filter reference data.

#### **2.1.11. Administrative division**

An administrative division is an administrative geographically identified entity that is officially recognized by the State. It is considered as linked reference data.

#### **2.1.12. Administrative collection**

An administrative collection refers to an organizational entity which is recognized by users of the software. It can be made up of 2 or more administrative divisions.

### **3. FUNCTIONAL REQUIREMENT STATEMENT**

The functional requirements described in this chapter represent functions and their performance criteria which should be addressed by the software in order to meet user needs. Functions are divided into two categories:

- Main functions (MF), which are characterized by the main business tasks to be accomplished by different roles recognized by the software. These will be refined later.
- System functions (SF), which are characterized by software responses to the user depending on his role. At this level, the provider is strongly requested to improve the software beyond what is required.

Three priority levels are also defined:

- High = 1
- Normal = 2
- Low = 3

#### **3.1. Interoperability Requirements**

The software must be able to provide usable data to a client component of a content management system in order to feed their own database.

The use of the content management system aims to use its full power of presentation and formatting in order to present in it data from the software.

ID	Description	Performance Criteria	Priority
MF01	Select module records made publicly available by publishers for the server component.	Choose specific records or all records of a module. <ul style="list-style-type: none"> <li>Filter by administrative division group labeled Cluster (Karamoja and Mandera)</li> <li>Restrict the access of records depending to the client (client component of web portal of Android or external website) and also based on administrative division group labeled Cluster and administrative collection</li> </ul>	1

### 3.1.1. Server component of web portal

This server component will avail to the client component data contained in modules, by using web services.

ID	Description	Performance Criteria	Priority
		group labelled REC	
MF02	Sort modules.	By alphabetical order and by collection.	1

### 3.1.2. Client component of web portal

The client component will consume data provided by the server component, using web services.

ID	Description	Performance Criteria	Priority
MF03	Save module records provided by the server component.	Choose specific records or all records in the module.	1

In order not to make the content management system completely dependent on the sustainability of the link between the two components, data retrieved by the client will be stored in the content management system database.

### 3.1.3. Native importer

A native importer allows implementation of an offline data entry form based on downloadable module templates in ODF and CSV formats. These templates are workbooks in which data is entered before being imported into the corresponding module.

### 3.1.4. XLSForm importer

The XLSForm importer allows importing into the software data stored in workbooks from other software supporting the standard XLSForm format. Import will be done into the target module. This XLSForm importer will open the software to the XLSForm format.

### 3.1.5. OIE exporter

The OIE exporter allows exporting module data to the OIE (World Animal Health Organisation) through the World Animal Health Information System in the required format of WAHIS Database, WAHID (World Animal Health Information Database).

### 3.1.6. Native exporter

The native exporter allows exporting module data to ODF and CSV formats. These workbooks may be imported by the native importer.

### 3.2. Role Communication Requirements

Internal and instant electronic mail systems should allow communication between user accounts, and be accessible at any time.

ID	Description	Performance Criteria	Priority
MF04	Send messages	<ul style="list-style-type: none"> <li>To multiple user accounts in To and CC (Showing membership to the administrative division group labelled Cluster or to the administrative collection group labelled REC).</li> <li>Possibility to transfer messages to the user's external mail box.</li> </ul>	1
MF05	Send instant messages	<ul style="list-style-type: none"> <li>Between 2, or creation of a chat room (display of membership to administrative division group labelled Cluster or administrative collection group labelled Regional economic community).</li> </ul>	1

### 3.3. Role Notification Requirements

The notification system will enable users to be informed of expected actions specific to each role. Notifications will appear on the dashboard of each role. Users can choose which notifications will appear on their dashboards.

Below are common functions:

ID	Description	Performance Criteria	Priority
SF01	Transfer notifications to the user account external mail address.	<ul style="list-style-type: none"> <li>Grouping of messages by number, by period (week, month) based on roles assigned to the user account.</li> <li>Prioritized mailing of notifications.</li> <li>Selection of user accounts to receive module alert notifications.</li> </ul>	1
SF02	Select notifications to be displayed on the dashboard.		1

### 3.4. Role Statistical Requirements

Statistics provide an overview based on roles. They are displayed on the dashboard. Users may choose which statistics will appear on their dashboards.

### 3.5. Functional Requirements By Role

Module accessibility for different roles depends on the access level associated with the module and the user account, as well as the module visibility level.

The functions of record sorting, filtering and searching will be implemented for all roles. The change function will be associated with the Add or Create function. The functions of record sorting, filtering and searching will also be applied for internet surfers having public access by default.

### 3.6.1. Input operators

ID	Description	Performance Criteria	Priority
MF06	Input information into the module	<ul style="list-style-type: none"> <li>• Saving of information currently being entered.</li> <li>• Automatic saving of information being entered in case of automatic log-off by the software.</li> <li>• Overview of record at the end of data entry.</li> </ul>	1
MF07	Download the module template in the form of a worksheet file	ODF and CSV Formats	1
MF08	Import data entered into the worksheet file depending on the module	Import progress indicator. Resumption of import after interruption. <ul style="list-style-type: none"> <li>• Status of import, number of successes and number of failures.</li> </ul>	1
MF09	Download worksheet file with unsuccessfully imported data	<ul style="list-style-type: none"> <li>• Indicator for cells containing errors showing the error committed</li> </ul>	2
MF10	Download the worksheet file with successfully imported data		2
MF11	Correct draft or invalidated records	Link a comment to a corrected record	1
MF12	Delete draft, invalidated, validated but not yet transmitted records	Single or batch deletion Cancellation of the last deletion action Entering the reason of cancellation	1
MF13	Request unlocking	Link a comment to the relevant record	1
MF14	Send a support request	Message sent to user support role	1
SF03	Display input delay notifications on the dashboard	The module clickable name by collection The number of records per module	2
SF04	Display correction notifications on the dashboard	The module clickable name by collection The number of records to be corrected	2
SF05	Display statistics on entered records on the dashboard	<ul style="list-style-type: none"> <li>• By module collection, by module and by frequency</li> </ul>	3

### 3.6.2. Validators

ID	Description	Performance Criteria	Priority
MF15	Validate draft or corrected records	Single or batch validation	1
MF16	Invalidate draft or corrected records	Link a comment to the invalidated record	1
MF17	Send a support request	Message sent to user support role	1
SF06	Display pending validation notifications on the dashboard	.Module clickable name by collection Number of records expected by module	2
SF07	Display pending correction notifications on the dashboard	.Module clickable name by collection Number of records per module	2
SF08	Display draft, validated, corrected and invalidated statistics and records on the dashboard	<ul style="list-style-type: none"> <li>• By collection of modules, by module, by frequency and by subgroups</li> </ul>	3

### 3.6.3. Transmitters

ID	Description	Performance Criteria	Priority
MF18	Transmit validated records	Choice of parent group(s)	1
MF19	Send a support request	Message sent to user support role	1
SF09	Display pending transmission notifications on the dashboard	Module clickable name by collection Number of records per module	2
SF10	Display statistics on transmitted and non-transmitted records on the dashboard	.By collection of modules, by module, by frequency, by sub-group and by parent group	3

### 3.6.4. Publishers

ID	Description	Performance Criteria	Priority
MF20	Publish records validated on the cluster group's homepage	Single or batch publication By granularity	1
MF21	Publish reports, graphs and maps on the cluster group's home page	Single or batch publication By granularity Exclusion of record(s)	1
MF22	Withdraw reports, graphs and maps from the cluster group's homepage	Single or batch withdrawal	1
MF23	Withdraw records published on the cluster group's homepage	Single or batch withdrawal	1
MF24	Send a support request	Message sent to user support role	1
SF11	Display pending publication notifications on the dashboard	Module clickable name by collection Number of records per module Single or batch deletion of notifications	2
SF12	Display statistics on published and unpublished records on the dashboard	<ul style="list-style-type: none"> <li>By collection of modules, by module, by frequency, by sub-group and by parent group</li> </ul>	3

### 3.6.5. Sharers

ID	Description	Performance Criteria	Priority
MF25	Share validated records	<ul style="list-style-type: none"> <li>Choice of group or groups with the same hierarchy level and the same parent group</li> </ul>	1
MF26	Share reports, graphs and maps	<ul style="list-style-type: none"> <li>Choice of group or groups with the same hierarchy level and the same parent group</li> </ul>	2
MF27	Withdraw reports, graphs and maps	Single or batch withdrawal	2
MF28	Withdraw shared records	Single or batch withdrawal	1
MF29	Send a support request	Message sent to user support role	1
SF13	Display on the dashboard pending sharing notifications	Module clickable name by collection Number of records per module ~Single or batch deletion of notifications	2
ID	Description	Performance Criteria	Priority
SF14	Display statistics on shared and non-shared records on the dashboard	<ul style="list-style-type: none"> <li>By collection of modules, by module, by frequency, by group</li> <li>Groups with the same hierarchy level and the same parent group</li> </ul>	3

### 3.6.6. Locks manager

ID	Description	Performance Criteria	Priority
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MF30	Unlock a record	Link a comment to the relevant record	1
MF31	Lock a record		1
MF32	Send a support request	Message sent to user support role	1
SF15	Display pending unlocking notifications on the dashboard	.Module clickable name Number of records per module ~Single or batch deletion of notifications	2
SF16	Display statistics of locked and unlocked records on the dashboard	<ul style="list-style-type: none"> <li>By collection of modules, by module, by frequency, by sub-group and by parent group</li> </ul>	3

### 3.6.7. Group Managers

ID	Description	Performance Criteria	Priority
MF33	Create a subgroup	Group banner Selection of type of group Assign an administrative division	1
MF34	Delete a subgroup	Single or batch deletion	1
MF35	Customize a group's home page		1
MF36	Customize a groups banner		1
MF37	Create an user account	<ul style="list-style-type: none"> <li>User account linked to group or first level of sub-groups of the group manager</li> <li>Assigning of one or several roles</li> <li>Password generated and sent to the user's external mail box</li> <li>Creation of an internal mail box and of an instant mail account</li> </ul>	1
MF38	Delete an user account	<ul style="list-style-type: none"> <li>Message sent to the user's external mail box</li> <li>User account physically deleted when no activity on a record has been traced by the software</li> <li>Cancellation of the last deletion action</li> </ul>	1
MF39	Reset an user password		1
MF40	Suspend an user account	Single or batch suspension <ul style="list-style-type: none"> <li>Message sent to the user's external mail box</li> </ul>	1



ID	Description	Performance Criteria	Priority
MF41	Assign several groups to a user account	<ul style="list-style-type: none"> <li>Only the first level of subgroups under the group manager</li> </ul>	1
MF42	Assign one or several access levels to a user account		1
MF43	Create reference data of administrative division type		1
MF44	Delete reference data of administrative division type	Single or batch deletion Cancellation of the last deletion action	1
MF45	Send a support request	Message sent to user support role	1
SF17	Display user account creation notifications of the parent group manager	The user account clickable name	1
SF18	Display the trace of activities of the user account created by the parent group manager	<ul style="list-style-type: none"> <li>Available for administrative division groups labeled Cluster and for administrative collection groups labeled REC</li> </ul>	1
SF19	Display statistics on user accounts created, suspended and deleted on the dashboard	By sub-group and by group <ul style="list-style-type: none"> <li>Highlighting user accounts created by the parent group manager</li> </ul>	3

### 3.6.8. Module managers

The creation of modules in data collection will be based on the XLSForm standard.

ID	Description	Performance Criteria	Priority
MF46	Create a module	<ul style="list-style-type: none"> <li>Creation of a help page for module use (complete edition with inserted images)</li> </ul> Selection of data input frequency Field Descriptions	1
MF47	Create a module alert notification	<ul style="list-style-type: none"> <li>Simple expression of parameterization depending on a record's fields</li> </ul>	1
MF48	Delete a module alert notification		1
MF49	Delete a module	Single or batch deletion Cancellation of the last deletion action	1
MF50	Send a support request	Message sent to user support role <ul style="list-style-type: none"> <li>Message sent to the user's external mail box</li> </ul>	1
SF20	Display module statistics on the dashboard	By collection of modules <ul style="list-style-type: none"> <li>Number of records per module and per frequency</li> </ul>	2

### 3.6.9. Report, graph and map managers

ID	Description	Performance Criteria	Priority
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MF51	Create a report, a graph and a map	<ul style="list-style-type: none"> <li>• Selection of data from one or several modules</li> </ul> Selection of several sets of data Selection of period (between, from, until) <ul style="list-style-type: none"> <li>• Filter on sets of data (selection of groups and sub-groups, selection of administrative</li> </ul>	1
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ID	Description	Performance Criteria	Priority
		divisions)	
MF52	Delete a report, a graph and a map	Cancellation of the last deletion action	1
MF53	Customize a report	Header and footer Addition of a label Addition of an image Re-arrangement of dashboard items <ul style="list-style-type: none"> <li>• Conditional formatting (definition of background colour )</li> <li>• Automatic generation of tables per month and per year</li> </ul>	1
MF54	Customize a graph	Header and footer Addition of a label Addition of an image <ul style="list-style-type: none"> <li>• Type of graphs and their variants (histograms, curves, pie charts, bars, areas, point clouds, surface, rings, balloons, radar)</li> </ul> Grid at background Combine several types of graphs <ul style="list-style-type: none"> <li>• Automatic generation of graphs per month, per year and per group</li> </ul>	1

MF55	Customize a map	Header and footer Addition of a label Addition of an image <ul style="list-style-type: none"> <li>Types of data representation: point, line, polygon.</li> <li>Clickable point and polygon for specific data display</li> </ul> Choice of colours <ul style="list-style-type: none"> <li>Management of polygons' colour based on population density or data value</li> <li>Management of point size, based on population density or data value</li> <li>Automatic generation of maps per month and per year</li> <li>Type of maps (by cluster, map of Africa, map of the world): point map or shaded map</li> </ul>	1
MF56	Assign one or several access levels to a report, a graph and a map		1
MF57	Assign a visibility level to a report, a graph and a map		1
MF58	Send a support request	Message sent to user support role	1
SF21	Display statistics on reports, graphs and maps on the dashboard	By collection of modules, by module	3

### 3.6.10. Authenticated users

ID	Description	Performance Criteria	Priority
MF59	Log in	<ul style="list-style-type: none"> <li>Logged in, based on the main group of the user account</li> <li>Address based on the domain name of the main group labelled Cluster, REC or the base group of the user account used for logging in</li> </ul>	1
MF60	Check module records	Validated records	1
MF61	Check reports, graphs and maps	Validated records Make them available on the dashboard	1
MF62	Export a report, a graph and a map	PNG and PDF Formats	1
MF63	Print a report, a graph and a map		1
MF64	Change profile	Profile data Default language E-mail address Change of main group	1

MF65	Reset password	Confirmation of new password	1
MF66	Log out	Manual	1
MF67	Export modules records	ODF and CSV Formats <ul style="list-style-type: none"> <li>Filter by record's fields, date, period and group</li> </ul>	1
SF22	Automatically log the user out	After a parameterizable time of inactivity	1
SF23	Display on dashboard statistics on validated records	<ul style="list-style-type: none"> <li>By module, by frequency, by group and by sub-group</li> </ul>	3

### 3.6.11. Translators

ID	Description	Performance Criteria	Priority
MF68	Create a language	Choice of writing orientation and character	1
MF69	Delete a language	Single deletion <ul style="list-style-type: none"> <li>Deletion of all words belonging to the language</li> </ul> Cancellation of the last deletion action	1
MF70	Add a translated term	Choice of language	1
MF71	Delete the translated term	Single or batch deletion Cancellation of the last deletion action	
MF72	Download the translatable section in the form of a worksheet file	ODF and CSV Formats <ul style="list-style-type: none"> <li>With terms to be translated and terms already translated filterable</li> </ul>	1
MF73	Import terms entered into a worksheet file based on the translatable section	Import progress indicator Resumption of import after interruption <ul style="list-style-type: none"> <li>Status of import : number of successes and of failures</li> </ul>	1
MF74	Download worksheet file with unsuccessfully imported terms		1
ID	Description	Performance Criteria	Priority
MF75	Download worksheet file with successfully imported		2
MF76	Send a support request	Message sent to user support role	1
SF24	Display statistics on translated words and those yet to be translated on the dashboard	<ul style="list-style-type: none"> <li>By module, by reference data table, by report, by graph, by map, interface, system messages and notifications sent by the system</li> </ul>	2

### 3.6.12. Reference data managers

ID	Description	Performance Criteria	Priority
MF77	Create a reference table		1
MF78	Link reference tables		1
MF79	Delete a reference table	Individual deletion Deletion of all values in the reference table Cancellation of the last deletion action	1
MF80	Create a reference data		1
MF81	Delete a reference data	Individual or batch deletion	1

		Cancellation of the last deletion action	
MF82	Download reference table template in the form of a worksheet file	ODF and Formats With reference data	1
MF83	Import terms entered in worksheet files depending on reference table	Import progress indicator Resumption of import after interruption • Import status: number of successes and number of failures	1
MF84	Download worksheet files with unsuccessfully imported reference data	Indicator of cells with errors	1
MF85	Download worksheet files with successfully imported reference data		2
MF86	Send a support request	Message sent to user support role	1
SF25	Display reference data statistics on the dashboard	By reference table	2

### 3.6.13. User supports

ID	Description	Performance Criteria	Priority
MF87	View user accounts	By group and sub-group By status of user account	1
MF88	Reset the password for a user account	• Password generated and sent to the user's external mail box	1
MF89	Create a question on the FAQ	By category	3
MF90	Create an answer at a question on the FAQ		3
SF26	Display user support request notifications	By group and sub-group	2
SF27	Display statistics on user support requests	By group and sub-group By year	2

### 3.6.14. Internet surfers

Internet surfers have the possibility to subscribe through the list of modules so that they may receive, in their respective mail boxes, notifications on new information made publicly available.

ID	Description	Performance Criteria	Priority
MF91	Download publicly available information	ODF, CSV, PDF formats (for reports) PNG format (for graphs and maps)	1
SF28	Receive notifications on new information publicly made available.	Through E-mail <ul style="list-style-type: none"><li>Grouping by frequency, by module, by group, by administrative collection or administrative division</li></ul>	1

### 3.6.15. Administrators

Administrators may perform the same actions as all roles except the super administrator role, while observing the group and visibility restriction.

In addition, they may administer the software import and export tools.

### 3.6.16. Super administrators

Super administrators may perform the same actions as administrators. They may reset the software.

This resetting has 2 levels:

- Normal resetting level. It allows resetting the software while deleting only records contained in modules. Possibility of selecting which module to reset.
- Advanced resetting level. It allows resetting the software to its initial status.

Super administrators may also save and fully restore the software including files and the database. Savings may be automatic or manual.

## 4. NON-FUNCTIONAL REQUIREMENTS

### 4.1. Cultural, Political And Security Requirements

The software should be entirely multilingual (interface, modules, reports, reference data, etc.) and take into account the right-to-left writing system. It should also support special characters specific to languages such as Portuguese, French or Arabic. Note that Arabic writing text direction is right to left while figures direction is left to right.

As much as possible, preferences will be expressed on technologies, languages, components, software tools, free and open formats.

To ensure a certain level of confidentiality required for member countries, data which is available in the database should not be directly searchable.

A system of parameterizable control of complex passwords will be implemented. The software should be robust in the face of classic attacks on websites.

Client-server communication safety should be ensured.

### 4.2. Technical Requirements

This solution will be based on web technologies in order to ultimately have a web application that can be used as a website.

To take into account available expertise and its connection with the content management system, and to ensure the software is maintained, the following technical requirements and latest versions should be met:

- Contents management system: Drupal
- Database : PostgreSQL 9.4.5 (64 bit) + PostGIS 2.1.7 (64 bit)
- HTML5
- Framework Bootstrap
- Framework PHP : Symphony2
- To the extent possible, any other language will be used from a Framework.

To generate graphs and maps, highcharts may be used as a reference point with a similar level of parameterization.

Optionally, a mapping service will be installed locally, with the possibility to update maps, in order to ensure rapid service that is less dependent on fluctuating internet connection.

Any change in the technical preferences above must be duly justified.

#### **4.3. Installation And Portability Requirements**

The software installation must be automated.

The software must be portable in both Windows, IOS and Linux environments.

#### **4.4. Software Update And Hardware Changeover Requirements**

The software should support software upgrades for its main components, especially during the application of security patches.

The migration of the software to a server complying with the minimum specifications should be simplified and even automated.

#### **4.5. Quality Requirements**

The software must comply with the ISO / IEC 25000: 2014, or any other norm or standard quality. In general, this can be an advantage.

#### **4.6. User Interface Requirements**

The user interface should prioritize 2 main categories of requirements, namely:

- Affordance (for example, elements which require interaction with the user or which are actionable should be readily apparent.)
  - Web ergonomics (it will include responsive design management in order to be useable on any screen size (mobile, tablet, monitor) while complying with recognized basic ergonomic rules)

Colour codes already mentioned in these specifications must be observed regarding different statuses of information.

The background must be of a light or white colour in order to make the contents and other colour codes stand out.

Given that the software will be used by Member States and Regional economic communities, the work space should be customizable by a graphic identity such as a flag or an emblem. The group banner can be used for this purpose.

Each role will have its own dashboard showing:

- Work to be done (information comes from frequently used modules, records to be validated, to be corrected and to be transmitted)
  - Ongoing work (uncompleted entries, creations of modules, reports, graphs and maps)

Therefore, a graphic charter needs to be defined and observed.

It is to be noted that rapid keyboard entry should be facilitated, with no use of the mouse for input forms.

The use of touch screens should also be taken into account.

#### **4.7. Usability Requirements**

The learning of roles by users should require at most:

- A basic level of practical use of the software tool and a spreadsheet
  - An intermediate level of practical use of a navigator associated with classic interactions of a dynamic website.

In general, it should be noted that users are professionals of the animal resource sector, whose practical knowledge of computing ranges from low to moderate for most of them. Trainings on roles should not exceed:

- 24 hours for input operators, validators, transmitters, publishers, sharers, locks manager, authenticated users, translators and reference data managers.
- 16 hours for group managers, module managers, and report, graph and map managers.
- 8 hours for administrators.

#### **4.8. Performance Requirements**

##### **4.8.1. Connectivity**

For data collection, the software should be able to support:

- At least 2,000 simultaneous connections on average, with a connection peak at 6,000.
- At least 250,000 user accounts created

The software should be usable at a low throughput of about 33.6 kbps downstream.

Frequent Internet disconnections must be taken into account in order not to lose work being done.

##### **4.8.2. Volumetry**

The software should support:

- 250,000 records per year with a 10% growth rate.

##### **4.8.3. Page load time**

The software should support compression of pages before their being forwarded to the client, taking into account the fact that pages may contain images, sound and videos. Page processing performance should not be much significant despite the use of an encryption solution to ensure confidentiality of data exchanged between the client and the server.



The full loading of pages at each request should be limited to maximum. Priority should be given to partial loading of pages in order to reduce the time required for the navigator to display the page.

The maximum time for displaying a page shall not be beyond 6 seconds.

#### **4.8.4. Availability**

The minimum availability rate is 75%.

#### **4.8.5. Verification of record entry**

To lighten the load on the server side, part of the verification will be done on the client side during record entry.

#### **4.9. Traceability And Audit Requirements**

A trace of activities on each user account's records should be recorded by the software, including connections and attempted connections to user accounts.

Creations, modifications and deletions of modules, collections of modules, reports, graphs, maps, groups, translations and reference data shall also be traced.

The whole trace of activities should only be searchable by the super administrator role.

#### **4.10. Legal requirements**

The provider has the duty to provide guidance. They must know and evaluate thoroughly the needs herein expressed as well as implied but not expressed needs.

**Under the contract, he shall be held to an obligation of performance and delivery later on.**

#### **4.11. Duties and Responsibilities**

The Consultant / firm will be in-charge of:

- developing an android-based digital platform for providing information on estimated weight and prices of livestock to potential buyers, and for buyers to specify their required specifications and quantities to potential sellers.
- supporting the launch and test for several supply chains.

#### **4.12. Expected output**

1. Inception report - Scope of work report accepted by ICPALD
2. Tailored training manual on the subject matter submitted to ICPALD
3. Training report
4. E-Platform application

#### **5. Qualifications, Experience, and Competencies**

- College degree in Computer Science, Business IT, communication, public relations, or marketing.
- Must have been working with Software Development (Android Based) for at least three years.
- Evidence of successfully completing Android Software development required.
- Must have a team member who is fluent in written and spoken English language.
- Must have valid travel documents.

## 6. Duration

The Consultancy will be for a total of twenty-five (25) man-days spread over a period of three months

## 7. Payment terms

The applicable daily rate will be dependent on the qualifications and experience of the appointed consultant. The consultant will be responsible for all government taxes and levies arising from this assignment.

Output/ activity completed	Payment in percent of the contract amount	Estimated date of completion
Signing of contract and inception report	20%	Inception report within 3 days of signing the contract
Initial coding and testing when accepted	40%	Within 12 days of signing the contract
A final report including Android software testing and commissioning workshop proceeding	40%	Within 10 days after receiving comment on coding and testing.

## 8. Travel outside duty station

Air tickets and Daily Subsistence Allowance (DSA) will be covered for field work upon approval of travel schedules.

## 9. Taxes

The consultant will be responsible for remitting their own taxes.

## 10. Insurance Cover

The consultant will be responsible for their own travel, medical and life insurance cover/s for the duration of the assignment.

## 11. How to Apply

Interested candidates should submit their applications accompanied by a detailed CV, copies of both academic and professional certificates and their interest and ability to undertake this assignment to [beverlyne.nyanchera@igad.int](mailto:beverlyne.nyanchera@igad.int); and [procurement@igad.int](mailto:procurement@igad.int)

All applications should be received not later than **17<sup>th</sup> of August, 2022 at 1600hrs (EAT)**

**IGAD will respond only to the shortlisted candidates.**