

# **Content Management System Development, Deployment & Management**

## **1. Introduction**

We invite qualified vendors to submit their quotations for the development, configuration, and deployment of a modern Content Management System (CMS) that will support our web content operations for the next 3-5 years. The solution must integrate seamlessly with our existing systems (mobile apps, Salesforce, Payment Gateway) and facilitate secure access to members-only content while incorporating emerging technologies for future growth.

## **2. Project Objectives**

### **Primary Objectives**

- Implement a flexible, scalable CMS with intuitive content publishing capabilities
- Establish robust access control for members-only sections with role-based permissions
- Integrate with existing systems (Salesforce, mobile apps, payment gateways) via APIs
- Enable AI-powered chat and intelligent search functionality
- Ensure mobile-responsive design with progressive web app capabilities
- Implement comprehensive reporting, analytics, and SEO optimization
- Maintain 99.9% uptime with enterprise-grade security and performance

### **Strategic Objectives (3-Year Vision)**

- Future-ready architecture for emerging technologies (AR/VR, voice search, IoT)
- Scalable infrastructure supporting business growth
- Enhanced user personalization through machine learning
- Multi-channel content delivery optimization

### **3. Technical Architecture Requirements**

#### **3.1 Infrastructure & Hosting**

##### **Must Have:**

- Cloud-based hosting (AWS, Azure, or GCP) with auto-scaling capabilities
- CDN integration with global distribution points
- Load balancing with minimum 99.9% uptime SLA
- Automated backup systems with 1-1-1 backup strategy
- Database clustering with read replicas for performance optimization

##### **Performance Specifications:**

- Page load times: <3 seconds for 95% of requests
- Core Web Vitals compliance (LCP <2.5s, FID <150ms, CLS <0.1)
- Support for 1,000+ concurrent users
- 99.9% uptime with <1 hour MTTR

#### **3.2 Security Requirements**

##### **Must Have:**

- Web Application Firewall (WAF) with DDoS protection
- SSL/TLS certificate management with auto-renewal
- Two-factor authentication for all admin users
- Role-based access control with granular permissions
- Data encryption at rest and in transit (AES-256)
- GDPR/PDPA compliance for data handling
- Server hardening with latest security patches applied within 1 week
- Regular security audits and quarterly penetration testing

##### **Should Have:**

- Single Sign-On (SSO) integration capabilities
- Advanced threat detection and monitoring
- Security incident response procedures

### **3.3 Database & Data Management**

- Scalable database solution (MySQL 8.0+ or PostgreSQL 13+)
- Automated daily backups with 30-day retention
- Point-in-time recovery capabilities
- Data archiving and lifecycle management
- Performance monitoring and optimization tools

## **4. Functional Requirements**

### **4.1 Content Management (Priority: Must Have)**

#### **4.1.1 Page Building & Design**

- Drag-and-drop page builder similar to WordPress Elementor
- Pre-built templates and design components library
- Custom CSS/HTML editing capabilities
- Responsive design preview and editing
- Version control with rollback functionality
- Content approval workflows with multi-level permissions

#### **4.1.2 Content Types Support**

- Articles, landing pages, banners, downloadable files
- Embedded videos with streaming optimization
- Interactive elements and animations
- Image galleries with lazy loading
- Future AR/VR content integration readiness
- Bulk content import/export capabilities

#### **4.1.3 Content Migration**

- Complete migration from existing Sitefinity CMS to new platform
- Preservation of SEO rankings and URL structures
- Content mapping and relationship preservation
- Migration testing and validation procedures

#### **4.2 Forms & Data Collection (Priority: Must Have)**

- Drag-and-drop form builder with conditional logic
- Multi-step forms with progress indicators
- File upload capabilities with virus scanning
- Email notifications with customizable templates
- Integration with CRM systems for lead management
- CAPTCHA and spam protection
- Form analytics and conversion tracking

#### **4.3 Calendar Integration (Priority: Must Have)**

- Two-way sync with Outlook/Exchange calendars
- Real-time booking availability display
- Conflict resolution and double-booking prevention
- Automated booking confirmations and reminders
- Integration with payment gateway for paid bookings
- Booking management dashboard for administrators

#### **4.4 Announcements & News Management**

- Scheduled publishing with automatic expiration
- Priority levels and categorization
- Push notifications to mobile app
- Social media auto-posting capabilities
- Newsletter integration
- Archive and search functionality

#### **4.5 Advertisement Management (Priority: Should Have)**

- Banner and inline advertisement creation tools
- Scheduling with start/end dates and time-based targeting
- Multiple placement positions (header, sidebar, footer, inline)
- Click tracking and performance analytics
- A/B testing for advertisement effectiveness

- Revenue tracking and reporting
- Integration with Google AdSense or similar platforms

## **5. Access Control & Security Features**

### **5.1 Member-Only Content (Priority: Must Have)**

- Granular content tagging with "Member Only" classifications
- Role-based access control (Guest, Member, Premium Member, Admin)
- Content visibility rules based on membership tiers
- Secure login/logout with session management
- Password reset and account recovery workflows
- Member registration and profile management

### **5.2 User Authentication**

- Integration with existing member database
- OAuth2/SAML support for enterprise authentication
- Social login options (LinkedIn, Google, Facebook)
- Multi-factor authentication for sensitive areas
- Account lockout policies and security monitoring

## **6. Mobile App & API Integration**

### **6.1 API Architecture (Priority: Must Have)**

- RESTful API design with comprehensive documentation
- GraphQL endpoint for flexible data queries
- API versioning strategy with backward compatibility
- Rate limiting and throttling controls
- Real-time data synchronization via webhooks
- API security with OAuth2 and API key management

### **6.2 Mobile App Integration**

- Headless CMS capabilities for app content delivery
- Content flagging system for app inclusion
- Optimized data payloads for mobile performance

- Push notification management
- Offline content caching support
- Deep linking integration

### **6.3 Content Delivery**

- Structured data export for mobile consumption
- Image optimization and multiple format support
- Content personalization based on user preferences
- Geolocation-based content delivery

## **7. Third-Party Integrations**

### **7.1 Salesforce Integration (Priority: Must Have)**

- Bi-directional data synchronization
- Member login authentication via Salesforce
- Course and event listing integration
- Lead capture and management
- Custom object support and field mapping
- Real-time sync with conflict resolution

### **7.2 Social Media Integration (Priority: Should Have)**

- LinkedIn and Meta platform content synchronization
- Social media feed display on website
- Social sharing optimization with Open Graph tags
- Analytics integration for social performance tracking

### **7.3 Payment Gateway Integration (Optional)**

- Secure payment processing for events and courses
- Multiple payment method support
- Recurring billing for memberships
- Invoice generation and management
- PCI DSS compliance
- Integration with accounting systems

## **8. AI-Powered Features**

### **8.1 AI Chat Functionality (Priority: Must Have)**

- Intelligent chatbot with natural language processing
- Integration with existing knowledge base and FAQ
- Multi-language support (English, Mandarin, Malay, Tamil)
- Escalation to human agents when needed
- Chat history and analytics
- Training capability with custom data sources

### **8.2 AI Search Functionality (Priority: Must Have)**

- Semantic search with context understanding
- Content recommendation engine
- Auto-complete and search suggestions
- Faceted search with filters
- Search analytics and query optimization
- Voice search capabilities (future enhancement)

## **9. SEO & Search Optimization**

### **9.1 Technical SEO (Priority: Must Have)**

- SEO-friendly URL structures with customization
- Automated canonical tag generation
- Editable meta titles, descriptions, and keywords
- Schema markup integration
- XML sitemap auto-generation and submission
- Robots.txt management with per-page control
- 301/302 redirect management
- Core Web Vitals optimization

### **9.2 Content SEO**

- SEO content analysis and recommendations
- Keyword density and readability scoring

- Internal linking suggestions
- Image alt-text management
- Structured data markup for rich snippets

## **10. Analytics & Reporting**

### **10.1 Built-in Analytics (Priority: Must Have)**

- Comprehensive dashboard with key metrics
- Page visit tracking with unique visitor identification
- Session duration and bounce rate analysis
- Content performance metrics
- User journey and conversion funnel analysis
- Real-time visitor monitoring

### **10.2 Third-Party Analytics Integration**

- Google Analytics 4 integration
- Google Tag Manager support
- Heatmap and user behavior tracking (Hotjar/Crazy Egg)
- A/B testing platform integration
- Custom event tracking

### **10.3 Reporting Capabilities**

- Automated report generation and scheduling
- Custom report builder with drag-and-drop interface
- Export functionality (PDF, Excel, CSV)
- Member-only content access reports
- Permission audit logs with user activity tracking
- Performance and security monitoring reports

## **11. Non-Functional Requirements**

### **11.1 Performance Requirements**

- Page load times under 3 seconds
- Image compression and optimization



- Lazy loading for images and content
- Browser caching optimization
- Minification of CSS, JavaScript, and HTML
- Progressive Web App (PWA) capabilities

## **11.2 Scalability & Architecture**

- Microservices architecture where applicable
- Container-based deployment (Docker/Kubernetes)
- Horizontal scaling capabilities
- Load testing validation for 5,000+ concurrent users
- Database optimization and query performance tuning

## **11.3 Browser & Device Compatibility**

- Cross-browser support (Chrome, Firefox, Safari, Edge)
- Mobile-first responsive design
- Tablet optimization
- Progressive enhancement principles
- Accessibility compliance (WCAG 2.1 AA)

## **11.4 Backup & Disaster Recovery**

- Automated daily backups with 30-day retention
- Geographic backup distribution
- Disaster recovery plan with RTO <4 hours, RPO <1 hour
- Business continuity procedures
- Regular backup testing and validation with reports on a quarterly basis

## **12. Training & Support Requirements**

### **12.1 Training Deliverables**

- Administrator training for 5 users (8-hour sessions)
- Content editor training for 15 users (4-hour sessions)
- Comprehensive user documentation and video tutorials
- Quick reference guides and cheat sheets

- Train-the-trainer sessions for internal knowledge transfer

## **12.2 Ongoing Support**

- 6 months post-launch warranty and bug fixes
- Technical support SLA: 4 hours response, 24 hours resolution
- Monthly system health checks and optimization
- Quarterly security updates and patches
- Annual platform updates and feature enhancements

## **13. Testing & Quality Assurance**

### **13.1 Testing Requirements**

- User Acceptance Testing (UAT) with client involvement
- Cross-browser and device testing
- Load testing with simulated user scenarios
- Security penetration testing
- Accessibility testing and compliance validation
- Performance testing and optimization

### **13.2 Go-Live Requirements**

- Staged deployment with rollback capabilities
- Content migration validation
- SSL certificate implementation
- DNS cutover planning and execution
- Post-launch monitoring and support

## **14. Project Timeline & Delivery**

**Target Completion: December 2025**

### **Proposed Phases:**

1. **Discovery & Planning** (4 weeks)
2. **Design & Architecture** (6 weeks)
3. **Development Phase 1** (Core CMS) (8 weeks)
4. **Development Phase 2** (Integrations) (6 weeks)

5. **Testing & UAT** (4 weeks)
6. **Content Migration** (3 weeks)
7. **Training & Go-Live** (2 weeks)

## **15. Vendor Requirements**

### **15.1 Mandatory Qualifications**

- Minimum 5 years experience in enterprise CMS development
- Proven track record with similar integration projects
- Certified developers in chosen technology stack
- Local support team in Singapore
- ISO 27001 or equivalent security certification
- Portfolio of similar projects with references

### **15.2 Preferred Qualifications**

- Experience with Salesforce integration
- Mobile app development experience
- AI/ML implementation experience
- Multi-language website development
- Government or association sector experience

## **16. Evaluation Criteria**

### **Technical Capability (40%)**

- Solution architecture and scalability
- Security implementation approach
- Integration methodology
- Performance optimization strategy

### **Experience & References (25%)**

- Relevant project portfolio
- Client references and testimonials
- Team qualifications and certifications
- Industry experience

### **Commercial Proposal (20%)**

- Total cost of ownership
- Value for money proposition
- Payment terms and structure
- Ongoing support costs

### **Project Approach (15%)**

- Implementation methodology
- Risk management approach
- Communication and reporting procedures
- Training and knowledge transfer plan
- Go Live Date: 15 Dec 2025

## **17. Submission Requirements**

### **Required Documentation:**

- Technical proposal with detailed architecture
- Project timeline with milestones
- Team composition and CVs
- Commercial proposal with breakdown
- Client references (minimum 3)
- Portfolio of relevant projects
- Support and maintenance proposal

### **Submission Details:**

- **Deadline:** 07 August 2025, 4pm (GMT+8)
- **Format:** PDF submissions via email
- **Contact:** [casin.yap@isca.org.sg](mailto:casin.yap@isca.org.sg) / [isca.ict@isca.org.sg](mailto:isca.ict@isca.org.sg)

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**Note:** This ITQ represents our vision for a comprehensive, future-ready content management solution. We welcome innovative approaches and value-added suggestions that align with our objectives and budget considerations.