

Companion: The AI-Powered Research Assistant Accelerating Drug Development

Current State

A leading healthcare and life sciences company's medical affairs team found themselves drowning in documents. To support drug development, they had to manually sift through vast amounts of research, summaries, and reports to present it to the drug's business unit—a time-consuming and error-prone process.

Desired State

The team sought an AI-powered tool that could efficiently analyze their vast document repository, answer complex queries, and deliver concise summaries, ultimately accelerating their research efforts.

Challenge

The sheer volume and complexity of the documents posed a significant obstacle. Traditional search methods were inefficient, and manually extracting key insights was a labor-intensive process hindering the team's ability to efficiently support drug development initiatives.

Solution Framework

01 Analysis

We at Quation Solution recognized the potential of generative AI to address this challenge. Our team determined that a Retrieval Augmented Generation (RAG) model, leveraging large language models (LLMs), would be the most effective approach to unlock the hidden value within the company's document repository.

03 Benefits

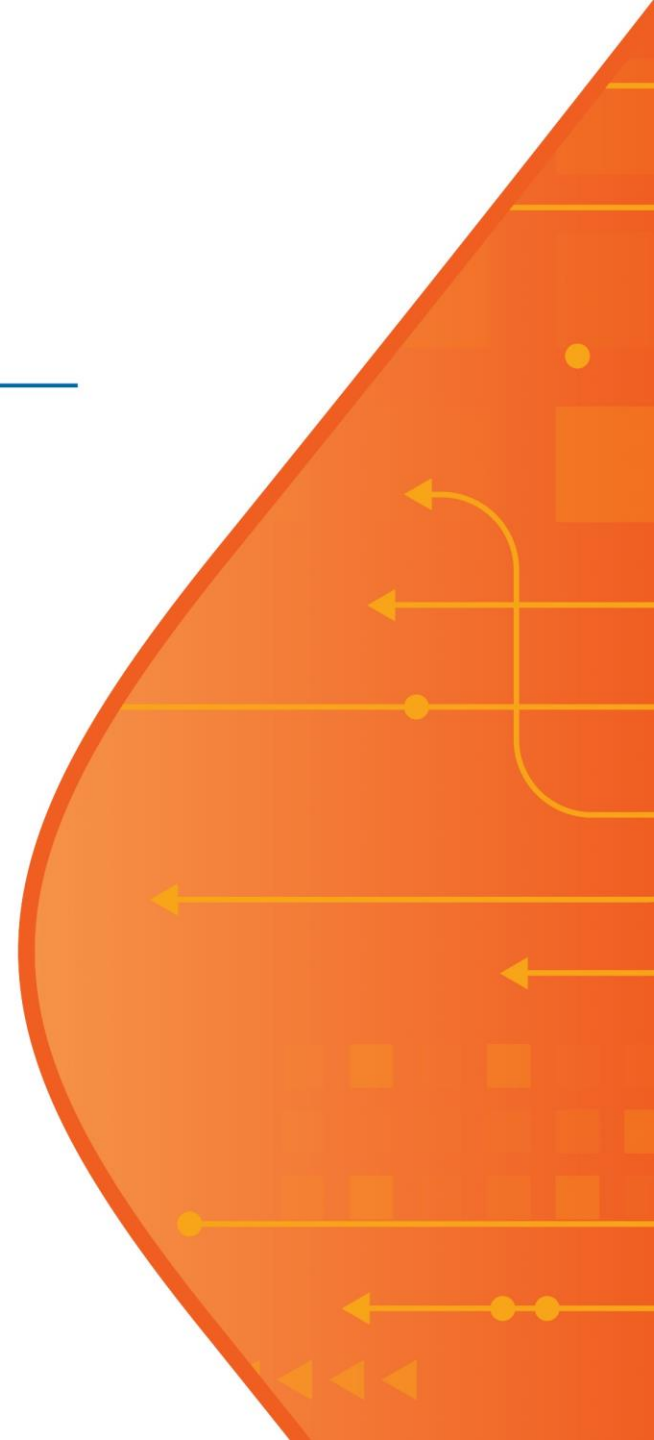
"Companion" delivered a range of benefits to the medical affairs team:

- **Efficiency:** Drastically reduced the time and effort required for research, allowing the team to focus on higher-value activities.
- **Accuracy:** Ensured precise extraction and summarization of relevant information, minimizing the risk of human error.
- **Scalability:** Easily handled large volumes of data, ensuring the research process remained efficient as the company's knowledge base grew.
- **Knowledge Base Management:** Created a centralized knowledge repository, fostering better communication and collaboration within the team.
- **Implementation:** Accelerated the application of research findings, potentially speeding up drug development timelines.

02 Methodology

Quation developed "Companion," an innovative AI-powered chatbot, leveraging a sophisticated methodology:

- **Chunking & Embedding:** Documents were divided into manageable chunks and transformed into a vectorized format (embeddings) for efficient searching by the LLM.
- **Knowledge Base Creation:** These embeddings were stored in a searchable database, forming a comprehensive knowledge base.
- **Query Processing:** User queries were processed by the LLM, which identified the most relevant document chunks from the database.
- **Presentation:** The retrieved information was transformed back into words and presented to the user through the "Companion" web application in a clear, concise manner.



Impact

Outcome

Companion has become an indispensable tool for the medical affairs team, significantly reducing research time and enabling faster application of findings to accelerate drug development timelines. The tool is in a continuous improvement phase, incorporating user feedback to refine its capabilities.

Long Term Benefit

The long-term impact of "**Companion**" is substantial. By streamlining research and accelerating the application of findings, the pharmaceutical company is poised to:

- **Improve Research Efficiency:** Drive more efficient and effective drug development processes.
- **Accelerate Drug Discovery:** Potentially bring life-saving medications to market faster.
- **Enhance Patient Outcomes:** Ultimately contribute to better healthcare outcomes for patients worldwide.

