KALEIDO RESEARCH ABSTRACT

AI-Driven Body of Knowledge: Optimizing Custom Chatbots for Project Specialists

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Abstract

This paper examines how project-oriented organisations can build custom Gen-AI assistants that retrieve, validate, and explain codified knowledge with stronger trust calibration than general-purpose chat tools.

Why this matters for Kaleido

For Kaleido, this research is a foundation for Kal's knowledge and assurance layers. The core issue is not just generating answers faster; it is helping practitioners retrieve the right knowledge with appropriate context and trust.

Source excerpt

The increasing complexity and volume of project controls knowledge presents significant challenges for practitioners seeking to effectively apply best practices. Professional bodies have accumulated extensive codified knowledge, which can be difficult for project specialists to access and apply effectively due to several factors: the sheer volume of documents spanning thousands of pages, the dispersed nature of this information across multiple formats and repositories, and the time constraints faced by practitioners needing quick answers to specific questions without reading entire documents. Furthermore, due to their inherent complexity, best practices are open to misinterpretation, potentially widening the gap between theory and real-world application. Generative AI (Gen-AI) offers a transformative solution through specialized chatbots capable of synthesizing vast amounts of domain-specific knowledge. Utilizing advanced database design, retrieval and validation techniques, these chatbots can significantly enhance the application of project management and project controls practices. This paper explores how project-oriented organizations can develop and deploy custom Gen-AI applications. The paper examines key techniques required for building effective Gen-AI systems, including parsing and embedding knowledge, optimizing storage and retrieval processes, and implementing AI agent workflows for enhanced reasoning and validation. Through a practical case study, this research demonstrates how Gen-AI systems help project specialists overcome knowledge retrieval and application challenges by improving the quality and accessibility of an organization's body of knowledge. Ultimately, these systems aim to bridge the gap between codified knowledge and practical application, drivi

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