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Business Domain

Construction

Project Type

AI Knowledge Base



Creating a 24/7 Digital Knowledge Layer for Post-Construction Support

Client

A leading US construction and infrastructure company delivering large-scale civil, industrial, and commercial projects. The firm manages hundreds of active job sites and maintains long-term client relationships built on operational reliability and service continuity.

Project

The project replaced static close-out documentation with an AI-powered knowledge base that delivers instant answers to facility teams. Through a progressive web app, users can scan a QR code on any asset or open the portal in a browser to find warranty and maintenance information. A built-in chatbot provides natural-language search, while analytics track usage patterns and unresolved queries for continuous improvement.

Objective

Reduce warranty-period support overhead and give facility owners self-service access to O&M documentation.

Team Reinforcement

Intetics provided domain expertise in AI-based document processing, data security, and large-scale system design. The team combined software engineering, data science, and UX competencies to ensure smooth deployment and comprehensive hand-over enabling the client to independently maintain and expand the platform.

Challenge

Close-out packages for each project often contained thousands pages of warranties, manuals, and drawings. Despite being digital, facility managers relied on project teams for answers resulting in:

- Hundreds of repetitive support requests per project
- Delayed responses due to manual document searches

- No data on which topics consumed the most effort
- Missed opportunities for post-warranty monetization

Quick Facts

- ✓ 80% reduction in warranty-period support calls
- ✓ Major reduction in support overhead, faster client response cycles
- ✓ AI chatbot, document search, QR deep links, analytics dashboard, offline PWA

Technologies

React/TypeScript (PWA) / FastAPI / Azure Functions / GPT-4-class RAG pipeline / Microsoft Entra ID / SharePoint Graph API



Solution

★ 01

The platform gave building owners and facility teams immediate, self-service access to warranty and operations data. Instead of calling project managers, users could instantly retrieve the right page or answer reducing downtime and improving maintenance accuracy.

★ 02

The application converted thousands of static documents into an AI-searchable portal. Facility staff scan a QR code on equipment or open the web app, ask a natural-language question, and receive an answer sourced from the original project files. The system’s analytics also revealed which design or product topics most frequently caused support requests, informing future project improvements.

★ 03

The approach stayed focused on usability and rapid access to trustworthy data rather than underlying infrastructure or LLM mechanics.

★ 04

The project followed a staged roadmap: discovery and UX design, prototype deployment, AI-assisted search implementation, and analytic dashboard rollout. The solution was fully deployed in the client’s cloud environment with progressive web app functionality, ensuring mobile and offline availability.

★ 05

Intetics’ experience in applied AI and data integration ensured enterprise security compliance and a scalable solution adaptable to new projects and clients.

Benefits and Results

- ★ Enhanced end-user satisfaction with immediate answers available on any device.
- ★ Lower operational cost as project managers spend less time handling repetitive requests.
- ★ Full transparency into documentation usage patterns via analytics dashboard.
- ★ Scalable architecture ready for new construction projects without re-engineering.

Techstack:

React/TypeScript (PWA) / FastAPI /
Azure Functions / GPT-4-class RAG
pipeline / Microsoft Entra ID /
SharePoint Graph API

Team:

Project Manager, Solution
Architect, Data Scientist, QA
Engineer, UX/UI Designer