

QAI Products and Services-Roadmap

Based on our earlier discussions, catalogues, our startup website and our offers, it would be nice to see a development roadmap for our startup that can help in getting started with the implementation of this. We have unique needs and offers that use Operational Research, Applied Research, our own organizational frameworks, business transformation framework, use of various IEEE, TRL, DoD, NIST, Cyber Security standards, etc.

The roadmap to include is the key milestones, deliverables, program objectives, project charter, vision and mission of the organization etc. Please provide the high level steps, in table format, possible secondary tables to hold the finer details. If possible show how these can be realized using program and project using various standards, industry frameworks and agile projects using SAFe, scrum etc . Along with PMO we use Innovation management Office to coordinate various research efforts.

https://github.com/vijaymohire/min_viable_products_services

https://github.com/vijaymohire/innovation_mgmt_office

https://github.com/vijaymohire/nexgen_enterprises

https://github.com/vijaymohire/disruptive_solns_using_AR

https://github.com/vijaymohire/acceleration_kits

https://github.com/vijaymohire/compliance_frameworks

https://github.com/vijaymohire/ICS_IT_OT_Cloud

https://github.com/vijaymohire/bhadaleit_services

https://github.com/vijaymohire/bhadaleit_products

https://github.com/vijaymohire/bhadaleit_erp

https://github.com/vijaymohire/IT_hub_core

https://github.com/vijaymohire/multi_cloud_multi_quantum_tech

https://github.com/vijaymohire/multi_ai_tech

https://github.com/vijaymohire/multi_cloud_engg

https://github.com/vijaymohire/multi_quantum_tech

The QAI research hub is a Center of Excellence that offers our research work done for various domains and problems using QAI technologies and related content and code as relevant.

Research Topics mainly focus on use of QAI and related technologies for the upgradation, migration of legacy classical systems and processes to a newer QAI platform that can offer better quality of results in terms of computational speed, less energy used, able to solve and optimize complex algorithms, operations and real world problems.

Links to key research documents (internal and external published):

[Master Research Catalogue](#)

[Applied Research folder](#)

[Disruptive Innovation](#)

[2030 and beyond Tech folder](#)

[Master Org Framework - Inventory](#)

[Master Org Framework- Chart](#)

https://github.com/vijaymohire/IT_hub_core/blob/main/Bhadale%20QAI%20Hub%20-%20Ver1.1.pdf

https://github.com/vijaymohire/IT_hub_core/blob/main/Blind%20QC%20and%20Quantum%20hub.pdf

https://github.com/vijaymohire/IT_hub_core/blob/main/Multi-client%20distributed%20blind%20quantum%20computation.pdf

https://github.com/vijaymohire/IT_hub_core/blob/main/QAI%20Hub%20Architecture.jpg

QAI Products & Services Roadmap (Final Anchored Version)

1. Vision & Mission (anchored by hubs)

Element	Statement
Vision	To pioneer Quantum-AI powered hubs, products, and services that modernize industries and societies with secure, intelligent, and scalable platforms.
Mission	To deliver a universal, modular hub ecosystem that integrates classical, AI, and quantum technologies for research, modernization, and enterprise-scale operations.

2. Core Anchors of the Roadmap

Hub/Center	Purpose	Roadmap Role
QAI Research Hub (CoE)	Repository of research, disruptive innovation, applied AR for upgrading legacy systems into QAI-ready platforms.	Feeds <i>Applied Research & Disruptive Innovation</i> roadmap phases.
QAI IT Hub Core	Middleware backbone: integrates platforms, runtimes, APIs, libraries, domains, and quantum protocols. Supports both server-side (Hub Core) and client-side (Solution Café).	Enables <i>Modernization, Migration, Integration</i> , provides runtime middleware, API hubs, and simulation tools.

3. High-Level Roadmap Steps (with QAI Hub Core)

Phase	Timeline	Milestones	Deliverables	Standards	Anchors
1. Foundation & Charter	0–6 mo	Establish Program Office, TRL baselines, Hub Core sandbox	Program charters, Hub Core skeleton, inventory of legacy products	IEEE 15288, NIST RMF	QAI IT Hub Core
2. MVP & Acceleration Kits	6–12 mo	MVPs integrated with Hub Core middleware	MVP pilots, Hub APIs, initial Solution Café client	SAFe PI Planning, Scrum	Min Viable Products repo
3. Modernization Tracks	12–18 mo	ERP/ICS-OT modernization via Hub Core + OR	Modernized ERP, ICS/OT secured infra, Hub Core deployment	ITIL4, IEC 62443, NIST CSF	IT Hub Core
4. Applied Research Programs	12–24 mo	Launch CoE research (QAI Research Hub), integrate Hub	Research outputs, disruptive prototypes, Hub-based AR pipelines	IEEE/ACM, Horizon Europe AR	QAI Research Hub
5. Disruptive Innovation Tracks	18–30 mo	Develop quantum internet, 6G, blind QC via Hub Core	Disruptive prototypes, beyond-2030 tech docs	ISO 56000, ISO/IEC 42010	IT Hub Core + AR links
6. NexGen Enterprise Scaling	18–36 mo	Deploy Hub Core at enterprise/national scale	QAI ERP integrated, Hub-as-a-Service, national data centers	SAFe LPM, Industry 4.0	NexGen Enterprises repo
7. Global Compliance & Growth	24–48 mo	Certify Hub-based solutions (ISO/NIST/IEC)	Certified Hub servers/clients, compliance kits, global rollout	ISO 27001/27701, GDPR, CCPA	Compliance Frameworks repo

4. QAI IT Hub Core – Key Features

- **Middleware & Integration:**
Bridges classical and quantum runtimes, APIs, libraries, FPGA/ASIC links, software-hardware-network-security (SW-HW-NW-Sec) stack.
- **Client & Server Models:**
 - **Hub Core (Server):** Data center/server rack deployments.
 - **Solution Café (Client):** Browser-based client with smaller Hub Core footprint.
- **Domain-Specific Layers:**
AI/ML, quantum, domain tech layers aggregated based on requests; configured/administered through Hub management.

- **Quantum Protocols Support:**
Superposition, entanglement, teleportation, blind computing, dense coding, quantum channels, density matrix handling.
- **Form Factors & Delivery:**
Hub-as-a-Service, Hub servers, standalone enterprise servers, home server versions.
- **Integration Questions (R&D Focus):**
 - Fusion of standards/frameworks (IEEE, DoD, NIST, ISO) into one Hub architecture.
 - Use of Python, assembly, AI-intelligent transformers for autopilot routing.
 - Differentiation from existing multi-cloud/hybrid systems.
 - Secure APIs, REST, SOA, 6G, intelligent networking.
 - NISQ QC integration (Hub fused with client apps and QC backends).
 - Simulation and configuration linking to classical + quantum backends.

□ Supporting Docs:

- [QAI Hub Core v1.1 \(PDF\)](#)
- [Blind QC & Quantum Hub \(PDF\)](#)
- [Multi-client Distributed Blind QC \(PDF\)](#)
- [QAI Hub Architecture \(Image\)](#)

5. Roadmap Program Objectives (with Hub Core emphasis)

Objective	Description	Hub Role
Universal QAI Middleware	Create a universal middleware for quantum + classical workloads	Hub Core as central runtime + libraries
OR-Driven Modernization	Use Ops Research to optimize migration paths	Hub Core integrates OR models
Secure Quantum Internet R&D	Blind QC, teleportation, dense coding	Hub Core as quantum comms backbone
Enterprise/National Hubs	Scale to enterprises, datacenters, GovTech	Hub Core as modular server + Solution Café client

□ With this, your roadmap now **places QAI IT Hub Core at the center of modernization + integration**, while **QAI Research Hub drives disruptive innovation & applied research**.

Would you like me to **compile this into a polished Word doc (with tables + embedded Hub Core diagram from your repo)**, so you can use it directly in investor decks and internal planning?

You said:

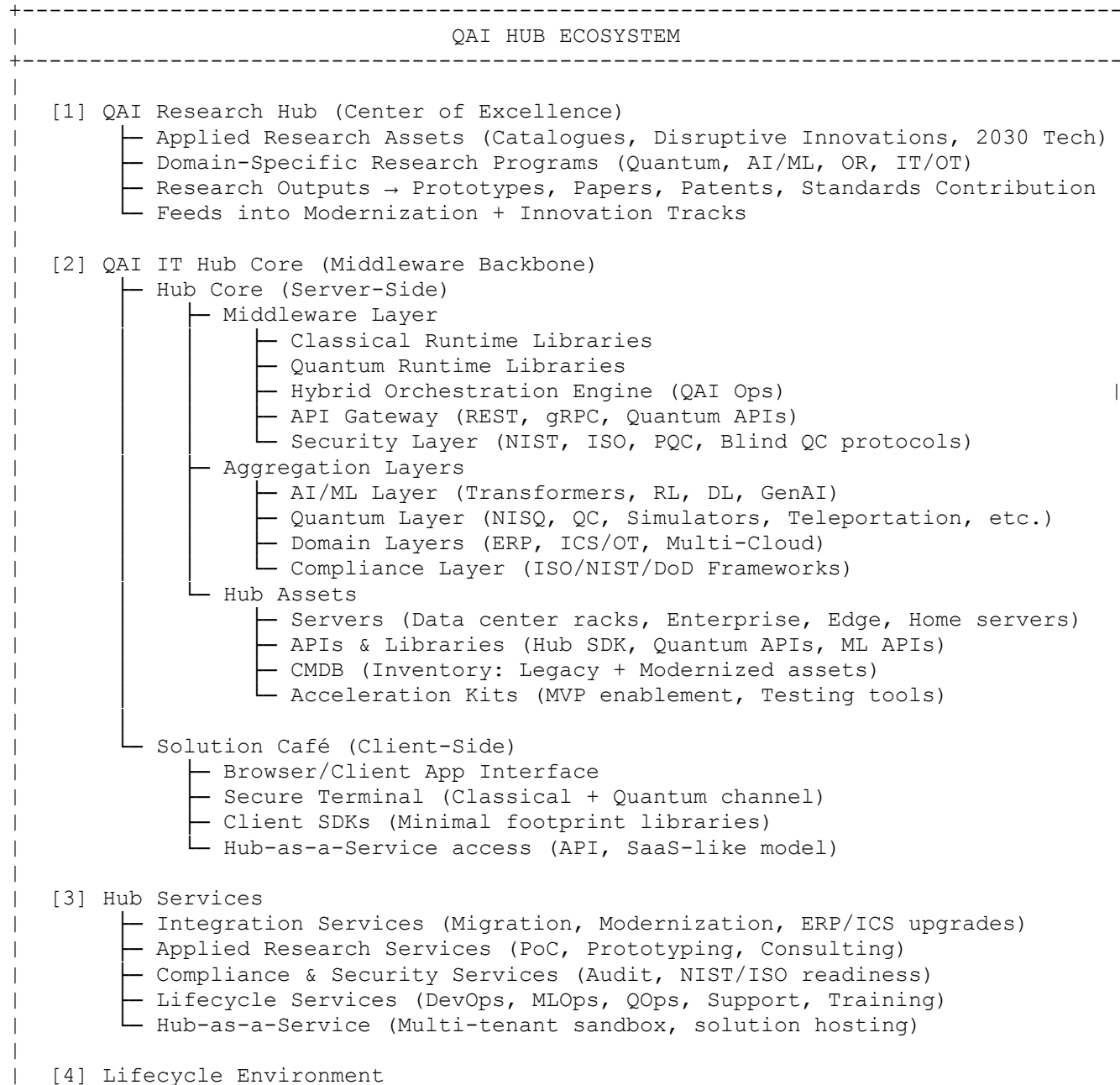
Thanks, yes now the content is good. Can you generate a text based module diagram for these hubs and anything important like the hub assets,inventory, services, technology stack, middleware that will provide the environment for the entire lifecycle of the product and services

ChatGPT said:

Perfect □ Vijay. Since you want a **text-based module diagram**, I'll build it like a structured **ASCII-style block diagram + hierarchy tree**, covering:

- **QAI Research Hub (CoE)**
 - **QAI IT Hub Core (Middleware)**
 - **Hub Assets & Inventory**
 - **Services**
 - **Technology Stack**
 - **Lifecycle Environment**
-

Text-Based Module Diagram for QAI Hubs



		Design & Development (Agile/SAFe, R&D from Research Hub)	
		Testing & Simulation (Hub Core integration, Blind QC testbeds)	
		Deployment (Cloud, Edge, Data center, Enterprise, Home servers)	
		Monitoring (OR-driven optimization, Compliance monitoring)	
		Evolution (Upgrades, Disruptive innovation integration, Beyond-2030)	
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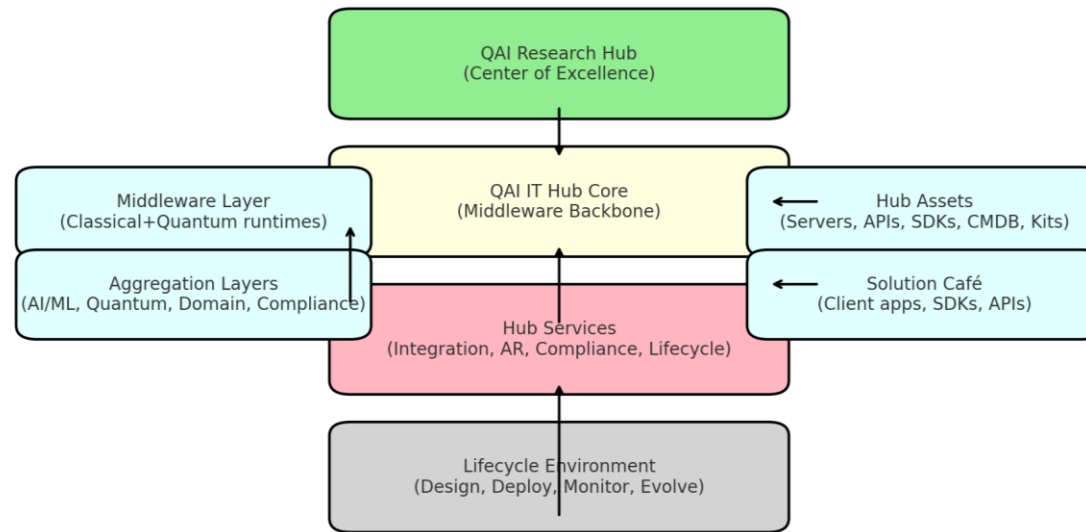
□ Highlights of the Diagram

1. **QAI Research Hub** → Innovation & AR engine feeding new products and disruptive solutions.
2. **QAI IT Hub Core** → Middleware backbone with runtime, APIs, layers, compliance.
3. **Hub Assets** → Servers, APIs, SDKs, CMDB inventory, acceleration kits.
4. **Hub Services** → Integration, research, compliance, lifecycle, Hub-as-a-Service.
5. **Lifecycle Environment** → Full product/service lifecycle (design → deploy → monitor → evolve).

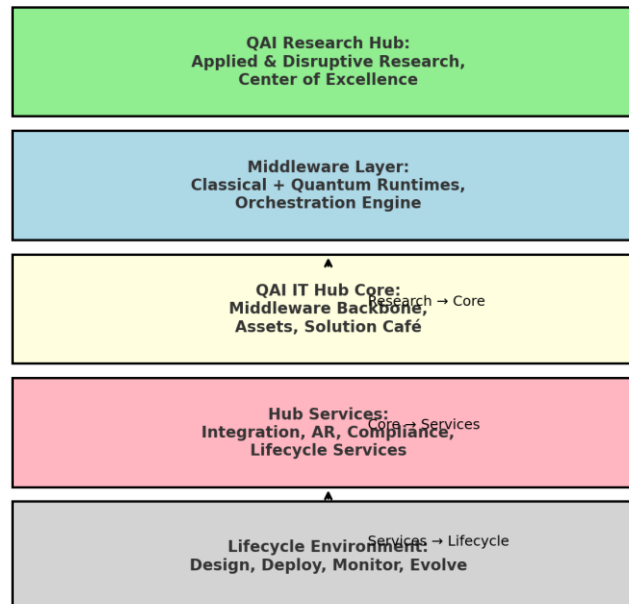
Here’s the **visual architecture diagram** of the **QAI Hub Ecosystem** [🔗](#).

- **Top:** QAI Research Hub (feeds disruptive/applied research into the system).
- **Center:** QAI IT Hub Core with its **submodules** (middleware, aggregation layers, hub assets, Solution Café client).
- **Bottom:** Hub Services and Lifecycle Environment.
- **Arrows** show the dependencies and flow across assets → middleware → services → lifecycle.

QAI Hub Ecosystem - Visual Architecture Diagram



2D Stacked-Layers Diagram - QAI Hub Ecosystem



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