

# Gen AI Exchange Hackathon

**Team Name :** KnowledgeExtractor

**Team Leader Name :** Muhammed Sahil

**Problem Statement :** Healthcare QA teams waste 60% of their time on manual compliance test creation, causing costly errors and delaying patient access to critical technologies.

## KnowledgeExtractor AI: An Overview

First AI-powered system that automatically converts healthcare software requirements into compliant, traceable test cases with full enterprise ALM integration.

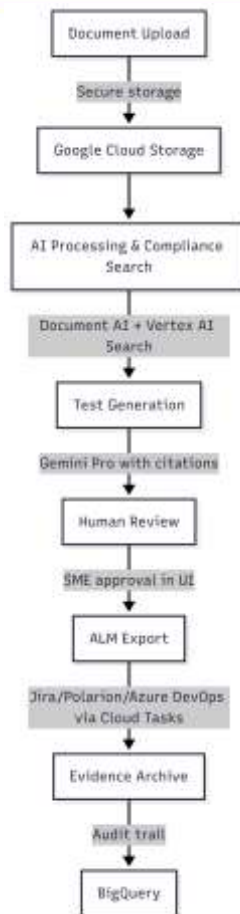
Built on Google Cloud AI, it transforms dense regulatory documents (from bodies like the FDA, IEC, and ISO) into comprehensive QA test suites in minutes, not weeks. Our working prototype demonstrates this end-to-end flow, from document upload to live Jira export and audit-ready evidence generation.

- **How is it different?**
  - Existing QA tools are generic, lacking specialized healthcare knowledge.
  - Our solution is the only AI system with native FDA, IEC 62304, and ISO 13485 compliance automation.
- **How will it solve the problem?**
  - Automates the most time-consuming, high-risk QA tasks.
  - Reduces manual effort by 99%+, eliminates human error, and ensures audit readiness.
- **USP:**
  - The only AI solution combining healthcare regulatory expertise with compliance validation and ALM integration.

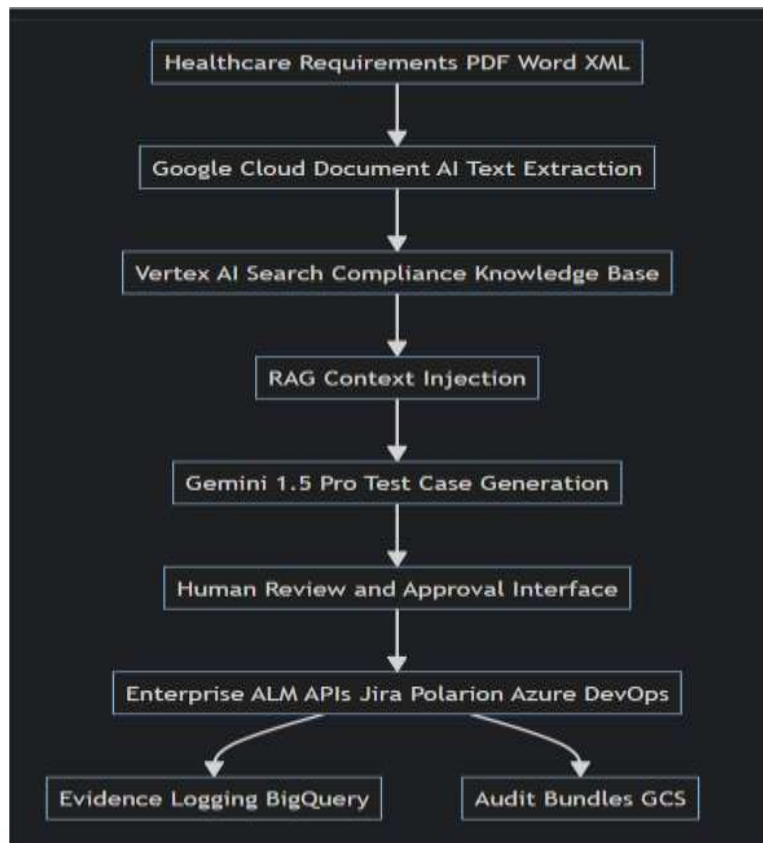
## Core Capabilities of KnowledgeExtractor AI

- AI-Powered Document Processing (PDF, Word, XML with Google Document AI)
- Compliance-Aware Test Generation (FDA 21CFR820, IEC 62304, ISO 13485)
- Enterprise ALM Integration (Jira, Polarion, Azure DevOps)
- One-Click Audit-Ready Evidence Bundle
- Business Impact Analytics (ROI, risk coverage, compliance alignment)

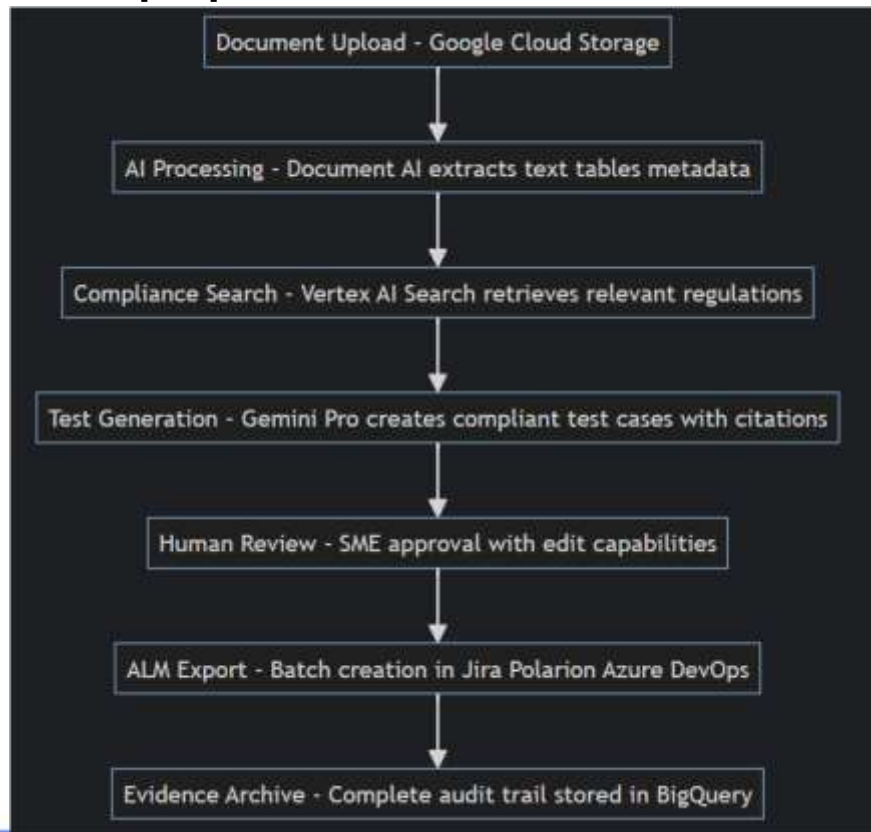
## End-to-End Automated Workflow



## Scalable & Secure Google Cloud Architecture



## Architecture diagram of the proposed solution



## Technologies to be used in the solution:

- AI/ML: Vertex AI (Gemini 1.5 Pro, Document AI, Search)
- Frontend: Next.js 14, Tailwind CSS, SSE
- Backend: Node.js, Google Cloud Run, Cloud Tasks
- Storage & Data: Google Cloud Storage, BigQuery
- Security & Integration: IAM, Secret Manager, OAuth 2.0, REST APIs
- Fire Base: Hosting the application



## Estimated implementation cost

Demo Scale (monthly): ~ \$920

- Document AI: ~\$250
- Vertex AI Search: ~\$500
- Gemini Pro API: <\$100
- Cloud Run & Tasks: <\$50
- BigQuery: ~\$20

Enterprise Scale: ~\$6,300

ROI: Mid-size healthcare company saves \$1M+ annually, 300-500% ROI in 18 months.

## Summary

- Clear Business Value: Addressing a \$23.95B market
- Working Prototype: Live demo shows end-to-end functionality
- Innovative Technology: Built with Google Cloud AI (Gemini, Vertex AI, Document AI)
- Complete Vision: Covers problem, architecture, and business impact

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# Thank you