**“Gen AI Solutions for Customer Care (for distant serving customer touchpoints)” at Ucom**

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**Business Requirements**

**Introduction**

Ucom is considering the Generative Artificial Intelligence (Gen AI) technologies, capabilities and functionalities adaptation and use by the Customer Care as part of a strategic initiative to modernize customer support capabilities and for advancing operational efficiency. The objective is to deploy AI-driven functionalities that go beyond traditional automation by introducing intelligent, context-aware systems capable of understanding, predicting, and responding to customer needs across customer distant serving touch points.

The envisioned AI components are expected to enhance self-service capabilities, optimize call handling and routing, support agents in real-time, and enable proactive customer communication. These features should be fully aligned with the company’s goals and objectives of deploying customer centricity via advancing customer satisfaction, reducing average handling time (AHT), increasing first call resolution (FCR), and lowering operational costs.

All proposed AI solutions must support multilingual capabilities (including Armenian, English, and Russian), and be fully capable for integrations with existing and future infrastructure such as Contact Center (Call Center) and IVR systems, CRM platforms, Billing systems, Ticketing systems, reporting & analytics tools. Furthermore, the solutions must adhere to data privacy and regulatory compliance frameworks, including but not limited to GDPR.

This technical description outlines Ucom’s expectations and requirements for AI-powered features to be fully technically compatible with the Contact Center solution, setting a clear foundation for evaluation, integration, and future scalability.

**Required Functionality (brief):**

The requested AI solutions should have the following latest implemented components, functionalities and features:

1. Generative AI Integration & Compatibility (Arm, Rus, Eng support)
2. AI-based Situational IVR
3. AI-powered Customers Serving Virtual Assistant & Chat bot
4. Internal supporting AI Agent (RPA & Knowledge Support)
5. AI-driven Virtual Training Environment
6. AI based Sentiment Analysis & Quality Monitoring
7. AI Analytics for CC Performance Optimization
8. Predictive Analytics
9. AI-Driven Insights & Reporting
10. Data Residency (Armenia - On-premise or Local Cloud**)**

**Required Functionality (with descriptions)**

**1. Generative AI powered solutions (supporting Arm, Rus & Eng) or capable of operating with 3rd party AI solutions**The AI solution must be fully interoperable with it via standard integration interfaces such as Restful APIs, Web hooks, or SDKs. Seamless integration with Ucom’s new Contact Center ecosystem is essential, ensuring smooth data exchange and operational consistency across all modules, including IVR, CRM, Omni channel tools, reporting and analytics engines. The solution must support multilingual operation in Armenian, Russian, and English. The solution should also be architected in a modular and scalable way, allowing AI-powered features to be activated and expanded over time without the need for major system changes or disruptions. Below is the list of AI-powered functionalities that are under consideration for phased implementation over a 3-year period since 2026Y.

**2. AI based or powered situational IVR**  
The new situational IVR should use Gen AI and other related technologies to go beyond traditional IVR and provide more dynamic, conversational experience for customers. It should understand complex voice inputs, provide accurate & correct responses, guide customers through processes, and route them into the right Call Center splits (routes)/channels or directly to the right human agents when needed.  
Deploy AI-powered situational IVR with dynamic menu options based on customer input and received and analyzed data from the integrated other systems. The AI based IVR should have the operative performance diagnosis tool during customer serving for understanding and transferring a call to the human operator or specialist of the Contact Center when it will be needed.

**3. AI powered Customers serving Virtual Assistant or Chat bot**   
The new Virtual Assistant and Chat bot based on using the ML (Machine Learning), NLP (Natural Language Processing) & Speech recognition should understand and respond to customer inquiries in a conversational way. It will be deployed across all distant serving customer touch points like voice, live chat, email, social media, or messaging apps.  
AI-driven customer support must understand and respond in Arm, Russ & Eng. AI should be seamlessly integrated with various communication channels (voice, email, social media, chat, etc.) to provide a consistent customer experience across all touch points (towards Omni-channel support).

**4. Internal supporting AI Agent**

The purpose of Internal supporting AI Agent is in helping the employees of Customer Care to reduce the manual actions while serving and post-serving of customers via the:

* Internal Robotic Process Automation (RPA) working through LLM (Large Language Models): RPA works in conjunction with AI to free up human agents from mundane tasks, enabling them to focus on more complex customer issues. For example based on the context of the customer serving conversation analysis to propose with autofill in standards forms (CC reason codes, CRM inputs and Tickets, etc.).
* Internal Gen AI Agent for Knowledge Management & FAQs: AI should suggest in live mode the knowledge articles, information templates, scripts or solutions to CC agents, preventively helping them to find relevant information quickly and provide more accurate responses to customers.

**5. AI driven Virtual training simulation environment**

AI-driven training solution for agent skill improvement for the on-job trainings and customer serving simulations advancement:

* Soft Skills Training – Focuses on communication, empathy, tone of voice, and handling difficult situations,
* Product Knowledge – Virtual trainers can provide agents with product information and updates in real-time, helping them stay informed,
* Customer Interaction Simulations – Simulate live calls, chats, or emails, allowing agents to practice their responses and techniques in a safe environment,
* Real-Time Performance Feedback – Monitor conversations in real-time, offering suggestions or feedback on how the agent can improve.
* Compliance Training – Ensures agents are up-to-date on company policies, regulatory requirements, and best practices.

**6. AI based Sentiment analysis & Quality Monitoring**   
Sentiment analyses that can help prioritize calls, tickets, route calls to the right agents, or alert supervisors to escalating issues. Implementation of the monitoring of both the performance of CC agents and analytics of customer serving calls (recordings) and text interactions for evaluating the adherence to quality standards and processes.

**7. AI Analytics for CC Operations Optimization**Provide analytics and insights related to the CC shifts effectiveness and alignment to the loads deviations, agent’s productivity, call handling times, and overall contact center performance, enabling data-driven decision-making and optimization.

**8. Predictive Analytics**Based on the historical data and ongoing trends the AI should predict calls volume, customer intent, and outcomes by helping Contact center optimize staffing levels, reduce wait times, and improve response quality.

**9. AI-Driven Insights and Reporting**The module should leverage the AI to analyze customer interactions, track metrics, and generate reports to help managers make informed decisions about staffing, training, and overall customer experience.

**10. Data residency**  
The Customers personal data residency is mandatory for Armenia. (AI platform on premise, or cloud in Armenia could be an option).

**AI capacity related & operational requirements**

1. Multilingual Real-Time Processing:  
   All AI-powered components must support real-time understanding and response in Armenian, Russian, and English, across both voice and text channels.
2. Omni-Channel Integration Compatibility:  
   The AI system should be natively or via API integrated with all major customers distant serving communication channels including voice, live chat, email, social media, and messaging apps, ensuring consistent and seamless customer experience.
3. High-Capacity Situational IVR Handling:  
   The AI-based IVR must handle complex voice inputs, route customers accurately, and trigger human agent transfers when necessary. It should dynamically generate menus based on customer intent and support performance diagnostics tools during the call handling process.
4. Concurrent User & Request Handling:  
   The system must support multiple concurrent customer sessions across various channels, including voice and messaging, with minimal latency and high availability.
5. Internal AI Agent Performance:  
   AI components like internal RPA tools and knowledge suggestion agents must perform in live mode with minimal delay to support agent efficiency.
6. Virtual Training & Simulation Load:  
   The environment must support simultaneous virtual training sessions, real-time feedback mechanisms, and data streaming for simulation purposes, without degradation of service quality.
7. Analytics & Reporting Throughput:  
   The system must process and generate real-time performance insights, customer sentiment analytics, and predictive forecasts with high reliability and data integrity.
8. Infrastructure Flexibility:  
   The AI solution must allow for on-premise deployment, or cloud deployment within Armenia, in full compliance with data residency requirements of the country and company.

**Technical Requirements**

1. **Solution Architecture and Integration**

* The contract to be concluded with the AI solution provider must regulate the following three aspects:
  + Initial supply, implementation, and warranty of the AI system or components, including a one-time payment covering deployment, configuration, and baseline support.
  + Ongoing maintenance and technical support services, including updates to AI models, performance tuning, bug fixes, and adaptation to changing business requirements — billed on a periodic basis.
  + A framework agreement for post-deployment expansion and functional enhancement, including predefined pricing terms for at least 5 years covering major AI-related components such as additional modules, licenses, model retraining, integrations, or platform scalability needs.
* Deployment Flexibility & Architecture

The AI solution should support multiple deployment models, including on premise, hybrid, and cloud environments (preferably located in Armenia) to comply with data residency and regulatory requirements. The system must be flexible and modular, ensuring compatibility with Ucom’ s evolving infrastructure strategy.

* Hardware & Infrastructure Compatibility

The AI solution should be hardware-agnostic, capable of running on commodity infrastructure without requiring proprietary hardware. It must provide detailed technical specifications including computing, storage, and network requirements (e.g., disk types, network bandwidth, latency thresholds, QoS), to ensure optimized performance and seamless integration with Ucom’ s environment.

* Virtualization Support

The solution should support modern virtualization technologies and must be compatible with Ucom’ s existing virtual infrastructure. Supported hypervisors and virtualization standards should be clearly indicated.

* API and Integration Readiness

The AI system must expose standardized APIs, including REST APIs (preferably TM Forum Open API-compliant) and SOAP over HTTP, enabling smooth integration with Ucom’ s Business Support Systems (BSS), Operational Support Systems (OSS), and third-party AI engines if needed.

* SIP and Communication Protocols

In case of voice-based AI modules (e.g., AI IVR), the solution must support SIP protocol for seamless communication with Contact Center infrastructure and telephony networks.

* Scalability & High Availability

The AI platform must be scalable to support future business growth — such as increased interaction volume, users, or added AI use cases. It should also ensure high availability (99.99%), redundant architecture, and disaster recovery mechanisms to support uninterrupted AI services.

* Third-Party AI Compatibility

The AI system must be either natively AI-powered or fully compatible with third-party Generative AI solutions (via API, platform-based, or embedded). It must include or allow creation of supporting data models, DB schemas, and processing layers required for LLM, NLP, ML, and GenAI workloads.

* Redundancy & Fault Tolerance (AI Modules)

Any mission-critical AI component (e.g., routing engine, NLP processor, AI-based IVR) should be deployed in redundant mode (active-active or active-passive), and redundancy types and protocols must be clearly described.

* Location-Agnostic AI Integration

Since Ucom’ s operations span multiple regions, the AI solution must not rely on a single office location. AI services should be accessible from all Ucom operational sites, ensuring geographically distributed resilience.

**2. Software, Applications & Modules**

* AI System Management Interface: A centralized, role-based management module allowing for configuration, monitoring, and control of the AI components. Should support roles for AI system admins, technical operators, and business supervisors.
* Generative AI-powered IVR Module: Must include a configurable and situational IVR environment that leverages AI to provide dynamic, personalized, and conversational routing for customer interactions. Administrative interface for managing first-level routing logic without deep technical skills is highly desirable.
* Virtual Assistant & Chatbot Interface: Must include or support integration with a Gen AI-powered virtual assistant that can operate across multiple channels (voice, chat, messaging), with multilingual support (Arm, Rus, Eng), and capable of continuous learning from customer interactions.
* AI Knowledge Engine: Module or interface that supports live recommendation of knowledge articles and solution templates to agents, based on real-time context and interaction content.
* AI-Powered Analytics & Reporting Module: Ability to analyze interaction data, customer sentiment, and usage trends using AI algorithms. Reports should support visualization, trend analysis, and decision-making insights.
* Simulation & Training Environment: AI-based virtual environment for agent skill development, soft skills training, compliance scenarios, and performance feedback.
* API & Integration Support: Full API support (REST, OpenAPI, etc.) to enable integration with Contact Center platforms or third-party systems, including seamless data flow to/from CRM, WFM, and Ticketing platforms where needed.
* Data Storage & Recording Support: If applicable, ability to store AI-processed interaction metadata or session logs in compliance with Ucom’ s storage policies and data residency requirements.

**3. Data Security & Regulatory Compliance, Authentication, Authorization, Accounting (Logging & Monitoring)**

* **Data Security & Regulatory Compliance**
  + The AI system must ensure end-to-end encryption for both incoming and outgoing data.
  + Data must be encrypted both in transit and at rest.
  + The system must be fully compliant with data protection regulations of the Republic of Armenia, including data residency requirements (data must be stored and processed within Armenia).
  + For personal or sensitive data processed by the AI system, it should be possible to apply data masking, where applicable.
* **Authentication**
  + The system must be able to integrate with Ucom’s Active Directory (AD) for centralized user identity management.
  + Multi-Factor Authentication (MFA) must be supported, especially for users with administrative privileges.
  + Authorization
  + The system must support Role-Based Access Control (RBAC), allowing for differentiated access levels for technical and business users.
  + Support for role delegation via AD groups is recommended.
* **Accounting (Logging & Monitoring)**
  + The AI system must provide comprehensive and standardized logging, including authentication, authorization, configuration changes, and data access events.
  + All logs must be transferable to Ucom’s centralized SIEM system for real-time monitoring and alerting.
  + Logs must include key AI system activities, configuration modifications, successful/failed login attempts, and other critical events.

**4. Performance and Monitoring**

* The AI system should include built-in performance and health monitoring capabilities relevant to its own components (e.g., model response times, request load, service availability, latency).
* AI-based monitoring tools should be able to analyze usage patterns, operational metrics, and trends in real-time, providing suggestions for performance optimization and operational improvements.
* Logs related to AI operations, including API calls, inference success/failure, latency, and load metrics, must be generated and made available for analysis.
* The system must support centralized log management for AI components, ensuring proper storage, monitoring, and auditing of AI-specific activities.
* Minimum log retention requirements:
  + **Security logs** related to AI authentication and access: at least **1 year**
  + **Operational logs** for AI model usage and performance: at least **3 months**
* The AI solution should be capable of **monitoring its integration performance** with other systems (e.g., contact center platform, communication channels, databases, etc.) and report any degradation or failure in real-time.

**5. Scalability and Flexibility**

* AI Solution Scalability: The AI platform must support both horizontal and vertical scaling, allowing for increased usage (e.g., higher request load, concurrent users, language processing demands) without performance degradation.
* Flexible Deployment: The AI system should support modular deployment (on premise, hybrid, or private cloud environments within Armenia), ensuring adaptability to Ucom’ s infrastructure and regulatory requirements.
* Disaster Recovery & Business Continuity: The AI platform must include or integrate with backup and failover mechanisms to ensure minimal service interruption during failures, updates, or migrations.
* Future Expansion: The architecture should allow easy integration of additional AI modules or third-party AI tools (via API or platform-based integration) to accommodate evolving business needs over the next 3–5 years.

**6. Reporting, Analytics and Administration**

* **AI Analytics Module**:  
  The AI system must include a built-in analytics module capable of providing both operational and predictive insights related to AI-driven interactions (e.g., virtual assistant performance, user behavior patterns, response accuracy, intent recognition rates, etc.).
* **Reporting Capabilities**:  
  The solution should support comprehensive, flexible, and customizable reporting on AI performance metrics, training data evolution, user satisfaction, escalation rates, and other KPIs relevant to AI functionalities over a 3-year time horizon.
* **Administration Interface**:  
  A web-based interface should be provided for authorized AI system administrators to manage configurations, training data, integrations, and monitor real-time performance of AI services.
* **Access Management**:  
  The system should support Role-Based Access Control (RBAC) to ensure secure and structured administrative access across AI functions.

**7. User Manuals and Documentation**

The AI system must be delivered with complete and clear documentation, including:

* **Technical Documentation:**  
  Full technical manuals describing the AI system architecture, configuration, supported APIs, data flow diagrams, integration points, NLP/LLM models used (if applicable), and interaction protocols.
* **Operation and Maintenance Guides:**  
  Documentation for daily operation, model training/updates (if applicable), monitoring, and troubleshooting of the AI system.
* **Deployment Guide:**  
  Step-by-step instructions for deploying the AI solution (on-premises and/or hybrid), including system prerequisites and environment configuration.
* **Language:**  
  All documentation must be provided in **English**. Availability in **Russian** is considered an advantage.
* **Final Handover Requirement:**  
  Prior to entering the support or warranty phase, the supplier must deliver a complete set of final technical documentation, including architectural diagrams, configuration settings, integration schemas, and operational procedures, ensuring full transparency and knowledge transfer.

**8. Project, Migration, Training and Support requirements**

The selected supplier must provide a tentative AI project implementation plan, including timelines, key milestones, and risk/change management strategies. The plan should also define penalties or corrective actions for significant deviations from the agreed schedule or deliverables.

A migration or deployment plan must be submitted that ensures smooth integration of the AI system into the existing infrastructure, with no disruption to ongoing operations. This includes clear fallbacks or rollback procedures.

The supplier must deliver advanced training programs covering both technical administration and AI-specific areas (e.g., model configuration, prompt tuning, NLP management, data labeling, etc.). Training must be provided for all relevant departments (e.g., Customer Care, IT, and Business Analytics teams).

The training package should include:

* A detailed training plan,
* In-person or online sessions,
* E-learning modules and step-by-step documentation for each AI module/function,
* Interactive tutorials, video guides, and hands-on learning labs,
* A searchable, up-to-date knowledge base to support AI system operation and maintenance.

An online ticketing system with tracking capability and a clearly defined incident escalation process must be provided for post-deployment technical support.

The selected supplier must define and commit to Service Level Agreements (SLAs) that cover:

* System performance and uptime,
* Response and resolution times for incidents,
* Scheduled and emergency maintenance/support,
* Access to updates, patches, and AI model refinements during the contract term,
* Availability of dedicated vendor support for troubleshooting and platform evolution.

**9. Vendor Support & Upgrade Paths**

* The selected supplier must provide a clear roadmap for AI software upgrades, security patches, and new feature releases throughout the contract period.
* The supplier should ensure effective communication and collaboration, timely task management, problem resolution, and constructive feedback throughout the entire project lifecycle and beyond, using the agreed communication channels.

**10**. **Transparent, logical & cost efficient pricing** should be provided regarding to licensing, warranty, and technical support during the contractual period and at least for the 5 years after the acceptance of the system (including additional licensing, needed expert level expert/hour pricing, etc.)

**Ethical deployment and use of proposed AI Solution**

The proposed AI solutions should be developed and deployed in accordance with established ethical principles, ensuring fairness, transparency, accountability, and privacy.

The AI systems and solutions should avoid bias by using representative data and implementing regular audits.

All AI decision-making processes should be explainable to relevant stakeholders.

Data should be handled in compliance with data protection regulations, and user consent and rights will be respected throughout.

The AI will be used to augment human decision-making, not replace it, ensuring responsible and beneficial outcomes for all users.