PROJECT 'PROCUREMENT AI AGENT'

ABU DHABI AI FACTORY STRATEGIC IMPLEMENTATION

Timeline: April 1, 2025 – March 31, 2026 **(Assumption)**

TPM Office: Rukhsar Ahmad

Core Delivery Scope

Intelligent Automation:

- End-to-end automation of RFP Creation and Technical Evaluation workflows.
- Deployment of Sourcing AI Agents to autonomously identify and optimize procurement paths.

System Ecosystem:

- Deep integration with Oracle Fusion ERP for real-time data synchronization.
- A Sovereign Cloud architecture ensuring 100% data residency and security.

Localized Excellence:

- Full Bilingual Support (Arabic & English) for all AI-generated legal and technical documents.
- Purpose-built models for Abu Dhabi Legal Compliance and audit-readiness.

Strategic Insights:

- Real-time Analytics dashboard for monitoring vendor performance.
- An AI-driven Recommendation Engine for data-backed vendor selection.

Out-of-Scope: Direct financial disbursement (payments) remains a manual function to maintain internal financial controls.

Strategic Vision & Mandate

- **Objective:**

  Deploy a Sovereign AI Agent to 15+ Abu Dhabi entities.

- **Efficiency(KPI):**

  70% reduction in RFP drafting time; 98% document accuracy, 50% decrease in procurement cycle time

- **ROI:**

  Targeted AED 5M annual savings through process automation.

- **Data Sovereignty:**

  100% Data Residency in Azure UAE North.

Part A: Project Planning and Strategy

Master Roadmap: April 2025 - March 2026

- **Q2 2025:** Mobilization, Infra setup, and 20% Data Cleansing Sprints.
- **Q3 2025:** RAG Engine Development and Pilot UAT (Phase 1 Build).
  - **Phase 1 (Visibility - Oct '25): GITEX**

    Launch MVP at GITEX. Build trust and political capital with a high-impact demo.
  - **Phase 2 (Connectivity - Dec '25): INTEGRATION**

    Deep technical integration. Bi-directional sync with Oracle Fusion ERP.
  - **Phase 3 (Excellence - Mar '26): Go-Live**

    Full entity onboarding. Final Arabic legal tuning and security hardening.
- **Logic:** Phasing de-risks the project by securing early executive buy-in.

Unified Squad Structure (12 FTE)

- **Leadership (Shared):**

  TPM (Program Governance/Risk) and Product Owner (**PO**) (Value/Backlog Prioritization).

- **Shared Services:**

  Business Analyst (BA) – Gathering and data labeling for the 20% quality gap.

- **Squad Alpha (Intelligence - 4 FTE):**

  Team: 1 Tech Lead, 3 ML/Data Engineers.

  Focus: RAG pipeline, Model fine-tuning, and Data Cleansing.

- **Squad Beta (Platform - 5 FTE):**

  Team: 3 Backend Devs, 1 UI/UX Designer, 1 QA Engineer.

  Focus: Oracle Integration, UI, and Security.

Project Methodology - Hybrid Approach

- **Waterfall Layer:**

  Applied to Infrastructure Set-up, Data Sovereignty Sign-offs, and Security Audits (Fixed timelines/compliance).

- **Agile Layer (Scrum):**

  Applied to AI/UI development. 2-week Sprints for iterative feature building and rapid testing.

- **UAT & Deployment:**

  4 weeks of formal UAT with Pilot Entities before Gitex; Blue-Green deployment strategy to ensure zero-downtime.

Stakeholder Communication Matrix

- **Steering Committee (Monthly/Bi-Weekly):**

  DGE, Dept. of Finance, and Entity Leads for budget/ROI review.

- **Operational & Functional Sync (Daily Sync):**

  BA, PO & TPM to manage *Technical+Functional* blockers and sprint health.

- **Daily Standups(Squad):**

  Rapid tactical alignment within the 2-week Scrum cycles.

Change Management Process

- **Formal Impact Analysis:**

  Every scope request is evaluated against Timeline/Budget.

- **PO Approval:**

  All backlog changes must be prioritized by the Product Owner.

- **Scope Freeze:**

  No major logic changes 6 weeks prior to GITEX Phase 1.

Financial Management (AED 2.8M Cap)

- **ALLOCATION:**

  75% Labor (12 FTE), 15% Cloud/GPU Compute, 10% Contingency Buffer.

- **CONTROL:**

  No-cost-overrun policy; leveraging internal team expertise to avoid vendor hikes.

- **ROI:**

  Targeted break even within 7 months post-Phase 3 deployment.

Risk Management & Mitigation Plan

- **High Risk:**

  Data Quality Lag (Mitigated by early Data Sprints).

  Oracle Integration Downtime (Mitigated by Shadow API strategy).

  Scope Creep (Mitigated by a strict "MVP-First" approach for Phase 1).

- **Medium Risk:**

  Arabic NLP Accuracy (Mitigated by Hybrid Search tuning).

  Team Knowledge Gap (Mitigated by daily "Cross-Squad" knowledge transfers).

Financial KPIs (The ROI)

- **Budget Management:**

  AED 2.8M fixed-price implementation.

- **Procurement Savings:**

  Identifying redundant vendor contracts.

- **Labor Efficiency:**

  Redirecting manual labor to strategic sourcing.

- **Total Cost of Ownership:**

  Optimizing LLM token usage via RAG.

Technical KPIs (Performance)

- **Response Time:**

  <8 seconds for complex AI queries.

- **Accuracy:**

  >95% success rate in Arabic NLP testing.

- **Uptime:**

  99.5% service availability SLA.

- **Data Refresh:**

  Real-time sync with Oracle Fusion Purchase Orders.

- **Monitoring:**

  Arize Phoenix or LangSmith for real-time trace monitoring

Gantt Chart

PROJECT TITLE	PROCUREMENT AGENT	
PROJECT MANAGER	RUKHSAR AHMAD	

WBS NUMBER	TASK TITLE	PHASE ONE							PHASE TWO		PHASE THREE			POST GO-LIVE				
		A	M	J	J	A	S	O	N	D	J	F	M	M	T	W	R	F
2	PHASE 1																	
1	PROJECT INITIATION																	
1.1	MOBILIZATION AND DISCOVERY																	
1.1.1	ARCHITECTURE AND INFRASTRUCTURE SETUP																	
1.2	DATA DISCOVERY AND CLEANING																	
1.3	RAG AND SLM DEVELOPMENT																	
1.4	DEVELOPMENT																	
1.5	PILOT AND INTEGRATION																	
	UAT																	
1.6	GITEX LAUNCH																	
2	PHASE 2																	
2.1	ORACLE FUSION INTEGRATION																	
2.2	END TO END UAT TESTING																	
3	PHASE 3																	
3.1	BUSINESS SIGN OFF																	
3.2	GO-NO GO CALL																	
3.2.1	STAGE DEPLOYMENT																	
3.2.2	PRODUCTION DEPLOYMENT																	
4	POST GO-LIVE																	
4.1	POST GO-LIVE SUPPORT																	

Part B: Technical Implementation

Technical Spec: Model Selection and Logic

- **The Model Decision:** Moving away from massive models (like GPT-4/Large Foundation) towards **Lighter Models (SLMs)** like **IBM Granite** and **Jais-30B**.
  - **Primary: Jais-30B (Sovereign Arabic model)** for local nuance (G42 & MBZUAI) - Purpose-built for UAE Arabic. It understands "Sharia-compliant" procurement and local legal terminology that Western models hallucinate.
  - **Secondary: IBM Granite -** Optimized for "Business Tasks" (RFP drafting, summarization). It is significantly cheaper to run and has a smaller memory footprint for sovereign hosting.
- **Reasoning:**
  - **Cost:** Granite offers lower inference costs (AED/Token) for high-volume government tasks.
  - **Latency:** Faster response times for procurement officers.
  - **Accuracy:** Jais-30B is purpose-built for Arabic legal context; Granite is optimized for enterprise data extraction.
  - **Sovereignty:** 100% Data Sovereignty on Azure UAE North.

Technical Spec: Orchestration - LangGraph

Why LangGraph for Abu Dhabi Government?

- **State Management:**

  LangGraph excels at "persistence." If a procurement officer starts an RFP drafting session, leaves, and comes back 2 hours later, the Agent remembers exactly where it left off in the workflow.

- **Controlled Agency:**

  Unlike "autonomous" agents that can go off the rails, LangGraph allows you to define strict **flow control**. You can ensure the Agent *must* pass a "Compliance Check" node before it is allowed to reach the "Draft Finalized" node.

- **Human-in-the-loop (HITL):**

  LangGraph has "interrupt" capabilities. The Agent can pause and wait for a human (the Procurement Officer) to approve a vendor selection before proceeding to the next step.

Technical Spec: RAG & Vector Strategy

- **Vector Database:**

  Azure AI Search

- **Index:**

  Storing 8 years of procurement history as high-dimensional vectors.

- **Retrieval:**

  Using "Hybrid Search" to combine semantic meaning with legal keyword exact-matches.

- **Guardrails:**

  Hallucination filters ensuring every output is traceable to an source document.

Technical Spec: Oracle Integration

- **Protocol:**

  Utilizing Model Context Protocol (**MCP**) for secure, standardized tool-use.

- **Connectivity:**

  OCI-Azure Interconnect private link. MCP Servers provide the interface to Oracle Fusion REST APIs.

- **Data Flow:**

  Bi-directional sync for Purchase Orders, Budget status, and Vendor Master data.

- **Latency:**

  Sub-second data retrieval through optimized API handshakes.

- **Advantage:**

  Decouples the AI from the API, allowing for modular updates and scaling.

Technical Spec: Security & Compliance

- **Identity:**

  Seamless integration with UAE Pass for single-sign-on (SSO).

- **Security:**

  AES-256 Encryption at rest; TLS 1.3 in transit; Private Link access only.

Technical Spec: Deployment & Scaling

- **Containerization**:

  Using Kubernetes (AKS) to scale pods across 15+ entities.

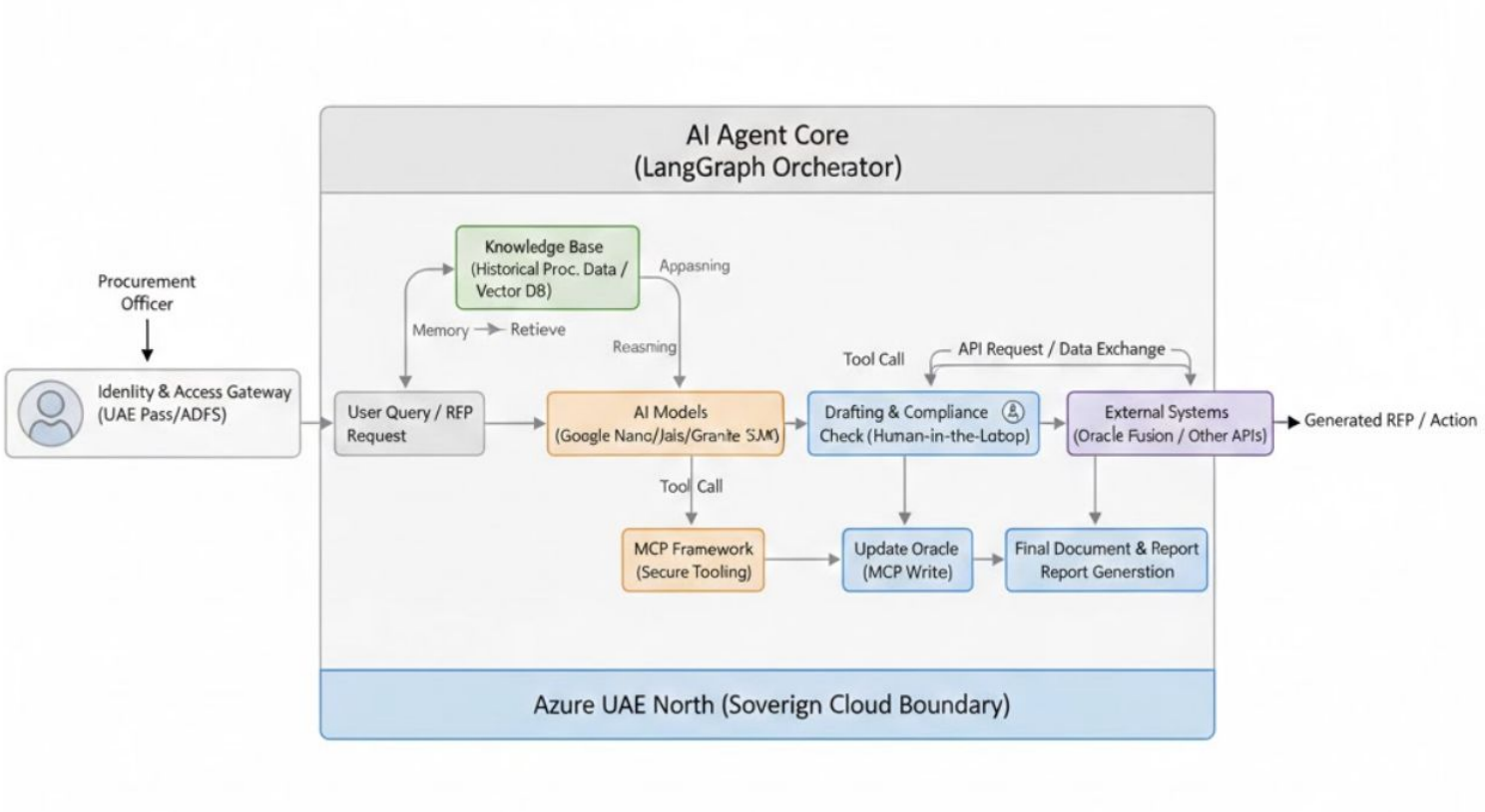
- **Deployment:**

  Continuous Integration/Deployment (CI/CD) with Blue-Green strategies.

- **Performance:**

  Optimized for <60s full document generation.

Technical Spec: High Level Architecture



Part C: Risk Management and Problem Solving

Scenario 1: The ERP Upgrade Crisis

- **Event:**

  Unplanned 6-week Oracle upgrade downtime during the dev phase.

- **Risk:**

  Threatens the October GITEX deadline and Phase 1 delivery.

Scenario 1: Shadow API Resolution

- **TPM Decision:**

  Decouple Phase 1 development from the live Oracle environment.

- **Action:**

  Build a mock-API (Shadow API) using high-fidelity data snapshots.

- **OUTCOME:**

  AI brain development continues uninterrupted; **GITEX launch is protected**.

Scenario 2: The Arabic Accuracy Crisis

- **Event:**

  Arabic accuracy at 65% vs 95% target; Vendor requests + Budget increase by 40%

- **Decision:**

  Reject Vendor request to protect the AED 2.8M budget cap.

  Fiduciary Responsibility to protect government budget.

Optimization Strategy:

Moving from Zero-Shot to **Few-Shot Prompting** using local high-quality legal templates.

Technical Pivot:

Implementing Semantic Re-ranking (Cohere/BGE) to ensure the RAG only retrieves the most relevant Abu Dhabi legal clauses.

Scenario 2: Prioritizing Budget Integrity & Performance

- **Action:**

  Pivot to internal Hybrid RAG tuning (Jais-30B) and Human-in-the-loop (HITL) review.

- **Viewpoint:**

  Internal expertise + Lighter models (SLM) solve accuracy without extra costs.

- **Outcome:**

  Phase 3 Go-Live remains on track for Q1 2026.

Impact Assessment (Financial/Schedule)

- **Schedule:**

  All Phase milestones (Oct, Dec, Mar) remain intact.

- **Budget:**

  AED 2.8M limit maintained; Contingency used for in-house tuning.

Mobilization: The First 30 Days

- **Week 1:**

  Team onboarding,Training & Azure Infrastructure provisioning.

- **Week 2:**

  Oracle API discovery and 20% Data Quality audit.

- **Week 3:**

  Deployment of Sprint 0; Initiation of first Data Cleansing sprint.

- **Week 4:**

  Completion of the environment setup and Development initiation.

  Baseline 'RAG Answer Relevancy' score of >70% on a sample of 100 historical RFP documents.

Conclusion: Delivering the AI Factory

- **Commitment**:

  On-time, on-budget delivery of a sovereign AI ecosystem.

- **Vision**:

  Positioning the Abu Dhabi Government as a global leader in AI-driven operations.

- **Call to Action / Next Step**:

  Immediate mobilization for April 1st start date.

- **Future Outlook (Phase 4):**

  Expanding to a 'Self-Service Vendor Portal' where vendors use AI to verify their own compliance before submission