**INSTITUTE OF CHARTERED ACCOUNTANTS IN MALAWI**

**(ICAM)**

# TERMS OF REFERENCE FOR CONSULTANCY OF DEVELOPMENT OF ICAM MANAGEMENT INFORMATION SYSTEM

## 1.0 INTRODUCTION

The Institute of Chartered Accountants in Malawi (ICAM) is a professional accountancy organization (PAO) established in 2013 following the merger of the Public Accountants Examinations Council (PAEC) and the Society of Accountants in Malawi (SOCAM). This merger was enacted under the Public Accountants and Auditors Act (PAAA) No. 5 of 2013.

ICAM is mandated to:

1. Supervise the Accountancy Profession in Malawi: Regulate, monitor, and uphold the standards of the accountancy profession to ensure professionalism and compliance with local and international standards.

2. Administer Qualifying Accountancy Qualifications in Malawi: Provide and oversee the examination and certification processes for accountancy professionals aspiring to practice in Malawi.

ICAM aims to procure the services of a reputable organization to design, develop, and implement a robust Management Information System (MIS). The key objectives of this project are:

a. Enhanced Member Experience: Provide ICAM members with a seamless and intuitive interface for accessing services, managing subscriptions, participating in events and comply with their Continuous Professional Development (CPD) requirements.

b. Data Integration: Ensure seamless integration of the new MIS with existing software solutions to enable efficient data sharing and processing.

c. Operational Efficiency: Streamline administrative processes, reduce manual effort, and enhance decision-making through automated workflows and advanced reporting tools.

d. Scalability: Develop a system that can evolve with ICAM's future needs, accommodating new functionalities and growing numbers of members.

e. Compliance and Security: Ensure the MIS adheres to industry's best practices

for data security, privacy, and regulatory compliance.

As part of its strategic growth and operational enhancement, ICAM seeks to recruit a consulting firm to develop a modern Management Information System (MIS) to improve service delivery, enhance member experiences, and streamline its administrative processes. This TOR outlines the scope and objectives of the MIS development consultancy, inviting capable systems development firms to submit proposals for its design, development, and implementation.

## 2.0 OBJECTIVES OF THE CONSULTANCY

The main objective of the consultancy/assignment is to design, develop and commission a management information system for ICAM namely ICAM Information System (ICAMIS).

## 3.0 SCOPE OF WORK

The selected vendor will be responsible for the following tasks:

a. Requirement Gathering and Analysis:
   - o Conduct comprehensive stakeholder consultations to gather detailed functional and technical requirements.
   - o Document use cases and workflows for each module.

b. System Design and Development:
   - o Develop a modular and scalable MIS architecture.
   - o Ensure the system integrates seamlessly with ICAM's existing software.
   - o Incorporate user-friendly interfaces for all

modules. c Module Development:
   - o Members Module: Manage member's records including history of committees served, remarkable contributions to the profession, disciplinary investigations or sanctions
   - o Annual Subscription and Fee Management: Automate member subscription renewals, fee payments, invoicing, and notifications.
   - o Events Module: Facilitate event registration, scheduling, attendance tracking, and feedback collection.
   - o Student Module: Manage student records, examination registrations, student registration renewal and results.
   - o Recording and tracking of practical work experience for passed finalist
   - o System Administration: Provide robust administrative tools for user management, access control, and system configuration.
   - o Report Module: Generate customizable reports for insights on membership, finance, events, and student activities.

d. Integration and Testing:
   - o Integrate the MIS with ICAM's current software and databases.
   - o Conduct rigorous system testing, including functionality, performance, and security assessments.

e. User Training and Support:
   - o Deliver training sessions for ICAM staff and members to ensure smooth adoption of the system.
   - o Provide comprehensive user guides and technical documentation.

f. Deployment and Maintenance:

- Deploy the system in a live environment with minimal disruption.
- Offer post-implementation support, including regular updates and troubleshooting.

## 4.0 SYSTEM REQUIREMENTS

The ICAMIS shall have, among others, the following features:

### 4.1 Functional Requirements

**Finance and Accounting: Integration with SAGE Evolution**

#### 4.1.1 System Integration

a. The system should have an Application Programming Interface (API) that allow ICAM to connect to any payment agent i.e. Banks, mobile money, Visa enabled cards etc. Students/members should be able to use the ICAM ID to make any payment.

b. The system should provide a monitoring interface that allows finance to view all transactions that come from the API with relevant filters to analyze the data in real-time.

c. The system synchronizes all transactions from the API to student/member's account on SAGE in real-time

d. The system should provide up-to-date statements to members and students from transactions synchronized by the accounting system in real-time.

e. The system should allow automated sending of debit and credit notes by email to members and students for items such as annual subscription.

#### 4.1.2 Students/Members requirements

a. The System should manage all member and student data.

b. The system should register new students/members and maintain old ones. Students/members should access and update particular information online.

c. The system should manage programs for student's in-terms of courses taken and history of performance e.g passes accumulated

d. The system should manage timetables, bio data and examination notice for students.

e. The system should allow generation of IDs for students on a pdf which can printed using a card printer.

f. The system should be printing certificates of completion for students.

g. The system should manage examination results.

h. The system should allow for online booking of seminars and events and control limited resources such as room allocation in a hotel for residential seminars.

i. The system should have a detachable module that generates nametags for seminar participants with bar-codes.

j. The system should have a detachable module that can be used at the seminar venue to register attendance by scanning the bar codes on the participants' nametags. This information is synchronized with the main system such that CPD records of members are updated automatically.
k. The system should be able to send all seminar participants certificates of attendance by way of email.
l. The system should have a communication module that allows sending of bulk personalized emails.
m. The system should have Finance and accounting reports
n. The system should have a reporting module that generates and stores reports of any nature
o. The system should generate customized reports for Students/members modules
p. The system should have any other ad-hoc reports as specified and as may be required from time to time.
q. System should be able to restrict members in arrears or non-members from booking certain events at a prescribed rate for paid-up members.

### 4.1.3. Event Management Requirements

a. Create and manage event details (name, type, theme, description, target groups, venue, gender, CPDs distribution, speakers with profiles).
b. Specify and adjust booking periods, event dates, and fees (for members and non-members).
c. Manage accommodation details (hotels, room types, quantities) and reserve/release rooms during the booking window.
d. Generate evaluation forms, event programs, name tags, and certificates for attendees.
e. Approve uploaded proof of payment, update event payments via API, and allocate or reassign room numbers to attendees.
f. Maintain records of payments, balances, and event-related information.
g. View event programs and book events (members and non-members).
h. Select accommodation, extras, and attire size while booking.
i. Download invoices and upload proof of payment.
j. Amend or cancel bookings within the allowed period.
k. Evaluate events and generate certificates for attended events
l. Connect with a payment API to pull and update event payment information.
m. Send invoices and payment confirmations via email.
n. Generate receipts upon payment approval.

### 4.1.4 System Administration Requirements

a. Entity Management:
   i. Ability to create, update, and delete various entities, including:
      - Sessions, diets, promotions, programs, program levels, subjects.
      - Tuition institutions, examination centers, venues, invigilators, and institutions.
      - Institution programs, exemptions, boards, membership types, CPD types, and event types.
      - Speakers, hotels, room types, attires, questionnaire sections, and disciplinary breaches.
      - Terms and conditions templates, mail templates, document types, IPD

categories, reason categories, and checklists.

b. User Management:
   i. Create, update, delete, and manage:
      - Admin accounts with multi-role assignment and permission granting/revoking.
      - Student, member, and client accounts with multi-role assignment.

c. Customization and Configuration:
   i. Create, update, and delete knowledge of ICAM, account service IDs, and employers.
   ii. Manage professions and templates for terms, conditions, and emails.

d. System Logs and Auditing:
   i. Ability to list and review user logs for tracking activities.

e. Operational Management:
   i. Perform year-end processes and manage all related configurations for smooth operations

Note: ability to develop all the required reports as specified by users during requirement gathering.

#### 4.1.5 CPD Filing and Management Requirements

a. Ability to allow members file CPD Events per ICAM CPD Policy.
b. Ability to allow members download their CPD Report per preferred period.
c. Ability to allow members to create, update, and edit/delete CPD records within the system.

### 4.2 Non-Function Requirements

#### 4.2.1 General

System specifications features

a. Web based and accessible through ICAM's Local Area Networks and accessed through internet.
b. Database driven, using a centralized relational Database Management System (DBMS), preferably MySQL.
c. The system should support real time data capturing and update with central database.
d. Multi-level security features (User Authentication by username and password and user access level control for segregation of duties). Should allow concurrent user access.
e. Provide a user friendly, menu driven graphical interface in English language.
f. The system should support both 32-bit and 64-bit operating system and other platforms.
g. Modules should be able to work independently so that modular problems should be isolated and not affect the whole system. The system should be scalable and allow additional features or modules when the need arises while in operation

h. The system should be able to provide a comprehensive audit trail of all transactions and user login history. The system should support

complex passwords and encryption and support an enforced password policy.

i. The system should also provide an administrative module for user management.
j. The system should provide an automated database backup facility into any of storage media for any user defined frequency.
k. The system should support Microsoft Office integration so that Microsoft Office data (Microsoft Excel) can be imported into or exported from the system.

The software architecture on which the MIS will be operating must be able to support the following:

Optimal performance, Scalability, Availability, Reliability, Security, Maintainability, Flexibility, Configurability, Usability, Upgradability, Auditability, Responsiveness and fully integrated sub-systems and core modules ***(Consultant to specify features using diagrams as appropriate)***

### 4.2.2. System Design

System Analysis and Design: Using a formal system analysis/development methodology, the Supplier must undertake the following key activities and design deliverables:

a. Prepare a detailed system requirement specification for the MIS, including process workflows
b. Define the system interfaces and delivery channels
c. Develop test plans for various levels of user acceptance tests
d. Set documentation standards

### 4.2.3 Systems Administration and Management

The Information System MUST provide for the following management, administration, and security features at the overall System level in an integrated fashion.

### 4.2.4 Installation, Configuration and Change Management - Mandatory

The information system must provide all the required tools and services to make the system reliable. Change management will also need to be properly addressed by providing a structured approach for supporting the system users.

### 4.2.5 User Administration and Access Control - Mandatory

Management of users of the system will be critical. Users will need to be created and user rights assigned to them. Job profiles will be used to specify what different users and user groups can see and do.

System administrators will be allowed to carry out the following functions;

a) User management: creation of users, update users, activating users, deactivate users

b) Role management: create role, assign role, revoke role

Audit trails shall be used to log security incidents and will provide documentary evidence of user actions. The audit trails will be used as a tool to identify whether a user has violated security policies as well as allowing a security administrator to monitor user activity over time, and include information about additions, omissions, or alterations to the data within the MIS or its subsystem(s). As audit trails are not protective controls since they are usually examined after the event, user rights and roles will need to be properly and carefully managed.

### 4.2.6 System and Information Security and Security Policies - Mandatory

A variety of security tools will be expected to be implemented in order to ensure the confidentiality, integrity, and availability of data in the system. Each of these tools can be utilized as part of an overall security policy that will ensure the smooth running of business operations. In addition to the backup and disaster recovery plan outlined in the next section, the following options will also need to be taken into consideration.

a) Authentication

Tools for authentication will be used to ensure that the person accessing the information is, indeed, who they present themselves to be. All the users will need to be provided with login credentials such as a Username and Password by the System Administrator, which they will be prompted to be provided at different levels of the system.

b) Access Control

Once a user has been authenticated, the next step will be to ensure that they can only access the information resources that are appropriate. Access controls will therefore determine which users are authorized to read, modify, add, and/or delete information.

### 4.2.7 Disaster Recovery - Mandatory

Disaster recovery mechanisms (including data recovery in cases of file corruption or data loss) for the MIS and its component systems MUST be put in place so that there is minimal interruption to ICAM business operations and its decision support system. It is therefore essential that the implementation of duplicate and redundant systems both on-site and off-site be part of the project implementation for purposes of data recovery and business continuity.

### 4.2.8 Training and Materials

The Supplier must formulate the strategy for developing skills at various staff levels, identification of training needs and preparation of training methodology The Supplier MUST provide customized training services and materials, on-site and on-line, for all categories of staff.

### 4.2.9 Data Conversion and Migration

The Supplier MUST provide services and tools to perform Data Conversion and Migration Services. The volume of data; type, structure, and media of data; timing of conversion; quality assurance and validation methods; etc. will be determined jointly by the Purchaser and Supplier during user requirements investigation and specification.
The supplier MUST specify client skills and team structure required for data origination and cleansing.

### 4.2.10 End-User Documentation/Manuals

The Supplier MUST
a) Set documentation standards and monitor adherence
b) Prepare and provide End-User and Technical documents/manuals for the MIS and each subsystem.

### 4.2.11 Disaster Recovery

The Supplier MUST
a) Set up and configure the disaster recovery environment
b) Ensure the proposed DR is tested and in a working state as part of the product handover

## 5.0 DELIVERABLES

The successful Bidder will be required to deliver the following:

a. Inception Report: Should be submitted within 3 weeks after commencement of contract and should detail the following:

- Project Plan - Detailed timeline, milestones, and resource allocation for the entire project lifecycle.
- Requirements Specification Document - Comprehensive documentation of functional and technical requirements.
- System Design - Architecture and design documents outlining the MIS structure and integration plan.

b. Functional MIS: Fully operational modules of the ICAMIS for:
   - o Annual Subscription and Fee Management
   - o Events Management
   - o CPD Returns Filing and Management
   - o Member / Student Management
   - o Practical Work experience
   - o System Administration
   - o Reporting
   - o Any other necessary accessories that may be needed

c. Integration Reports: Demonstrating successful linkage with ICAM's existing systems.
d. Testing Documentation: Reports and outcomes from system testing phases.
e. Training Materials: User guides, video tutorials, and training schedules for ICAM staff and members.

f. Source code to ICT designated personnel

## 6.0 QUALIFICATION REQUIREMENTS

The consultancy firm is expected to have at least 5 years of experience in the design, development and support of management information systems or any similar systems. It shall demonstrate that it has successfully implemented at least 2 similar assignments in the past 5 years. The firm will establish a team with key experts or personnel appropriate for the tasks outlined in the scope of this assignment. All the CVs of experts including that of the team leader will be used in the process of selection. Foreign-based firms should be encouraged to partner with local firms and/or experts. The organizational structure and skills mix of the firm fit for this assignment shall include the following preferred key experts or personnel:

### 6.1 Key Team Qualifications and Experience

### a. Team Leader (No. Required = 1)

The Project Manager will be responsible for the day-to-day operational management of the project, including developing and overseeing work and preparation of project progress reports. S/he is going to be responsible for regular reporting to the client. The chosen candidate is responsible for overseeing all technical aspects of the project implementation including analysing the user requirements, develop software design, choose the right technical solution as well as oversee the right implementation to ensure sustainability.

For quality assurance, the Team Leader will:

- Prepare test cases in accordance with the test plan
- Execute the test cases, log the results and ensure steps to reproduce (in case of software bug)

**Requirements:**

- At least a Master's degree in IT, Computer Science, or any other related discipline
- At least 7 years of experience in developing, evaluating and advising on IT systems for business operations. Thorough knowledge of process automation, project management and ICT.
- Hands on experience of a minimum of 5 years in software development, Android/iOS and USSD application program coding and system integration
- Proven professional experience in web technologies and developing and managing web, mobile USSD based application
- Good understanding of development results and Results Based

Management Concepts.

- Must have worked in similar role for a minimum of 3 projects
- Capacity to understand user needs for the app's development, as well as the ability to communicate openly and integrate all feedback which is provided.
- Should have a good understanding and experience of software development frameworks in JAVA such as spring framework or Struts 2 framework; in PHP such as Laravel, Zend Framework, Cake PHP and in Python such as Django. In addition, s/he should also have experience in Ionic Cordova, Android Studio, Phonegap and Invision
- Should have knowledge in iOS and Android SDK
- Hands- on experience working on APIs and web services (REST/JSON).
- Expert knowledge in design and development of database systems like Oracle, MySQL and NoSQL types of databases such as MongoDB
- Professional certification in Project Management, ICT Security Audit, Quality Management or IT Service Management
- Must be a member of ICTAM or similar professional body

**b. Systems Analyst (No. Required = 1)**

The System Analyst is expected to analyse the user requirements through meetings and discussion session with the targeted beneficiaries. After finalizing the primary draft of User Requirement Specification through vetting with the users, the System Analyst will prepare the Software Design Document in consultation with the Team Leader /Project Manager.

Specifically, the System Analyst will –

- Conduct requirement analysis
- Develop the necessary business and system specifications
- Provide assistance to develop system design for any technical solutions
- Develop URS, SRS
- Carry out the technical evaluation for project development standardization
- Monitor execution of the project work.

**Requirements:**

- Minimum graduate in Information Technology, Information Systems,

Computer Science or any related IT field

- 5 years of progressive experience in the sector of software development
- Must have worked in similar role for a minimum of 3 projects
- Knowledge in design and development of database systems like Oracle, MySQL and NoSQL types of databases such as MongoDB
- Knowledge of web and mobile application development, Android/iOS and USSD application program coding and system integration
- Must be a member of ICTAM or similar professional body

**c. Software Engineer (No. required = 2)**

The Software Engineers are expected to drive the major software programming initiative in the project. This includes design, develop, and modify the modules with arranging the needed functionalities accordingly. The database backend is also expected to be developed by this team, including adding and modifying the structure, the stored procedures (if any), SQL queries, triggers and enable necessary security with backup features.

**Requirements:**

- Minimum graduate in Information Technology, Information Systems, Computer Science or any related IT field
- Hands on experience of a minimum of 5 years in web and mobile application development, Android/iOS and USSD application program coding and system integration
- Must have worked in similar role for a minimum of 3 projects
- Developing and managing web, mobile USSD based application
- Good understanding and experience of software development frameworks in JAVA such as spring framework or Struts 2 framework; in PHP such as Laravel, Zend Framework, Cake PHP and in Python such as Django. In addition, s/he should also have experience in Ionic Cordova, Android Studio, Phonegap and Invision
- Should have strong knowledge in iOS and Android SDK
- Hands- on experience working on APIs and web services.
- Experience in developing, integrating and configuring MIS, accounting systems, HRM and CRM on experience in web and mobile application development, Android/iOS and USSD application program coding and

system integration.

- Expert knowledge in design and development of database systems like Oracle, MySQL and NoSQL types of databases such as MongoDB
- Must be a member of ICTAM or similar professional body

## 7.0 DURATION OF THE ASSIGNMENT

The ICAMIS development assignment and its associated activities shall be undertaken within a total duration of **90 calendar days**. After this period, the consultant shall spend a period of 12 months providing system support.

## 8.0 OBLIGATIONS OF THE CLIENT

### a. Data and Reports

The Client, ICAM will support the execution of the assignment by providing ICAM's documents, reports and information related to the assignment.

### b. Meetings

Facilitation of consultation meetings with relevant stakeholders such as relevant offices and officers, ICAM members, etc. For foreign experts, the Client will assist in processing of visas and/or TIPs where necessary.

### c. Liaison

The Client will provide a liaison officer who will work with and coordinate the activities of the Consultant on a frequent basis. Where the Consultant requires working from the Client's offices, the Client shall provide the necessary office facilities for the Consultant's officers involved.