# QAI Project Implementation Using Org\_to\_Ops Framework

## 1. Mapping Strategy Overview

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| Org\_to\_Ops Layer | Mapped QAI Ops Component | Role in QAI Project Flow |
| Offers | QAI Use Case (e.g., Quantum Secure Comms) | Defines high-level problem/project with unique ID |
| Procedures & Processes | QAI Ops Class Flow (e.g., Swarm Ops, QKD) | Sequences to engage QAI Ops nodes/modules |
| Steps | Runtime Layer, Agents, Secure Interfaces | Atomic units for infrastructure + AI + quantum instruction flow |
| Raw Results + Validation | Ops Logs + QA + Explainability Dashboards | Real-time outputs monitored and validated |
| UAT → Environment | QAI Runtime Integration | Edge deployment, Federated control, Satellite sync |
| BRM & Feedback | KPIs + Conversational/NLP Ops Layer | Value realization via dashboards, decisions, ROI |

## 2. QAI-Specific Table: Project Type vs Ops Class Mapping

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| QAI Project Type | Relevant QAI Ops Class | Org Module | Required Extensions |
| Quantum Drone Surveillance | SwarmOps, RPA Agents | Product | Edge AI + DroneOps + Conversational UI |
| Satellite-QKD Defense Infra | Satellite-QKD & Remote Ops | Modernization | Secure Comms, Quantum Channel Ops, UAT Hardening |
| Federated Research Collaboration | Federated/Swarm Ops | Research | Distributed Nodes, Shared Repos, Result Merging |
| Quantum Financial Transaction Engine | Zero Trust + Runtime Layer | Service | Identity Grid, Real-Time Audit Trails |
| Conversational Gov AI System | Conversational Dashboard + RPA | Modernization | Explainable Interfaces + LLM + Workflow Sync |

## 3. Integration Touchpoints (Extended from QAI Ops Diagram)

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| QAI Ops Component | Description | Connected Org\_to\_Ops Layer | Integration Method |
| Zero Trust Security | Enforces Ops access and trust levels | Steps, Validation, UAT | Policy Mapping, Form Roles |
| RPA & LLM Agents | Automates Ops steps | Steps, Feedback, Ops Phase | Task Runner Script Chains |
| Federated/Swarm Ops | Orchestrates distributed environments | Environment Integration | GitOps + Container Mesh |
| Satellite-QKD & Remote Ops | Secures communication and ops | Steps, Results, BRM | QKD Tunnel + Geo Policy |
| Ops Controller | Controls policy and orchestration | Offers → Process → Ops Layer | Config Registry + Dashboards |
| Runtime Layer | Executes models and decisions | Processes & Steps | Agents Triggered by Steps |
| Conversational Dashboard | Interface for all stakeholders | Validation, UAT, Feedback Loop | NLP Form Connectors |

## 4. Example QAI Implementation: Quantum Drone Surveillance Grid (SwarmOps)

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| Layer | Example Value |
| Offer | QAI Drone Surveillance Offer (ID: PROD-QDSG-001) |
| Procedure | DroneOps with Swarm Coordination + Secure Comm |
| Processes | Init Auth → Mission Load → Air Route Plan → Fleet Activation |
| Steps | 10 steps: Hardware check, Flight Sim, Sync, Logs, Upload |
| Results | Telemetry logs, LIDAR scans, Flight outcomes |
| Validation | Live dashboard + Conversational Audit |
| Environment Integration | Edge-node deployment with auto-dock |
| Ops Phase | Real-time monitoring, Patch if failure, Anomaly Check |
| BRM | Flight success rate, Threat coverage %, Time saved |
| Feedback | Fed to R&D and Product modules for next-gen fleet |