AI Factory Technical Program Manager Case Study: Procurement Agent

1. Background

The AI Factory is the product and technology arm of GovAI mandated to discovery, deliver and scale AI products for whole of government. The AI Factory has key functions to achieve its mandate including product, design, engineering, data, and infrastructure. One key function in the team is technical program management, which entails managing the scope, timelines, and delivery quality for all products, platforms, and tools implementations. This function is responsible for creating and managing implementation plans, ensuring delivery quality, aligning with DGE and external stakeholders (including vendors and other entities), managing and mitigating risks, and all reporting activities. Given the nature of our scope, this function is fully technical and is also expected to identify and deliberate technical decisions, risks, and dependencies to achieve the goal.

You are being interviewed for a Technical Program Manager (TPM) role within the AI Factory.

2. Your Task

Currently, the AI Factory is responsible for more than 15 products and 3 platforms targeted for whole of government (i.e. all Abu Dhabi government entities and employees). TPMs are responsible to support the product and delivery teams to ensure timely delivery with the target level of quality.

For this case study, you should assume that you are handling several different products that are part of the Factory's roadmap. Particularly, you are tasked to create a project plan, a technical implementation document, and an executive report for a priority project called **"Procurement Agent".**

Below is the project brief for the **Procurement Agent** project:

- This is a priority AI/LLM project with an external government entity, and the AI Factory has been assigned to lead the delivery.
- The scope includes the following features and capabilities:
    - Automating the RFP creation and evaluation process.
    - Building AI agents to optimize the sourcing process.
    - Integration with existing government procurement ERP system (Oracle Fusion).
    - Multi-language support (Arabic and English) for all generated documents.
    - Compliance with Abu Dhabi Government procurement regulations and audit requirements.
    - Real-time vendor performance analytics and recommendation engine.
- **Delivery timelines:**
    - Phase 1: by Gitex
    - Phase 2: by December
    - Phase 3: Q1’2026
- **Business success metrics:**
    - Reduce RFP creation time by 70% (current: 3-4 weeks average).
    - Improve vendor evaluation accuracy by 40% compared to manual process.
    - Decrease procurement cycle time by 50%.
    - Generate cost savings of AED 5M annually across participating entities

3. Project Context and Constraints

Stakeholders:

- **Primary Client:** Department Government Procurment – Abu Dhabi.
- **Secondary Stakeholders:** Department of Finance.
- **Internal Stakeholders:** AI Factory leadership and Product teams, Engineering teams, Legal & Compliance.

Technical Environment:

- Oracle databases containing 8+ years of procurement data.
- Existing Microsoft Azure cloud infrastructure.
- Current authentication system: Active Directory Federation Services.
- Compliance requirements: ISO 27001, UAE Data Protection Law.

Budget and Timeline Constraints:

- Total project budget: AED 2.8M.
- Maximum team size: 12 FTE across all functions.

Known Technical Challenges:

- Legacy system APIs have limited documentation and inconsistent data formats.
- Historical procurement data quality issues (estimated 15-20% data cleansing required).
- Arabic NLP processing requirements for legal document analysis.
- Real-time integration requirements with 24/7 uptime SLA.
- Vendor onboarding process currently takes 45+ days (target: <5 days).
- Contractual process take up to 2 months (target: <2 weeks).

Technical Service Targets:

- System availability: 99.5% uptime.
- Response time: <8 seconds for standard queries.
- Data accuracy: >98% for automated document generation.

5. Case Study Questions

Part A: Project Planning and Strategy (40%)

1. **Create a comprehensive project plan** including:
    - Work breakdown structure with major milestones.
    - Critical path analysis and dependencies.
    - Resource allocation across different functions.
    - Risk mitigation strategies for the top 5 identified risks.
    - Go/No-go decision points and success criteria for each phase.
2. **Stakeholder Management Strategy:**
    - Develop a stakeholder communication matrix.
    - Identify potential conflicts between stakeholder priorities and resolution approaches.
    - Design a change management process for scope modifications.
3. **Project governance and reporting:**
    - Create a governance structure to increase project success.
    - Create standard reporting templates that can be used for executive reporting and internal portfolio management tools. These should include:
        1. Key performance indicators and project health metrics.
        2. Budget utilization and forecast.
        3. Risk heat map and mitigation status.

Part B: Technical Implementation (30%)

1. **Technical Architecture Document:**
    - Design the high-level system architecture.
    - Define integration points with existing systems.
    - Address scalability requirements for government-wide deployment.
    - Security and compliance considerations.
2. **AI/ML Implementation Strategy:**
    - Recommend specific AI models and frameworks for different capabilities.
    - Address Arabic language processing requirements.
    - Define training data requirements and data preparation approach.

Part C: Risk Management and Problem Solving (30% points)

Below are projected risk scenarios throughout the project.

Scenario 1: Three months into the project, you discover that ERP system requires a major version upgrade that wasn't planned, which will take 6 weeks and require system downtime. The project launch cannot be delayed for phase 1.

Scenario 2: The Arabic NLP model is achieving only 65% accuracy in legal document analysis during testing, significantly below the required 95% threshold. The specialized Arabic AI vendor suggests they need 4 additional months and 40% budget increase.

For each scenario, provide:

- Immediate action plan.
- Impact assessment on timeline, budget, and scope.
- Alternative solutions and trade-off analysis.

6. Deliverables Expected

Format Requirements:

- Part A: Project plan (Gantt chart), project kick-off deck (~20 slides), reporting templates (~5 slides).
- Part B: Technical implementation document (architecture diagrams + specifications, max 6 pages).
- Part C: Executive presentation (max 8 slides) addressing all scenarios and including the dashboard template.

7. Evaluation Criteria:

- **Technical Depth:** Understanding of AI/ML implementations and government technology constraints.
- **Program Management Maturity:** Structured approach to planning, risk management, and stakeholder coordination.
- **Problem-Solving:** Creative and practical solutions to complex technical and organizational challenges.
- **Communication:** Clear, executive-level communication of technical concepts and project status.