**RM Current Demand and Potential Project Descriptions (092625)**

# Current Demand

## eQube-MI Integration Tool POC

**1. Project Objective**

Proof-of-concept integrating eQube with MI systems to demonstrate automated metadata and requirements linkage across part and test systems. Objectives include validating automated propagation of metadata between eQube and MI, demonstrating improved part-to-requirement traceability in a constrained scope, and producing integration patterns and required data mappings for scale.

**2. Problem Statement**

Integration between eQube and Manufacturing Intelligence (MI) systems is missing, causing manual metadata transfer, reconciliation delays, and traceability gaps that impair verification and analytics.

**3. Who Has the Problem**

Manufacturing engineers, data stewards, test lab operators, quality and product teams who depend on synchronized part and test metadata for verification and analytics.

**4. What They Want to Do as a Result**

Automated, reliable synchronization of metadata and signals between eQube and MI to reduce manual reconciliation, improve traceability, and enable timely verification evidence.

**5. What's Preventing the Project Objectives from Being Met**

System incompatibilities, lack of standardized data mappings, limited prior integration patterns, scarcity of representative test datasets for validation, and resource constraints for POC execution.

**6. Why this Project is Important to Requirements Management**

It reduces manual reconciliation errors, improves fidelity of requirement-to-test mappings, and establishes integration patterns that enable living traceability between design, test, and manufacturing evidence.

## Part Search Background Extraction

**1. Project Objective**

A capability to extract and enrich background metadata for part records to improve part search relevance, connect parts to requirement contexts, and enable similarity and precedent discovery. Objectives include enriching part records with usage context, linking parts to requirements and manufacturing constraints, and improving discovery for reuse.

**2. Problem Statement**

Part search returns low-relevance or incomplete results because background and contextual metadata are sparse, inconsistent, or scattered across systems.

**3. Who Has the Problem**

Design engineers, sourcing, systems engineers, and anyone searching for precedent parts or reusable components during design and requirements definition.

**4. What They Want to Do as a Result**

Find the right parts quickly with contextual cues that reveal tradeoffs, prior usage, and linked requirement implications to enable reuse and reduce rework.

**5. What's Preventing the Project Objectives from Being Met**

Inconsistent metadata standards, fragmented source documents, limited extraction tooling, and incomplete mappings between parts and requirements.

**6. Why this Project is Important to Requirements Management**

Better part discovery accelerates reuse, informs feasibility of requirement choices, reduces redesign, and increases confidence in part selection during requirements and design.

## LIMS / Polarion

**1. Project Objective**

Integrate laboratory information management systems (LIMS) with Polarion to connect lab and test results directly to requirement artifacts, automating evidence capture and improving verification traceability. Objectives include automating ingestion of lab/test results into requirement verification records and reducing manual evidence collection.

**2. Problem Statement**

Test and lab evidence are disconnected from requirements management tools, creating verification delays, manual effort, and audit risk.

**3. Who Has the Problem**

Verification engineers, lab managers, quality assurance, and program managers responsible for evidence collection and verification.

**4. What They Want to Do as a Result**

Seamless linkage of lab/test outputs to specific requirements, enabling current verification status, audit-ready evidence, and reduced manual reconciliation.

**5. What's Preventing the Project Objectives from Being Met**

Disparate tool APIs and data models, inconsistent test naming conventions, lack of canonical linking rules, and data governance constraints.

**6. Why this Project is Important to Requirements Management**

Direct evidence linkage shortens verification cycles, reduces manual effort for audits, and raises confidence in requirement satisfaction claims.

# Potential Projects

## ARIA — Stakeholders Expectations Intelligence Platform

**1. Project Objective**

ARIA — Requirements Intelligence Platform is intended to support the requirements management lifecycle by addressing the stated objectives from discovery through validation: it ingests enterprise knowledge and customer interactions, extracts and structures requirements via advanced NLP, predicts customer intent and ranks requirements by value/risk/feasibility, and provides real-time clarification prompts and recommendation snippets to accelerate and standardize the requirements lifecycle. The platform centralizes conversational and document sources, normalizes extracted requirement artifacts into a canonical schema, and surfaces prioritized, evidence-linked requirement candidates and clarifying questions to downstream owners.

**2. Problem Statement**

The process of listening to customers and refining inputs into formal requirements is manual, inconsistent, and slow; tacit customer intent is often missed or poorly interpreted, and source evidence is dispersed across multiple formats and systems.

**3. Who Has the Problem**

Design engineer, systems engineers, R&D leads, sales and field account teams, customer success, and support organizations who elicit, validate, or act on customer expectations.

**4. What They Want to Do as a Result**

An autonomous assistant that ingests transcripts, CRM notes, support tickets, and documents to surface structured requirement candidates with confidence scores, provenance, and clarifying prompts, and prioritized lists ranked by customer value and engineering feasibility.

**5. What's Preventing the Project Objectives from Being Met**

Immature NLP models tuned to our domain, fragmented and poorly labeled data sources, lack of standardized requirement schemas and provenance metadata, privacy/compliance constraints on training data, and limited trust in automated suggestions without human validation workflows.

**6. Why this Project is Important to Requirements Management**

ARIA reduces interpretation loss and accelerates downstream activities by creating a repeatable, evidence-linked intake that improves requirement accuracy, feasibility assessment, and reduces downstream rework.

## Unified Requirements Knowledge Graph

**1. Project Objective**

Unified Requirements Knowledge Graph consolidates historical project artifacts, decisions, lessons learned, and domain databases into a single, queryable graph to enable similarity search, pattern recognition, and tagging of proven or failed solutions and manufacturing feedback for reuse across programs.

**2. Problem Statement**

Historical knowledge is siloed across file shares, PLM, test reports, and archives and is not integrated or searchable to reveal precedent or failure patterns.

**3. Who Has the Problem**

Design engineers, systems architects, program leads, product managers, and new team members who need rapid access to prior decisions and validated approaches.

**4. What They Want to Do as a Result**

A single, well-linked graph that returns relevant prior solutions, test outcomes, known failure causes, and contextual metadata so teams can reuse validated approaches and avoid past mistakes.

**5. What's Preventing the Project Objectives from Being Met**

Inconsistent metadata taxonomies, low data quality, lack of connectors into enterprise systems (PLM, ALM, test DBs), and insufficient incentives for content curation.

**6. Why this Project is Important to Requirements Management**

The graph increases speed and quality of feasibility judgments by exposing historical evidence, improving requirement realism and reducing rework.

## Virtual Collaborative Workshop Platform

**1. Project Objective**

Virtual Collaborative Workshop Platform creates pre-configured meeting spaces with relevant historical context and role-specific views, supports multi-timezone stakeholder engagement, and captures structured requirements and evidence during live sessions so outputs are immediately usable downstream.

**2. Problem Statement**

Discovery workshops are inefficient: participants lack context, outputs are unstructured, and distributed collaboration produces fragmented artifacts that require extensive synthesis.

**3. Who Has the Problem**

Product owners, engineering leads, customer stakeholders, business analysts, and external partners collaborating across geographies.

**4. What They Want to Do as a Result**

A facilitator platform that preloads documentation, enforces structured templates, captures requirements with provenance and owner assignments in real time, and produces traceable artifacts ready for RM intake.

**5. What's Preventing the Project Objectives from Being Met**

Tool fragmentation (video, whiteboards, docs), weak integrations with knowledge stores, inconsistent facilitation, and governance questions about artifact storage and approvals.

**6. Why this Project is Important to Requirements Management**

Structured capture at discovery reduces ambiguity, shortens validation cycles, and improves traceability into RM systems.

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## Contextual Insight & Expert Delivery Engine

**1. Project Objective**

Contextual Insight & Expert Delivery Engine delivers role-specific summaries and notifications to SMEs during customer interactions, extracts concise, evidence-linked insights tailored by discipline, and enables inline SME guidance that is recorded and linked to requirement candidates for downstream traceability.

**2. Problem Statement**

SMEs are pulled into meetings ad-hoc, disrupting sessions; their insights are inconsistently captured and not linked to requirements.

**3. Who Has the Problem**

Domain experts (materials, thermal, software, manufacturing), product teams, and program leads needing timely guidance without being embedded in every interaction.

**4. What They Want to Do as a Result**

Lightweight, role-targeted prompts and summaries to notify the right SME with context and evidence, allow asynchronous contribution, and record guidance linked to decisions.

**5. What's Preventing the Project Objectives from Being Met**

Poor integration between collaboration tools and expert systems, noisy notifications, and lack of prioritized routing for the right SME.

**6. Why this Project is Important to Requirements Management**

Consistent SME input improves feasibility, embeds constraints early, and preserves design rationale for requirements.

## Digital Twin & Simulation Environment

**1. Project Objective**

Digital Twin & Simulation Environment integrates models of product, thermal, mechanical, and manufacturing behavior with real-time performance data to run parallel simulation scenarios against candidate requirements and provide rapid feasibility scores and suggested trade-offs.

**2. Problem Statement**

Feasibility assessment is slow and often late, leading to costly redesign, schedule slips, and missed performance targets.

**3. Who Has the Problem**

Systems engineers, simulation teams, R&D leadership, product designers, and manufacturing engineers.

**4. What They Want to Do as a Result**

A platform to run quick scenario analyses, return quantified feasibility metrics and sensitivity insights, and recommend trade-offs reconciling customer needs with manufacturability constraints.

**5. What's Preventing the Project Objectives from Being Met**

Toolchain incompatibilities, compute resource constraints, lack of high-fidelity models and calibrated parameters, and limited access to production telemetry.

**6. Why this Project is Important to Requirements Management**

Early, evidence-driven validation reduces technical risk and improves requirement realism, shortening iteration cycles.

## Change Propagation & Impact Engine

**1. Project Objective**

Change Propagation & Impact Engine traces requirement changes across subsystems, estimates schedule/cost/risk impacts, proposes mitigations, and notifies affected stakeholders using trace links, historical outcomes, and impact models to produce quantified impact statements and remediation actions.

**2. Problem Statement**

Requirement changes cause chaotic, siloed firefighting with poor visibility into systemic impacts, leading to delays and cost overruns.

**3. Who Has the Problem**

Product design engineers, systems engineers, manufacturing leads, quality teams, program managers, and supply chain partners.

**4. What They Want to Do as a Result**

An automated capability to show affected components, test cases, suppliers, and schedules, provide quantified estimates, and recommend remediation or rollback strategies.

**5. What's Preventing the Project Objectives from Being Met**

Incomplete traceability data, weak integrations between PLM/ALM/ERP/test systems, and lack of standardized impact models and historical datasets.

**6. Why this Project is Important to Requirements Management**

Automated impact analysis reduces uncertainty, prevents cascading delays, and enables coordinated change governance.

## Traceability & Requirement Relationship Engine

**1. Project Objective**

Traceability & Requirement Relationship Engine maintains a living traceability matrix linking expectations to design, tests, and manufacturing; visualizes hierarchies and interdependencies; and records confidence levels and evidence for each satisfaction claim to support verification planning and audits.

**2. Problem Statement**

Traceability is static, manually maintained, and quickly becomes outdated, undermining verification and audit confidence.

**3. Who Has the Problem**

Systems engineers, quality assurance, verification teams, auditors, and program managers.

**4. What They Want to Do as a Result**

A living system reflecting current linkage status, owners, confidence levels, missing evidence, and drill-downs to source material and tests.

**5. What's Preventing the Project Objectives from Being Met**

Disconnected tools, manual maintenance burden, inconsistent naming conventions, and reluctance to adopt traceability-first workflows.

**6. Why this Project is Important to Requirements Management**

A living traceability system ensures verifiable compliance, simplifies V&V planning, and preserves product integrity across changes.

## Baseline Integrity & Smart Contracts

**1. Project Objective**

Baseline Integrity & Smart Contracts creates immutable baselines for released requirements, logs changes/approvals/justifications with tamper-proof audit trails, and implements role-based ownership and automated escalation to protect baseline integrity while allowing legitimate, auditable changes.

**2. Problem Statement**

Requirement baselines are mutable, approvals are hard to audit, and disputes over commitments lead to regressions and accountability erosion.

**3. Who Has the Problem**

Program governance, compliance, product owners, legal, and cross-functional stakeholders.

**4. What They Want to Do as a Result**

Provable baselines with clear ownership, immutable audit trails of changes and rationale, and automated escalation/approval workflows that balance agility with governance.

**5. What's Preventing the Project Objectives from Being Met**

Legal/regulatory concerns with distributed ledger technologies, integration complexity with RM/PLM systems, and reconciling immutability with legitimate emergency change processes.

**6. Why this Project is Important to Requirements Management**

Ensuring baseline integrity prevents unauthorized changes, supports dispute resolution, and defends warranty and compliance positions.

## Risk Prediction & Mitigation System

**1. Project Objective**

Risk Prediction & Mitigation System identifies requirement-derived risks from historical patterns and current context, prioritizes by impact and likelihood, and proposes mitigations with cost/benefit estimates and confidence scores tied to requirement artifacts and mitigation owners.

**2. Problem Statement**

Risk identification is manual and reactive, poorly linked to requirements and historical precedents, causing late detection of high-impact issues.

**3. Who Has the Problem**

Program risk managers, engineering leads, product owners, and executive sponsors.

**4. What They Want to Do as a Result**

Proactive, prioritized risk forecasts tied to specific requirements with recommended mitigations and estimated costs to inform early resource allocation.

**5. What's Preventing the Project Objectives from Being Met**

Sparse labeled training data, evolving risk contexts, inconsistent incident recording, and integration gaps across incident, test, and requirements repositories.

**6. Why this Project is Important to Requirements Management**

Linking risk to requirements focuses mitigation, reduces late surprises, and makes reliability investments more effective.

## Manufacturing Readiness & DfM Feedback Loop

**1. Project Objective**

Manufacturing Readiness & DfM Feedback Loop captures assembly constraints and plant metrics early and continuously, runs manufacturability checks during design, and generates actionable DfM guidance to designers while feeding lessons back into requirement templates and the knowledge graph.

**2. Problem Statement**

Manufacturing constraints are often discovered after design freeze or during ramp, causing redesigns, schedule delays, and quality issues.

**3. Who Has the Problem**

Manufacturing engineering, plant operations, design engineers, supply chain, and program managers.

**4. What They Want to Do as a Result**

Continuous manufacturability visibility during design, automated DfM checks that flag issues early, and actionable guidance reflecting site-specific constraints and historical defect modes.

**5. What's Preventing the Project Objectives from Being Met**

Siloed manufacturing data, inconsistent DfM rules across facilities, limited sensorization of production, and lack of commitments to include DfM in early gates.

**6. Why this Project is Important to Requirements Management**

Incorporating manufacturability reduces time-to-volume, lowers rework/scrap, protects margins, and ensures requirement feasibility for production.

## Automated Verification & VR Validation Platform (part of Test Management)

**1. Project Objective**

Automated Verification & VR Validation Platform auto-generates test plans and optimal test sequences from requirements, reserves and schedules test equipment based on priorities, and enables immersive VR validation experiences that tie verification artifacts directly to requirements and evidence for audit and sign-off.

**2. Problem Statement**

Verification planning is manual and disconnected from requirements, leading to misaligned coverage and slow approvals; stakeholders lack intuitive visibility into interim verification results.

**3. Who Has the Problem**

Verification engineers, test lab managers, product owners, program managers, and customers.

**4. What They Want to Do as a Result**

Automated requirement-aligned test plans, efficient scheduling of shared assets, and immersive VR tools for stakeholder validation and feedback tied to requirements.

**5. What's Preventing the Project Objectives from Being Met**

Legacy test management tools with limited APIs, limited VR content creation capacity, and difficulties linking equipment reservations to requirement artifacts.

**6. Why this Project is Important to Requirements Management**

Automation and immersive validation improve test coverage fidelity, accelerate approvals, and strengthen evidence trails.

## Continuous Improvement & Learning System

**1. Project Objective**

Continuous Improvement & Learning System ingests field and production observations, detects convergent innovations, validates and standardizes emergent shop-floor practices globally, and feeds validated learnings back into the Knowledge Graph and requirement templates to scale operational improvements.

**2. Problem Statement**

Local operational improvements are discovered ad-hoc and are not systematically captured, validated, or scaled across sites.

**3. Who Has the Problem**

Plant managers, CI teams, process engineers, quality leads, and global standards teams.

**4. What They Want to Do as a Result**

Automated detection of repeatable, high-value local improvements, a validation pathway for evidence and small trials, and mechanisms to standardize and roll out validated practices with training and linked requirement implications.

**5. What's Preventing the Project Objectives from Being Met**

Lack of standardized reporting, cultural resistance to externalizing local knowledge, limited validation tooling, and no incentives for front-line contributions.

**6. Why this Project is Important to Requirements Management**

Capturing and scaling validated improvements reduces variance, improves predictability, and tightens the feedback loop between field performance and requirement refinement.

## Compliance & Certification Automation

**1. Project Objective**

Compliance & Certification Automation maps regulatory and certification requirements to product expectations, automatically flags non-compliance during requirements definition, and generates audit-ready evidence packages for certification bodies, embedding compliance checks into the requirements workflow.

**2. Problem Statement**

Compliance checks are often late and manual, risking project delays, retrofits, or loss of market access due to missing certification evidence.

**3. Who Has the Problem**

Regulatory affairs, quality assurance, program managers, and design teams.

**4. What They Want to Do as a Result**

Automated alignment of product requirements with standards, early detection of non-compliance, and the ability to produce audit-ready documentation linked to requirements and tests.

**5. What's Preventing the Project Objectives from Being Met**

Complexity and variability of standards, fragmented evidence sources, manual certification processes, and limited semantic mappings of standards to technical requirements.

**6. Why this Project is Important to Requirements Management**

Embedding compliance prevents late-stage rework, ensures market access, and provides defensible evidence for regulators.

## Governance, Roles & Adoption Program

**1. Project Objective**

Governance, Roles & Adoption Program defines end-to-end governance, roles, responsibilities, SLAs for requirement stages, creates training and adoption curricula tied to KPIs, and monitors usage and quality metrics while enforcing data governance to institutionalize high-quality requirements practices.

**2. Problem Statement**

Even excellent tools fail without governance, role clarity, and adoption; inconsistent practices persist across teams and geographies.

**3. Who Has the Problem**

All R&D, product, manufacturing, quality, and customer-facing teams, plus sponsors and program managers accountable for delivery.

**4. What They Want to Do as a Result**

Clear, actionable governance defining responsibilities at each requirements stage, practical training, and measurable KPIs tracking adoption and quality.

**5. What's Preventing the Project Objectives from Being Met**

Change resistance, competing priorities, insufficient executive sponsorship, and lack of incentives/time for training.

**6. Why this Project is Important to Requirements Management**

Governance and adoption are essential to realize technical solution benefits; without them, RM improvements will not be sustained and ROI lost.