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CUSTOMER CASE STUDY

Deep Search Agents for Engineering "Lessons Learned"

Our Deep Search Agent addresses this challenge using a retrieval-augmented generation (RAG) architecture.

Solution: Deep Search Agents **Industry:** Power Generation **Use Case Focus:** Engineering Lessons Learned

GOALS

- Centralize and unlock hard-earned engineering knowledge buried in unstructured archives.
- Prevent the recurrence of costly technical mistakes across design cycles.
- Preserve critical insights from past projects in a centralized, accessible knowledge base.
- Deliver context-aware recommendations based on lessons from previous engineering projects.

CHALLENGES

- Critical technical reports, engineering studies, and historical project records remain siloed across systems and teams.
- Engineers have difficulty retrieving relevant insights from vast, unstructured historical data.
- Engineers embarking on new designs lack the tools and time to locate and apply relevant lessons from previous projects.
- This information deficit can lead to repeated design missteps.

SOLUTIONS

- Deploy RAG-powered autonomous search agents across historical engineering repositories.
- Implement context-aware synthesis to extract relevant findings for active projects.
- Provide actionable recommendations detailing historical root causes and mitigation strategies.
- Deliver concise, actionable recommendations directly to engineering teams.

RESULTS

- Institutionalized engineering experience to protect and preserve valuable intellectual capital.
- Reduced project design cycles by streamlining access to targeted historical insights.
- Minimized costly operational errors by surfacing proven past mitigation strategies.
- Improved visibility into historical decisions, root causes, and previously successful mitigation strategies.

EXECUTIVE SUMMARY

BKOAI's Deep Search Agent uses retrieval-augmented generation (RAG) to search historical engineering repositories and surface relevant lessons learned for active projects. The system identifies useful findings from technical reports, engineering studies, and historical project records, then synthesizes them into concise recommendations. This helps engineering teams preserve institutional knowledge, reduce repeated design mistakes, and apply proven mitigation strategies more effectively.

Unlocking Siloed Engineering Knowledge

Critical technical reports, engineering studies, and historical project records often remain fragmented across systems and teams. Engineers starting new designs may not have the time or tools to locate the lessons most relevant to the problem in front of them, increasing the risk of repeated design missteps.

RAG-Powered Search and Context-Aware Synthesis

BKOAI deploys RAG-powered autonomous search agents across historical engineering repositories. The agents retrieve relevant evidence, synthesize findings in the context of active projects, and provide actionable recommendations covering historical root causes, design lessons, and proven mitigation strategies.

Preserving Experience and Improving Design Decisions

The workflow institutionalizes hard-earned engineering experience by making targeted historical insight accessible inside day-to-day engineering work. This helps shorten design cycles, reduce costly operational errors, and improve visibility into previous decisions, root causes, and successful mitigation strategies.