MILLENNIUM CHALLENGE ACCOUNT-MONGOLIA

ADDENDUM No. 2 to the RFQ No. MCA-M/Proc/109

October 20, 2025

Name of the Procurement: Supply of Asset Management Computerized Maintenance Management System and Related Services
Procurement Reference Number: MCA-M/Proc/109
Request for Quotations Date: October 2, 2025

SECTION	ORIGINAL TEXT	AMENDED AND SHOULD BE READ AS FOLLOWS
Attachment #6 **"Contract Terms and Conditions"** **Clause 11- Payment**	11.1 Payment of the Contract Price shall be made in the following manner: One hundred (100%) percent of the amount of the Contract (VAT exclusive) will be paid after acceptance by MCA-Mongolia of all goods, by bank transfer within thirty (30) days. The supplier must submit to the MCA-Mongolia the original of its valid invoice with the supporting documents for the payment to be proceeded. The following documents should be submitted to proceed the payment: (i) Supplier's invoice (One original and two copies) indicating the Purchase Order number and the total amount to be paid; (ii) Goods receipt note counter signed by the authorized official of both Parties. (iii) Warranty Certificate for all goods valid for 12 months.	11.1 Payment of the Contract Price shall be made in the following manner: i. **On Delivery and Acceptance of Goods**: Seventy (70) percent of the Contract Price shall be paid within thirty (30) days of receipt and acceptance of the Goods. This amount shall be pro-rated for each delivery and acceptance, up to a cumulative total of seventy (70) percent of the Contract Price. ii. **On Installation of Goods and Acceptance of Data Integration; Training and Testing; Interfaces and Handover:** Thirty (30) percent of the Contract Price shall be paid within thirty (30) days of installation of the Goods and acceptance of Data Integration; Training and Testing; Interfaces; and Handover, upon submission of a claim supported by the Acceptance Certificate issued by the Purchaser. The supplier must submit to the MCA-Mongolia the original of its valid invoice with the supporting documents for the payment to be processed. The following documents should be submitted to process the payment:

		i. Supplier's invoice (One original and two copies) indicating the Purchase Order number and the total amount to be paid; ii. Goods/Sevices receipt note counter signed by the authorized official of both Parties. **iii.** Warranty Certificate for all goods valid for 12 months.
Attachment #3 **TECHNICAL SPECIFICATIONS**	Attachment 3 "Technical Specifications" of the RFQ is hereby deleted in its entirety and replaced with the revised Attachment 3 "Technical Specifications," attached hereto as Appendix A to this ADDENDUM No. 1 to RFQ No. MCA-M/Proc/109. Modifications made to the "Technical Specifications" are highlighted in blue for ease of reference.	

This Addendum No2 is an integral part of the RFQ No. MCA-M/Proc/109 and shall be considered during the preparation of the Quotations.

Appendix A

Modified Attachment3

TECHNICAL SPECIFICATIONS

Supply of Asset Management Computerized Maintenance Management System and Related Services

TABLE OF CONTENTS

LIST OF TABLES & FIGURES

ACRONYMS

ATEX	**At**mosphères **Ex**plosibles(Explosive Atmospheres)
BOM	**B**ill of **M**aterials
CMMS	**C**omputerized **M**aintenance **M**anagement **S**ystem
DEV	**Dev**elopment (environment)
ERP	**E**nterprise **R**esource **P**lanning
FA	**F**ixed **A**sset
GIS	**G**eographic **I**nformation **S**ystem
GL	**G**eneral **L**edger
LOTO	**L**ock **O**ut **T**ag **O**ut
HR	**H**uman **R**esources
IT dep.	**I**nformation **T**echnology department
KPI	**K**ey **P**erformance **I**ndicator
MMS	**M**aintenance **M**anagement **S**ystem
O&M	**O**peration &**M**aintenance
PRD	**Prod**uction (environment)
PM	**P**reventive **M**aintenance
QR Code	**Q**uick **R**esponse code
SCADA	**S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition
TRN	**Tra**i**n**ing (environment)
USUG	Water Supply and Sewerage Authority of Ulaanbaatar City
WO	**W**ork **O**rder

1 INTRODUCTION

1.1 DOCUMENT PURPOSE

The purpose of this document is to specify the minimum general technical requirements of the Computerized Maintenance Management System (CMMS) to be procured for Water Supply and Sewerage Authority of Ulaanbaatar City (USUG). These requirements specify the purpose, architecture and functionality of the CMMS covering:

- Technical Specification;
- Asset Management: inventories, location, type;
- Maintenance management: corrective or preventive, work order planning;
- Management of safety before and during maintenance works;
- Supply management: suppliers, shops, minimum or maximum supply;
- Key Performances Indicators.

1.2 CONTEXT

The Water Supply and Sewerage Authority of Ulaanbaatar City (USUG) is responsible for producing drinking water, supplying bulk water, and treating wastewater for the entire urban area of Ulaanbaatar.

A CMMS is an essential tool for managing and controlling the maintenance operations that are responsible for maintaining assets. The overall goal of establishing a CMMS is to make it easier to maintain equipment and facilities in working order, so that they are capable at all times of meeting their design specifications in an efficient and cost-effective manner for USUG, ensuring compliance with drinking water quality standards and with wastewater effluent discharge into the environment, allowing to maximize asset lifespan.

The CMMS should help manage maintenance on vertical assets (plants, pumping stations, kiosks), linear assets (pipelines and associated network equipment), and vehicles. Importantly, the CMMS needs to be built around asset management processes and fit in with the existing information system landscape as explained in the following diagram.

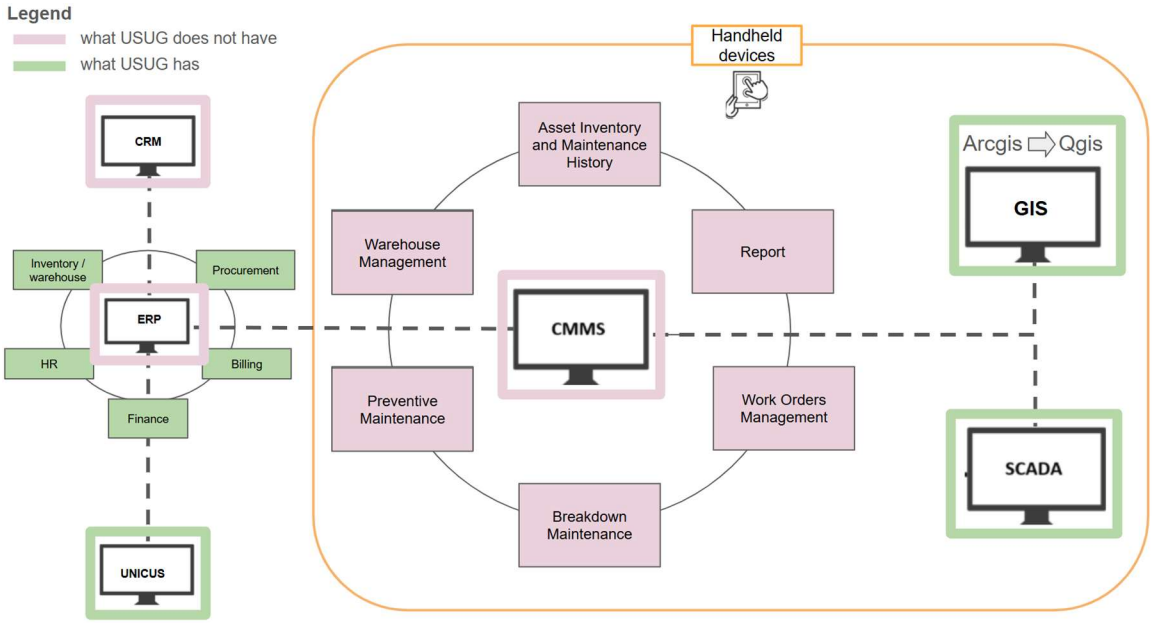

Figure 1*: USUG System Landscape*

The main CMMS functions are:

- Asset Management: inventories, location, type of equipment, value;
- Maintenance management : corrective and preventive work orders, preventive maintenance plan, scheduling;
- Management of safety before and during maintenance works;
- Spare Part management: suppliers, shops, minimum and maximum stock;
- Manage purchasing for work on assets or spare parts;
- Follow Key Performance Indicators (KPIs) by extracting on a table the maintenance activities or generating some automatic report.

A key success factor for the CMMS implementation will be to consult and involve the end users at each stage of the tool selection and deployment.

1.3 LANGUAGE

The project activities will be conducted primarily inMongolian. English can be accepted with a translator.English materials may be used, but must be supported with Mongolian translation.User manuals, training materials, and documentation must be provided in Mongolian.

All documents submitted for this project shall be written in the project language as defined above.

2 FUNCTIONAL REQUIREMENTS

The following sections detail the core functional requirements of the CMMS system, covering asset management, work order management, inventory control, and reporting capabilities.

2.1 ASSET MANAGEMENT

The CMMS should provide the following core functionalities to support USUG's asset management:

- Recording every equipment, specifications, value and commissioning date lifetime and warranty
- Identifying asset location and function
- Identifying asset value and characteristics
- Hierarchical asset structure with several dimensions (geographical and functional)
    - Each element within this tree structure shall be identified through a unique number and each equipment should have a tag, based on a codification to be confirmed during the implementation of the CMMS.
- Asset criticality tracking (minimum 4 criteria plus global rating, 4 levels) with tracking date of modification and by whom
- Asset condition monitoring (minimum 4 levels, 5 recommended) with tracking date of modification and by whom
- Asset owner assignment
- Bill of Materials (BOM) management
- QR code scanning and generation
- Technical documentation attachment

USUG will provide an excel database with the information to be uploaded. It will include the following information:

- Site
- System Name
- Subsystem Name
- Asset tag
- Equipment Description
- Asset Parent tag
- Equipment Location
- Asset Type: Type of the equipment (pump, fan, valve, etc.)
- Supplier of the equipment
- Manufacturer of the equipment, if relevant / available
- Model: Reference of the equipment, if relevant / available

- Serial Number of the equipment, if relevant / available
- Criticality: this will be filled out if relevant
- Condition: this will be filled out if relevant

2.2 MAINTENANCE WORK ORDER MANAGEMENT

The maintenance work management functions will reflect the work order flow of USUG and will include the following possibilities:

- Core Work Order Management Features:
    - Work request creation and tracking
    - Breakdown work order creation by different staff members operational team
    - Work preparation by maintenance supervisors
    - The priority of the work should be automatically defined by criticality of the concerned asset. Priority can be changed by authorized users.
    - Mobile work order management
        - Ability to add photos
        - Ability to access dedicated technical documentation and instructions
        - Declaring comments on assets
    - Status tracking with date of modification and reporting
    - Automated notifications and approvals
    - Automated work order generation for predictive and preventive maintenance
- Maintenance Activity Recording:
    - Document preventive and corrective maintenance
    - Track breakdowns, duration, costs, and evolution
    - Record labor time per work order
    - Enter feedback via codes and manual input
    - Generate completion and progress reports
    - Enter Predictive maintenance check (Vibration, Noise, Temperature, Wear and Tear)
    - Enter Preventive maintenance plan by asset for automatic preventive works
- Integration Features:
    - Safety documentation integration
    - Permit to Work - Lock Out Tag out (LOTO) process, hot point welding etc.
    - Parts reservation system

- Technical warehouse connectivity
- Spare parts linking to work orders
- Link technical warehouse articles to individual tag numbers

The CMMS system must be set-up in such a way that difference is made between:

- Routine Preventive Maintenance:

  Multiple routine activities to be grouped in different clusters. Each cluster should be linked to 1 activity package. The system will create a unique work order for each of such packages, according to a predefined periodicity.

  A package can be a weekly lubrication tour, or a monthly inspection round, or a yearly shutdown related package of small activities, or periodic statutory controls, etc.

  It also includes predictive maintenance using infra-red camera for electrical cabinets, vibration measurement for major pumps, centrifuges, etc

- Periodic Main Equipment Maintenance:

  Periodic maintenance programs related to individual tag numbers. It concerns only main equipment for which in most cases service contracts will be applied. Eg Compressors, centrifuges, overhead cranes, standby generators, CHP etc.

- Recurrent Annual Maintenance:

  It is possible to define an Annual Maintenance Shutdown project. Each of these projects include multiple activities to be executed. Each activity will be linked to an individual equipment number which in turn will be linked to an individual work order.

  It is also possible to include “routine packages” (see above) as part of the Annual maintenance program.

- One-time Annual Maintenance:

  One time annual activities can be identified through the creation of one time work orders. Each of these work orders is linked to one tag number. The respective work order can be added to the respective annual shutdown project, this for planning and follow-up reasons.

USUG will deliver an excel file with preventive maintenance activities connected to the maintenance of of the functional locations as described in “Set-up of an asset structure”

It is expected that a large number of preventive maintenance activities will be defined and will have to be uploaded into the CMMS system.

2.3 WAREHOUSE INVENTORY MANAGEMENT

The warehouse management features will provide all required elements to operate a technical warehouse and will be interconnected with the features of the maintenance work and asset register management.

- Spare Part information - follow item amount, value, suppliers/vendors;
- Possibility to link photos of the spare part;
- Identification of individual warehouse locations to store defined warehouse article;
- Separate management for normal and emergency warehouses;
- Creation of new warehouse articles;
- Parts issue tracking - Issue of warehouse articles via reservation system generated from a work order (linked with the maintenance management features), as well as through direct collection with possibility to connect this respective issue to a work order number or to connect to a collecting cost center;
- Possibility to include a digital stock article identification system, usable to issue, order and/or receipt articles or to check and correct article data (for example issuing parts from stores using QR codes);
- Inventory reconciliation - possibility to define random checks of warehouse articles (stock control features) inclusive the possibility for stock correction;
- Mobile inventory transactions;
- Management of asset nomenclature (bill of material): spare parts linking to assets - Availability of a tree structure (classification structure) to which an article can be associated ;
- Stock level monitoring and reorder points;
- Presence of a search function to identify a stock article. The search function must also be possible by using the classification system, search on keywords, search on vendor;
- Reporting tool which includes stock value, value of issue of articles, value of articles receipt, ABC analyses, stock control report etc.

2.4 STOP HOURS REGISTRATION

Possibility to enter start and stop date/time during which the plant is subject to lowered output capacity or stopped.

Each of these registrations of event are recorded as individual records whereby it should be possible to add free explanatory text, a degree of (lowered) output capacity, and the associated work order number(s).

2.5 PURCHASE MANAGEMENT

Basic purchase management features must be included to allow the creation of purchase requests and purchase orders. The order process of warehouse articles should be in automatic mode based on order point and order quantity, or via manual action of the storekeeper.

A desirable feature would be the possibility to create purchase orders for direct supply of articles and/or services, including non-stock articles.

A purchase order can be created from:

- the technical warehouse management for (re-)supply of warehouse articles. In this case a specific GL account number will be used combined with the cost center of the warehouse. Both data will be entered automatically in the purchase order.
- Via a work order for the supply of a non warehouse article either external service. In this case a specific GL account number will be used combined with the cost center of the site/area. The GL account will be entered manually in the Purchase request/order, the cost center will be entered automatically as being the site/area.
- Direct action, this means a purchase order for a direct material or external service that is not linked to the warehouse or maintenance work management features. In this case, the GL account number and the cost center will be entered manually in the purchase request/order.

Possibility to close purchase requests and purchase orders upon:

- receipt of a stock article (the cost price will be used in the technical warehouse function to determine the stock value and the cost of issue of an article.
- Receipt of a non-stock article (the cost as set in the purchase order can be corrected manually if needed and will be linked to the cost of the respective work order).
- Confirmation of finalization of a purchased service (the cost as set in the purchase order can be corrected manually if needed and will be linked to the cost of the respective work order).

There will be NO link with a financial system.

2.6 REPORTING & ANALYTICS

The reporting system must deliver the following analytical capabilities:

General

- Configurable dashboard and KPI reporting
- Customizable reports with custom report creation capability
- Asset history tracking & reporting
- Work order completion tracking
- Monthly/yearly standard reports

Maintenance

- Standard maintenance performance reports
- Cost tracking and analysis based on clock-in/clock-out by individual maintenance staff, spare parts and consumables
- Reporting tool capabilities:
    - Pareto analyses based on total cost (labor, material, service) by:
        - Tag number/equipment number
        - Asset number or functional location
        - Group of tag numbers
        - Group of work orders
    - Individual cost type analysis
    - Executed maintenance activities per tag number with:
        - Short description (activity notification)
        - Full description (including work order feedback)
    - Other analysis by:
        - Workgroup/skillgroup
        - Type of activity
        - Type of work

Warehouse inventory and Purchasing

A simple reporting tool must be available to present:

- Warehouse inventory transactions and current stock
- Purchase request and order values (generated)
- Open purchase/request order values
- Closed purchase order values
- Report generation with:
    - Definable start-stop dates
    - Filtering by GL account and/or Cost Center

3 NON-FUNCTIONAL REQUIREMENTS

This section specifies the technical, security, usability, and performance requirements that the CMMS system must meet to ensure reliable and secure operation.

3.1 TECHNICAL

Standard off-the-shelf software

- The CMMS shall fulfill all requirements as a standard off-the-shelf product, to ensure long term reliability and maintainability at site.
- No custom development is accepted in this project.
- The CMMS features shall be configurable by an End User with corresponding credential (USUG)

Technical Requirements

The system must meet the following technical requirements and provide the listed capabilities:

- On-premise deployment.
- Multi-user system supporting up to 200 concurrent users. The pricing should include desktop and mobile licences with a minimum of 80 licenses
- Physical servers (provided by USUG) are needed that will host:
    - The application itself;
    - As all the plants will be fully automated, there is a high risk to IT security, which is why the Oracle database is preferred.
    - The database with one Test environment (DEV), one Training (TRN) and one Production environment (PRD);
    - The report generator.
- Mobile device compatibility for field work (Android/iOS).
- Integration capabilities with:
    - UNICUS (financial system) - for example scraping a code in CMMS should change its status in UNICUS;
    - QGIS (GIS mapping system) bi-directional functionality:
        - Clicking on an asset in GIS will open it in CMMS;
        - The reverse navigation from CMMS to GIS should also be supported.
    - Excel import/export
    - The interface with UNICUS and QGIS should use API data exchange

      (For QGIS interface, it will specify whether REST or GeoJSON or other middleware are preferable).

The exact mechanism for how the CMMS will integrate with UNICUS and QGIS should be explained.

The data exchange format and frequency between systems will be specified during implementation.

- Integration scenarios for UNICUS:

For now, we can consider 4 scenarios:

  - Acquisition
  - Transfer within USUG (e.g. to other site)
  - Mothball / idle
  - Disposal

- Data volume / asset counts in UNICUS:

A total of 50,000 assets is a reasonable estimate (there are 20,000 existing ones, plus approximately 30,000 estimated to be received).

GIS interface

- The CMMS shall provide an interface to allow GIS users to open relevant CMMS screens (for example equipment technical data sheet) directly from the GIS map (for example by clicking on the equipment on the map and opening a menu).

- Conversely, CMMS users can open the GIS map directly from relevant CMMS screens, ideally with integrated GIS map viewer in the CMMS user interface, zoomed on the related asset object. This enables the map to view technical details, Work Orders (ongoing, planned, historical), failure history, to create Work Requests or Work Orders.

The diagram below summarizes the current situation. As shown, there is no CMMS in place.

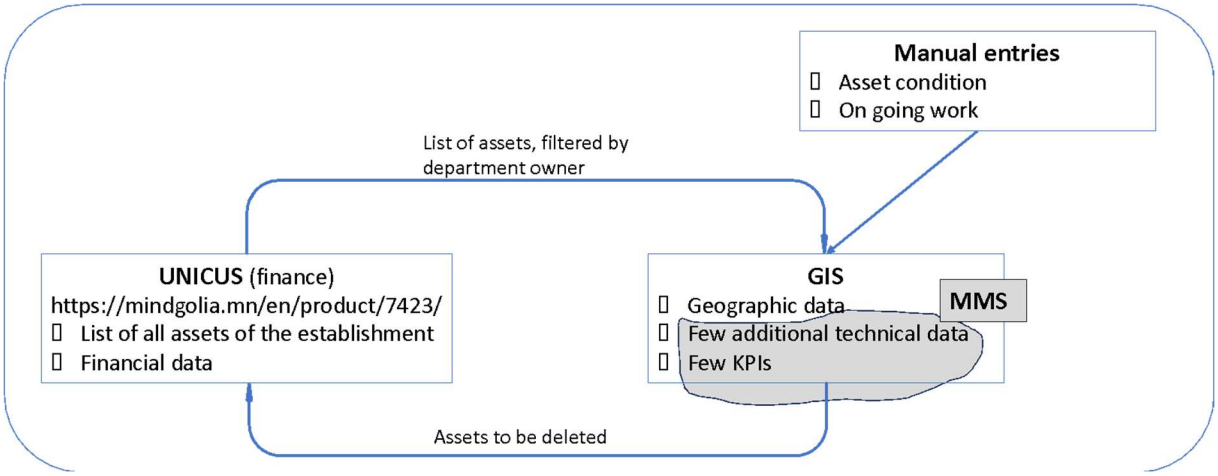

Figure 2*: Current USUG IT Landscape for Asset Management Processes*

Mobile application (mandatory)

- A mobile solution shall be included allowing technicians and operators to use the CMMS for their daily activities onsite: record and investigate incidents, perform inspections, maintenance work, etc.

- The CMMS mobile solution design shall reduce or eliminate text input in favor of automatic input (based on tag scanned, automatic time stamp of actions, photo taken, etc.) and easy selection from predefined lists.

Third-party licenses

- Supplier shall include all necessary software licenses to fulfill the requirements of the project, including third-party supporting software if any (such as server licences, database, reporting tool, interface tools, etc.).

3.2 SECURITY

The following security measures must be implemented to ensure system and data protection:

- Role-based access control;
- User authentication;
- Audit logging;
- Data encryption;
- Field-level security permissions, based on item status (e.g., changing priority only on unapproved work orders);
- Tracking of configuration changes - to track when and by whom any configuration change was done.

Cyber Security requirements with a special focus requirements shall be implemented as a license condition.

All external communication and data links shall have all necessary protections in order to achieve a maximum level of cyber security. The system shall be designed with security measures, segregation and availability to reflect plant requirements and have measures for disaster recovery. The measures shall be based on international standards and compliant with the Mongolia Authority.

3.3 USABILITY

The system must incorporate the following usability features to ensure effective user interaction:

- Intuitive user interface
- Customizable displays - the system must allow a trained administrator to create and modify settings, display rules and create simple reports (e.g. extraction to a spreadsheet);
- Mobile-friendly interface
- Context-sensitive help

Large touch-screen display

- To engage management in O&M, the CMMS shall be usable on large screens (optionally in touch-screens) for real-time performance analytics and decision support. In particular, such displays should allow drill-down from KPIs or reports into more specific KPIs and actual records (such as failures, work orders, etc.).

System language

- The CMMS shall support multiple languages (for screens, menus and labels) including English and Mongolian. For users, the default language as well as the available languages in the system can be defined by system admin. The language display in the system can be switched depending on preferences. Data input can be in any language.
- Dual language support - the system should allow the integration of Mongolian language with Cyrillic characters, in addition to English.

3.4 PERFORMANCE

System performance will be measured and monitored on a monthly basis against the following operational requirements and metrics:

- Response time < 2 seconds for standard operations
- 99.9% system availability
- Backup and recovery capabilities
- The recovery capability is expected to be maximum 24h (1 day),
- The helpdesk must be available on weekdays

3.5 SUPPLIER QUALIFICATIONS

Mandatory requirement:

- The supplier shall provide a copy of a valid ISO 9001 certificate or a certificate (evidence) of an equivalent information security management system.

General requirement:

- Minimum of eight (8) demonstrated experiences in supplying and maintaining CMMS for public utilities. Contact details of the respective clients shall be provided in the relevant qualification form.
- The Project Manager shall either hold a PMP (Project Management Professional) certification or an equivalent internationally recognized project management certification, or have a minimum of ten (10) years of demonstrated experience in delivering and maintaining CMMS projects in public utilities.

4 ORGANIZATION AND ADMINISTRATION

The following section defines the organizational structure, user roles, and administrative processes necessary for effective CMMS implementation.

4.1 USERS AND ROLES

The CMMS solution will support the 7 following user groups, each with specific responsibilities and access rights:

- Asset Manager, Maintenance planner
    - Key user with overall access
    - Responsible for the set-up and management of asset structure
    - Responsible for set-up and management of the PM plan
    - Responsible for the set-up and management of the Annual maintenance program
    - Creation and management of work orders
    - Preparation of work orders (connection store articles, issue of articles, creation of purchase requests, ..)
    - Creation of reports
- Operator user (could be Shift supervisors, Production foreman and Operations manager): person who makes the work request. In order to use the solution they just have to have to know how to find a piece of equipment in the solution and make a work request;
    - Creation of work orders (for breakdown and one time interventions)
    - Optional: Reservation of stock articles and creation of purchase requests (only the Production Foreman and Operation Manager – 2 functions)
- Maintenance technicians or supervisors who use asset functions: create, complete work orders and assign spare parts on a work order if necessary;
    - Creation and management of work orders (for breakdown and one-time interventions)
    - Preparation of work orders (connection store articles, issue of articles, creation of purchase requests, ..)
    - Entering comments, closing work orders etc..
- Maintenance manager:
    - Overall access and overall responsibility
    - Responsible for reporting
    - Responsible for Projects and Modifications
- Maintenance administrators: they assign work order to maintenance team, create preventive maintenance plan, transform work request to work order, update asset information;
    - Creation of work orders (for breakdown and one time events)

    - Creation of purchase requests and orders
    - Closing of purchase orders
    - Reservation of stock articles
    - Entering of labor hours
    - Entering of work order feedback
    - Creation of reports
- Storekeeper: person who manages plant store and issues item supplies;
    - All warehouse functions
- CMMS Application administrators: they can modify the database, set reports, provide access to new users, modify access rights for existing users, etc.

4.2 TRADE GROUPS

Different trade groups (or skill centers) will be defined. This depends on the nature of the activity in combination with the type of skill that is needed to execute the respective job.

The following trade groups are suggested initially - these may change if decided so by USUG:

- ELEC Electrical – breakdown activities
- ICA Instrumentation, Control & Automation – breakdown activities
- MECH Mechanical – breakdown activities
- ATEX Atex activities
- AMM Annual Maintenance Mechanical
- AME Annual Maintenance Electrical
- AMI Annual Maintenance ICA
- PRJ Project activities and Plant modifications
- PME Periodic maintenance Electrical
- PMM Periodic maintenance Mechanical
- PMI Periodic maintenance ICA

The responsibility of each such trade groups will be allocated to a dedicated staff member:

- Supervisor ELEC
- Supervisor ICA
- Supervisor MECH

- Maintenance Engineer ELEC
- Maintenance Engineer ICA
- Maintenance Engineer MECH
- Maintenance Manager

4.3 GL ACCOUNTS AND COST CENTERS

The following GL account structure will be implemented for cost tracking and reporting purposes:

- The GL account for the technical warehouse will be limited to
    - Spare and wear parts
    - Process consumables
- The GL account for the maintenance activities via work order will be limited to
    - Labor
    - External Services (or combined services and goods)
    - Direct materials
    - Maintenance Contracts
- The GL account and Costcenter for other purchase requests/orders will not be limited.
- The GL account of work labor will be limited to 1 GL account number
    - Labor cost

GL accounts used will be real GL accounts, however they will not be connected with a financial system. In fact they can be considered as “numbers” used as a selection criteria for follow-up of costs and reporting purposes.

4.4 COST OF LABOR AND INPUT OF WORK TIME

The work time linked to the execution of a work order (maintenance function) will be entered manually in the CMMS system.

It should be possible that this info can be entered as a list of records

ID of staff	nr of workhrs	Work order nr
12	1	34567
12	3	45678
11	2	45678
14	4	55555
14	2	66666
10	1	34567
10	7	98765

For the cost of labor a standard cost will be applied for all types of internal labor. This unit price will be used to calculate the cost labor = quantity of worked hours * standard cost.

The standard cost of labor will be entered (or changed) 1 time per year during budget exercise.

There will be NO link between this data and the financial or the HR systems.

5 IMPLEMENTATION, TRAINING AND SUPPORT

This section outlines the phased implementation approach, training requirements, and ongoing support expectations for the CMMS system.

- A phased implementation approach should be applied, starting with selected sites (suggestion: Kiosks and wastewater operations)
- Local language support for implementation;
- Prepare and set up the database;
- Prepare the user documentation and training support document;
- Provide a comprehensive key user and admin training program:
    - 5 x 2 training days for key users (12 users maximum by training session)
    - 5 x ½ day training on mobile application for large number of users
    - 1 x 5 days for local administrator (4 maximum by session)
- Training should be on site
- Assistance for the CMMS using start up
- The CMMS system to be provided includes as well the delivery and installation of the required system and applications software, the necessary licences to operate the system and the set-up, configuration, upload of user maintenance data, testing, training and commission of the CMMS system.
- Supplier to indicate support policy regarding old versions, duration, new versions, and adaptability to existing structures as required in the specifications
- Note: it is recommended that the system software and application software is installed on premise

Long term improvement support

- The supplier shall propose a service plan to ensure adoption of the system by O&M teams and full utilization of the system within 3 months of operation.
- Regular updates and maintenance: in addition to the above, the supplier will make an offer for a maintenance contract inclusive of the upgrade of the software to the latest versions, and application support during normal working hours - as far as the supplier will manage the availability and correct working of the CMMS system in connection to the clients IT system.

The supplier shall also propose 1 year warrantyto ensure long-term usage and improvement of the CMMS in relation with potential ERP interface including Procurement, Inventory and Human Resources modules.

The Supplier shall complete delivery of the Goods within a period not exceeding 60 calendar days from the date of Contract signing. This timeline of 60 calendar days applies to the Initial Deployment and Configuration Phase.

The overall completion period of the Contract is a maximum of 90 calendar days. This includes up to 60 calendar days for the Deployment and Configuration Phase, and an additional maximum 30 calendar days for Data Integration, Training and Testing, Interfaces, and Handover.

6 ANNEXES

The following annexes provide detailed information about USUG's current systems, maintenance practices, and specific technical requirements for the CMMS implementation.

6.1 ANNEX 1: EXISTING APPLICATIONS USED BY USUG

6.1.1 UNICUS

UNICUS is a financial software in which costs and budgets are managed.

The company providing the UNICUS software is called Mindgolia: https://mindgolia.mn/en/product/7423/

All assets of USUG, in the financial sense of the term, are listed in UNICUS. They include:

- Buildings and lands,
- Vehicles,
- Furniture such as tables or chairs,
- Computer hardware such as laptops,
- Technical equipment such as pipes, pumps, fans.

Software is not considered as a Fixed Asset but an Intangible Asset it should also be recorded as such in UNICUS.

No spare parts are recorded in UNICUS.

RECOMMENDATION

Software not being a physical asset, there is no reason for recording them as Fixed Assets in UNICUS, they are considered as Intangible Assets.

Concerning spare parts, they should be recorded in an inventory software. UNICUS, as a financial tool which focuses on Fixed Assets, should only record the inventory variation costs in both Balance Sheet and P&L statements. This is normally done on a monthly basis and a physical reconciliation has to be performed at least twice a year.

All CMMS propose functionalities for managing spare parts movements (entries and issues).

Assets are listed in UNICUS with some meaningful asset codes, although there is no hierarchy between them.

Assets codes have the following 15-digit format “AA BB CC DDDD EE FFF” where the digits are defined as follows:

- **AA**= category of assets (*)
- **BB**= Asset subcategory
- **CC**= 6 cost classification organization units (**)
- **DDDD**= 17 organization units
- **EE**= description

- **FFF**= identification number

* 21 is the maximum value. 15 is Construction in progress, thus not a fixed asset.
** 61 = Drinking Water / 62 = Waste Water / 63 = pretreatment / 70 = administration / 71 = customer service / 14 = miscellaneous (training). Some codes are overlapping.

There is no reference to the production department in the code.A QR code is attached to each asset. As an example, the 12 01 70 0800 04 139 code shown in the picture below means the following:

- 12 = furniture
- 01 = furniture
- 70 = administration
- 0800 = administration department
- 04 = separator
- 139 = reference

Figure 3*: Example of QR Code*

6.1.2 GIS

Geographical Information System (GIS) is a geospatial platform. Concerning pipelines, the GIS system is connected to Google Earth, allowing the team to visualize the pipeline and record the coordinates.

The current interface between UNICUS and GIS is based on an XML file.

USUG is currently working with ESRI ArcGIS. For economic reasons, mainly the cost of the licenses, ArcGIS will be replaced by QGIS. This is under discussion but is likely to happen before the end of 2025.

RECOMMENDATION

GIS is essential for pipelines, less useful for plants. GIS should only contain geographical data, all other technical data must be recorded and managed in the CMMS tool.
Two possibilities appear for the new CMMS software:

- some CMMS integrate geographic systems
- others will need to interface with the separate GIS tool.

The preferred solution is generally the interfaced type, allowing users to use the tool they know but having the disadvantage of developing and maintaining the interface.

6.1.3 MMS

What the teams call MMS or Maintenance Program is in fact a specific function developed in the GIS software. The development of MMS started in the year 2022 and is still ongoing.

The list of assets is uploaded into GIS on demand. A specific menu on GIS allows launching an import of the desired data from UNICUS. The transfer is done using an XML file.

Some technical data are manually added to the assets in GIS. Ongoing work and asset conditions are manually recorded. What is named asset condition is in fact the current working condition of the asset. These condition statuses are manually recorded by the operational departments. Since the date of breakdown or date of starting work are not being recorded, it is impossible to know how long the asset has been stopped for.

Condition can have one of three statuses:

- A – Normal
- B – Maintenance required
- C – Broken

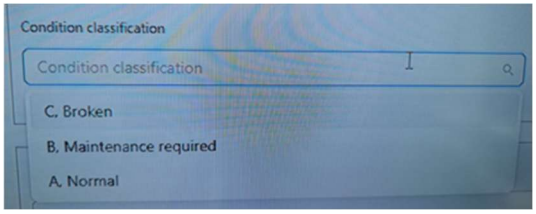

Figure 4*: Condition Classification in MMS*

The company Khan Khulgun is in charge of developing the MMS (https://khankhulgun.mn/).

The MMS as currently developed is not a true Maintenance Management System. It only shows a list of assets with their criticality and their current condition so is more akin to a technical asset register. Data is manually registered without any improved workflow in place, meaning nothing can prove the data is accurate, and no decision can be made based on it.
In addition, the MMS functionalities have been developed in the GIS software, which is not designed for this purpose.

RECOMMENDATION

A CMMS is specifically developed for managing assets and all that is needed to perform interventions on them. The first CMMS were developed in the ‘80s, meaning these tools are now very refined and effective. All functions developed in the MMS should now exist as standard in any CMMS.

6.2 ANNEX 2: CURRENT MAINTENANCE MANAGEMENT AT USUG

There are approximately 100 employees dedicated to maintenance, organized into 6 different regional maintenance centers. There is no CMMS or any other software managing the maintenance process at this time.

All the communication is done through Talkie Walkie and Telegram application (work to be done, on-going work, work done, etc.).

The maintenance department is recording data in around 6 separated systems:

- Excel;
- GIS;
- MMS (part of GIS);
- Telegram;
- ERP for time management (mandatory in Mongolia);
- UNICUS;
- Warehouse (part of UNICUS).

The technical documentation is mainly on paper, translated from supplier's documentation.

Safety rules and work to be done are discussed and decided during a daily morning meeting.

A monthly report based on Telegram communications is written using Word.

6.2.1 CORRECTIVE MAINTENANCE

A 24/7 call center receives the maintenance requests and records them using Excel as its own **register system**.

The job is assigned to the maintenance manager dedicated to the broken down asset.

Based on the list, the manager distributes every morning the work to be done.

They communicate all inspections and maintenance activities through a Telegram group chat, where updates are shared via text, but none of this information is registered in the maintenance system.
In case of emergency, on duty technicians are available.

The number of breakdowns is recorded in the MMS part of the GIS (by who wants to, meaning not all are recorded). This allows KPIs to show the number of available assets and the number of ongoing works.

2 distinct budgets are given to each department: one for normal expenses and one dedicated to emergencies.

While a yearly budget is established, a monthly allocation is made, and a seasonal financial report is generated. This report accounts for various factors such as water consumption, different revenue sources, the number of days in each month, holidays, seasons, overtime pay, and other relevant variables
Parts and assets are integrated in the yearly budgets. Outsourcing is integrated in the HR department budget.

A yearly report is used to compare the current expenses versus the allocated budget.

It receives invoices and approves payment.

All financial work is managed in UNICUS software. The financial team appreciates this tool and does not want to change it.

RECOMMENDATION - FINANCIAL ASPECTS

No significant change is needed concerning UNICUS. Each work order is supporting its own costs in the CMMS, three main distributions are available:

- Costs and budgets at the equipment level
- Thanks to the functional structure of assets, costs and budgets at the process level
- Costs by type of work (corrective, preventive).

RECOMMENDATION - PURCHASING

The current purchasing tool is not only for maintenance items. Even if the CMMS offers a purchasing module, it seems preferable to interface the CMMS with the purchasing software. The process could be as follows:

- A purchase request is created in the CMMS, manually or based on the stock level of the spare parts
- Once approved, the purchase request is automatically transferred to the purchasing software
- Once the order is approved through a workflow according to delegated authority, information is sent back to the CMMS

Safety on site is managed as follows:

- Worksites are quoted A, B, C and other. Other is used for secondary or connected places;
- Employees are graduated 3 to 6;
- Rule is:
    - Employee graduated 6 is allowed to work on site quoted A;
    - 4 and 5 on B;
    - 3 on C.

RECOMMENDATION - SAFETY

1/ The Safety Department wants to be informed about work carried out on dangerous equipment or risk areas. This type of information is available in the CMMS, via inboxes or automatic notifications sent to mobile devices.

2/ Safety rules must be linked to locations and equipment. They can be automatically available and printed with work orders.

Information needed on locations:

- ATEX area,
- Safety rules to be printed on the work order.

Information needed on assets:

- Asset owner, they will receive notifications on work state,
- Criticality, on 4 or 5 criteria plus one global value (to be reviewed with a procedure).

6.3 ANNEX 3: CMMS MAIN FUNCTIONALITIES

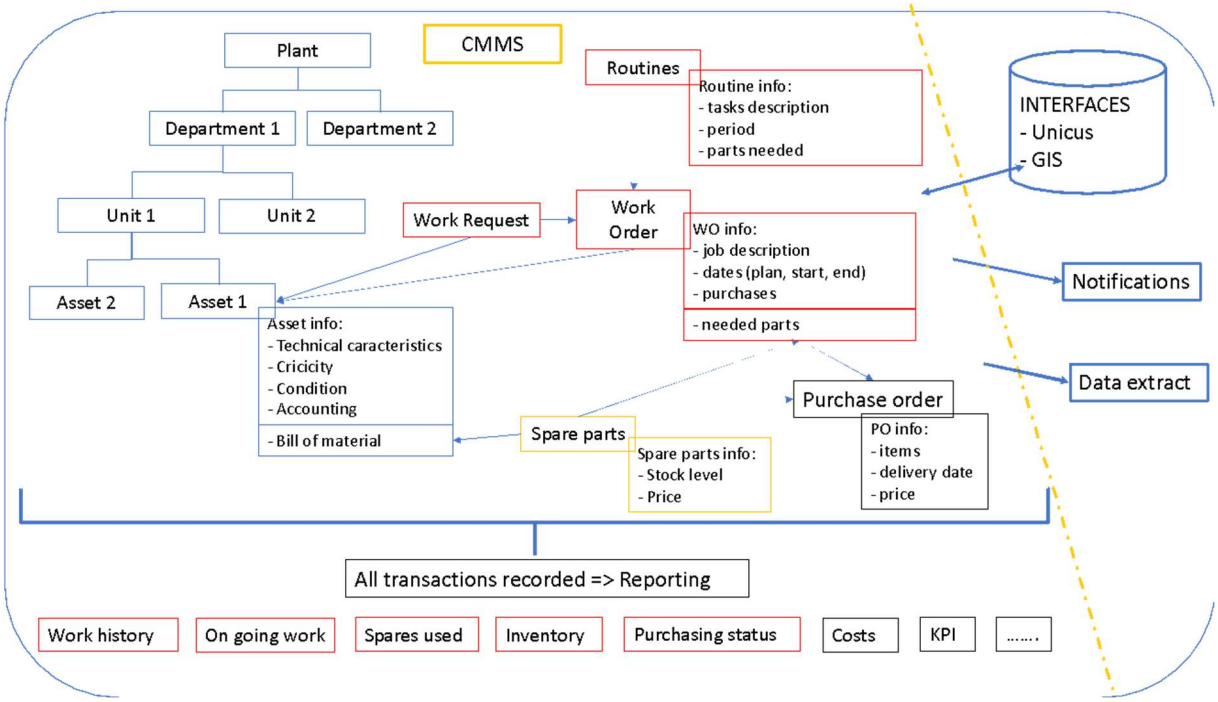

Figure 5*: Extract from the Presentation Given on February 14 USUG - CMMS PRESENTATION ENG & MNG.pdf*

6.4 ANNEX 4: SUMMARY OF MANDATORY FEATURES

Inc.	Req ID	Type of requirements	Category	Process	Subprocess	Expected functionality
1	AM-01	Functional	Core CMMS features	Asset management	Hierarchy	A minimum of two structures are available: a geographical one and a technical one, with a minimum of 5 levels
2	AM-02	Functional	Core CMMS features	Asset management	Data	Mandatory fields on the main screen, in addition to standard ones: - Asset Criticality, at least four sub-fields plus one for the global note - Asset Condition, at least four levels - Asset Owner - UNICUS fixed asset code (= analytical code)
3	AM-03	Functional	Core CMMS features	Asset management	Tracking data change	Attribute tracking with date of modification and reporting
4	AM-04	Functional	Core CMMS features	Asset management	Role management	A complete asset management workflow enabling data input, protection and automated features corresponding to user role defined by USUG
5	AM-05	Functional	Core CMMS features	Asset management	Safety	Safety documents are linked on both structures
6	AM-06	Functional	Core CMMS features	Asset management	Search function	Search function by asset code, asset description, keywords and any data related to asset register with a user friendly interface
7	AM-07	Functional	Core CMMS features	Asset management	QR Code	QR code scanning and generation for assets
8	AM-08	Functional	Core CMMS features	Asset management	Documentation	Technical documentation attachment to assets
9	AM-09	Functional	Core CMMS features	Asset management	Downtime tracking	Record start/stop date/time for plant shutdown with capacity reduction tracking
10	WO-01	Functional	Core CMMS features	Work Order Management	Employee record	Employee records and relevant information that can be used in all the CMMS features. The employee data that can be linked will User login if needed.
11	WO-02	Functional	Core CMMS features	Work Order Management	Craft	A list of crafts (trades) and qualifications to be used for employee, work order and maintenance plan. The list of values can be defined according to USUG requirements
12	WO-03	Functional	Core CMMS features	Work Order Management	Supervisor	Employee and craft information can be set up to enable supervision features on the maintenance workload and forecasted maintenance schedules
13	WO-04	Functional	Core CMMS features	Work Order Management	Work request interface	A call center feature is available. All calls can be registered, Work request can be created from the call center when it concerns maintenance In case a call center is not integrated in the software, it is possible to upload data from existing Excel call center for creating a work request
14	WO-05	Functional	Core CMMS features	Work Order Management	Work approval	Work request and work order can be put into a queue for manual and batch approval by identified users according to workflow defined by USUG (minimum 3 levels)
15	WO-06	Functional	Core CMMS features	Work Order Management	Notifications	Notifications are automatically sent, based on work conditions
16	WO-07	Functional	Core CMMS features	Work Order Management	Priority	The priority of the work is automatically defined by the criticality of the concerned asset. Priority (5 levels) can be changed by authorized users. The change has no impact on the criticality of the asset. Date at the latest is automatically calculated based on the priority
17	WO-08	Functional	Core CMMS features	Work Order Management	Meter reading	Meter reading (for example pump or standby generator run-time) can be recorded by manual input on a Work Order and also through batch data collection from user defined template
18	WO-09	Functional	Core CMMS features	Work Order Management	Maintenance plan	Automated work order generation for preventive maintenance based on schedule or meter reading or user defined criteria

Inc.	Req ID	Type of requirements	Category	Process	Subprocess	Expected functionality
19	WO-10	Functional	Core CMMS features	Work Order Management	Maintenance work forecasting	Automated work order forecasting generation with workload (for rolling 12 months), required spare part and service based on schedule or meter reading or user defined criteria
20	WO-11	Functional	Core CMMS features	Work Order Management	Work order information and safety	Safety documents from both geographical and technical structures are available and printed along with the work order
21	WO-12	Functional	Core CMMS features	Work Order Management	Role management	A complete workflow management on work orders enabling data input, protection and automated features corresponding to user role defined by USUG (7 user roles)
22	WO-13	Functional	Core CMMS features	Work Order Management	Multimedia and Document access	Record photo and video and technical documentation access on Work Order
23	WO-14	Functional	Core CMMS features	Work Order Management	Status management	Status tracking with date of modification and reporting
24	WO-15	Functional	Core CMMS features	Work Order Management	Calendar view	Work orders, workload and forecasted maintenance schedules can be displayed in a calendar format that can be set by user
25	WO-16	Functional	Core CMMS features	Work Order Management	Time tracking	Record labor time per work order with standard cost calculation
26	WO-17	Functional	Core CMMS features	Work Order Management	Preventive maintenance	Multiple routine activities grouped in clusters with predefined periodicity
27	WO-18	Functional	Core CMMS features	Work Order Management	Equipment maintenance	Periodic maintenance programs for individual tag numbers with service contracts
28	WO-19	Functional	Core CMMS features	Work Order Management	Annual maintenance	Recurrent and one-time annual maintenance project management
29	WO-20	Functional	Core CMMS features	Work Order Management	Predictive maintenance	Record predictive maintenance checks (Vibration, Noise, Temperature, Wear and Tear)
30	WO-21	Functional	Core CMMS features	Work Order Management	Safety integration	Safety documentation integration including LOTO process
31	WO-22	Functional	Core CMMS features	Work Order Management	Search function	Search function by work order number, work order description, asset code, asset description, asset hierarchy, keywords and any data related to work request and work order with a user friendly interface
32	IN-01	Functional	Core CMMS features	Inventory management	Data	2 types of warehouses are created: a "normal" one and an "emergency" one
33	IN-02	Functional	Core CMMS features	Inventory management	Role management	A complete inventory management workflow enabling data input, protection and automated features corresponding to user role defined by USUG
34	IN-03	Functional	Core CMMS features	Inventory management	Search function	Search function by article code, article description, classification, vendor, keywords and data related to inventory data with a user friendly interface
35	IN-04	Functional	Core CMMS features	Inventory management	BOM	Parts are linked with the assets they belong to. The parts list (BOM) is accessible for CMMS users for reading or modification and it is also available on the asset.
36	IN-05	Functional	Core CMMS features	Inventory management	Article Issue/Return	2 different workflows are needed before issuing a part (pick list): - One for a normal warehouse - A different one for an emergency warehouse
37	IN-06	Functional	Core CMMS features	Inventory management	Article inventory forecasting	Automated article and inventory forecasting generation with maintenance and purchase related information based on calendar or user defined criteria
38	IN-07	Functional	Core CMMS features	Inventory management	Stock monitoring	Stock level monitoring and reorder points definition
39	IN-08	Functional	Core CMMS features	Inventory management	Mobile transactions	Mobile inventory transactions capability
40	PU-01	Functional	Core CMMS features	Purchasing	Purchase Request, Purchase Order, Good/Service Receipt	A basic purchase function must be included to allow the creation of purchase requests and purchase orders. The order process of warehouse articles should be in automatic mode based on order point and order quantity, or via manual action of the storekeeper.

Inc.	Req ID	Type of requirements	Category	Process	Subprocess	Expected functionality
41	PU-02	Functional	Core CMMS features	Purchasing	Role management	A basic purchasing workflow enabling data input, protection and automated features corresponding to user role defined by USUG
42	RP-01	Functional	Reporting & Analytics	Security	Electronic Signatures	The CMMS solution supports electronic signatures to confirm work starting, execution and completion, modification on data for acknowledgement and safety requirements
43	RP-02	Functional	Reporting & Analytics	Reporting	Cost analysis	Cost tracking and analysis based on asset, labor, spare parts and consumables
44	RP-03	Functional	Reporting & Analytics	Reporting	Dashboard	Configurable dashboard and KPI reporting
45	RP-04	Functional	Reporting & Analytics	Reporting	Pareto analysis	Pareto analysis based on total cost by tag number, asset, groups and relevant criteria defined by a CMMS User
46	RP-05	Functional	Reporting & Analytics	Reporting	Maintenance improvement KPI	The Supplier proposes a list of standard KPIs for maintenance improvement (at least 10)
47	RP-06	Functional	Reporting & Analytics	Reporting	End User Reporting	A reporting functionality is included in the CMMS. It allows making reports on any data. Reports should be easily created by trained users
48	RP-07	Functional	Reporting & Analytics	Reporting	Official Reporting	About 10 official monthly and yearly reports to be created by the Supplier
49	IT-01	Non-Functional	Integration Requirements	Interfaces	GIS	The interfaces between the CMMS and GIS should be fully documented to enable maintenance and evolution management by USUG - By clicking on an asset in GIS, to go to the asset in CMMS - By choosing an asset in CMMS, to see its geographical position on GIS - The CMMS solution needs to work with QGIS solution - Interfacing using API data exchange (it will specify whether REST or GeoJSON (QGIS) or other middleware are preferable).
50	IT-02	Non-Functional	Integration Requirements	Interfaces	UNICUS	The interfaces between the CMMS and UNICUS should be fully documented to enable maintenance and evolution management by USUG - To be able to filter and download assets from UNICUS. The asset code may be recorded as an analytical code - Scraping an Asset in the CMMS should change its status in UNICUS - Interfacing using API data exchange - Integration capacity with UNICUS. for now, we can consider 4 scenarios - Acquisition - Transfer within USUG (e.g. to other site) - Mothball / idle - Disposal
51	IT-03	Non-Functional	Integration Requirements	Interfaces	Calendar software	The CMMS solution offers pre-built integration with major calendar software such as iCalendar, Google Calendar, Microsoft Outlook, etc.
52	IT-04	Non-Functional	Integration Requirements	Interfaces	ERP	The CMMS solution offers pre-built integration with major Enterprise Resource Planning (ERP) software such as SAP ERP, Microsoft Dynamics 365 ERP, Oracle Cloud ERP, Oracle NetSuite ERP, Infor ERP, SAP S/4HANA, etc.
53	IT-05	Non-Functional	Integration Requirements	Upload & Download	Excel - CMMS	A standard possibility to upload data from Excel to CMMS A standard possibility to download data from CMMS to Excel
54	DP-01	Non-Functional	Inter-operability and Interface Functionality	Installation	On Premise solution	For data security reasons, an on premise solution is preferred
55	DP-02	Non-Functional	Deployment & Configuration	System management	Off-the-shelf product	Fulfill requirements based on standard off-the-shelf product in order to ensure long term reliability and maintainability of the system
56	DP-03	Non-Functional	Deployment & Configuration	System management	Off-the-shelf product	The CMMS features could be configured by USUG End User with corresponding credential as CMMS Administrator
57	DP-04	Non-Functional	Inter-operability and Interface	Installation	Environment setup	Three environments required: DEV (development & test), TRN (Training), and PRD (Production)
58	DP-05	Non-Functional	Deployment & Configuration	Integration	Third-party licenses	Include all necessary software licenses including third-party supporting software (including server O/S licence)

Inc.	Req ID	Type of requirements	Category	Process	Subprocess	Expected functionality
59	LU-01	Non-Functional	Configuration	Localization	Language support	Support multiple languages including English and Mongolian with Cyrillic characters
60	LU-02	Non-Functional	Configuration	User interface	Setting and behavior	System must allow trained administrator to create and modify settings, display rules, and in particular hide, modify existing fields and parameters in input forms
61	LU-03	Non-Functional	Configuration	User interface	Large screen support	Usable on large touch-screens for real-time performance analytics
62	LU-04	Non-Functional	Configuration	Inboxes	End User access	CMMS should allow creating and displaying simple inboxes defined by CMMS User or by CMMS Administrator (to push mandatory inboxes to CMMS Users)
63	LU-05	Non-Functional	Configuration	Notifications	Automated information pushed from system	Examples of notifications or inboxes: - to inform asset owner about ongoing work - to inform asset owner and safety about ongoing work on dangerous areas - to inform asset owner and production manager about ongoing work on critical assets
64	SC-01	Non-Functional	Security Requirements	Data security	Data protection	On main screens (assets, work orders, spare parts) it should be possible to protect some fields depending on rights given to the connected users (Role-based access control). E.g. Only authorized users can modify the criticality or the financial code
65	SC-02	Non-Functional	Security Requirements	Data security	Data traceability	On the above point, authorization may also be linked to the item status. E.g. Changing a priority is only possible on unapproved work order
66	SC-03	Non-Functional	Security Requirements	Data security	Data tracking and consistency	Standard key security features to be considered; Audit logging, Data encryption, Tracking of configuration changes
67	SC-04	Non-Functional	Security Requirements	User management	User roles	Support for 7 specific user groups with defined access rights
68	SC-05	Non-Functional	Security Requirements	Data security	Field-level security	Field-level security permissions based on item status
69	SC-06	Non-Functional	Security Requirements	Data security	Configuration tracking	Tracking of configuration changes - when and by whom
70	SC-07	Non-Functional	Security Requirements	Data security	Cyber security	Cyber security requirements with international standards compliance
71	PF-01	Non-Functional	Performance Requirements	Performance	Concurrent users	Support up to 200 concurrent users with minimum 80 licenses (desktop and mobile)
72	PF-02	Non-Functional	Performance Requirements	Performance	Response time	Response time < 2 seconds for standard operations
73	PF-03	Non-Functional	Performance Requirements	Performance	System availability	99.9% system availability with backup and recovery capabilities The recovery capability is expected to be maximum 24h (1 day). The helpdesk must be available on weekdays
74	MB-01	Non-Functional	Mobile Requirements	Mobility	Android platform	Native mobile application for on field usage of the CMMS is available on the Android platform
75	MB-02	Non-Functional	Mobile Requirements	Mobility	Offline compatibility	The CMMS mobile application should be compatible with an offline usage (without network or internet connexion during the work day) and include automatic synchronisation when the mobile device get online connexion
76	MB-03	Non-Functional	Mobile Requirements	Notifications	Automated information pushed from mobile	CMMS should allow a simple standard way for sending notifications to a mobile solution and also the desktop solution
77	MB-04	Non-Functional	Mobile Requirements	Mobility	Identification management and reading	CMMS should be able to read and print assets QR codes and Asset identification stickers
78	MB-05	Non-Functional	Mobile Requirements	Mobility	Work Request on mobile	Creating a Work request should be possible on mobile device
79	MB-06	Non-Functional	Mobile Requirements	Mobility	Asset update on mobile	Declare a comment on an asset should be possible on mobile device

Inc.	Req ID	Type of requirements	Category	Process	Subprocess	Expected functionality
80	MB-07	Non-Functional	Mobile Requirements	Mobility	Multimedia data acquisition on mobile	Adding photo and video data should be possible on mobile device and the corresponding data file should be transferred to CMMS database
81	MB-08	Non-Functional	Mobile Requirements	Mobility	Document data acquisition on mobile	Adding a document should be possible on mobile device and the corresponding data file should be transferred to CMMS database
82	MB-09	Non-Functional	Mobile Requirements	Mobility	Stock transaction on mobile	To issue parts from the stores using QR codes
83	MB-10	Non-Functional	Mobile Requirements	Mobility	Work Order on mobile	All the needed information for working is available on mobile (WO, tasks, documents, safety rules, etc)
84	IM-01	Non-Functional	Implementation Requirements	Integration	CMMS License	Possibility of one-off perpetual licence
85	IM-02	Non-Functional	Implementation Requirements	Training	Training program	Comprehensive training: 5x2 days key users, 5x0.5 day mobile app, 1x5 days administrators
86	IM-03	Non-Functional	Implementation Requirements	Support	Long-term support	Service plan for system adoption and long-term improvement support
87	IM-04	Non-Functional	Implementation Requirements	Project Management	Phase management	The Supplier should propose a deployment in at least two phases: - a first implementation for Kiosk (onsite water supply) and waste water treatment - deployment to the rest of the establishment
88	IM-05	Non-Functional	Implementation Requirements	Project Management	Communication language	Full project to be conducted in Mongolian language. English language accepted with a translator
89	SQ-01	Non-Functional	Supplier Qualifications	Supplier requirements	Experience	The Supplier has experience and knowledge about implementation of their solution in Mongolia, or in Asia
90	SQ-02	Non-Functional	Supplier Qualifications	Supplier requirements	Public utility experience	The Supplier shall demonstrate experience in service provision for public utilities, providing 8 (eight) references for similar CMMS implementations completed in the last 5 years.
91	SQ-03	Non-Functional	Supplier Qualifications	Supplier requirements	ISO certifications	The supplier shall provide a copy of a valid ISO 9001 certificate or a certificate of an equivalent information security management system
92	SQ-04	Non-Functional	Supplier Qualifications	Supplier requirements	ISO certifications	The Supplier shall demonstrate Minimum of eight (8) experiences in supplying and maintaining Computerized Maintenance Management System (CMMS) for public utilities.
93	SQ-05	Non-Functional	Supplier Qualifications	Supplier requirements	Project management	The Project Manager shall either hold a PMP (Project Management Professional) certification or an equivalent internationally recognized project management certification, or have a minimum of ten (10) years of demonstrated experience in delivering and maintaining CMMS projects in public utilities.