

NextGen Opportunity: How Siemens challenged Cortical.io Semantic Search to leverage its Know How in Finance/Tax



The Challenge

Siemens operates multiple Intranet sites and expert knowledge bases for various business units and departments. These sites contain large amounts of diverse, partly unstructured documents that have been compiled over years and due to the varied nature of the documents, are difficult to search. The current search solutions do not yet support natural language queries. As a consequence, there is additional potential to apply Semantic Search technology for a better assistance of the Siemens Team to find the relevant information for complex queries in a fast and efficient way. In some cases, this triggered manual Q&A routines to support centers, e.g., for user questions within the reporting solutions. An internal study revealed that about 60% of inquiries to the financial reporting support center could have been answered with information available in the intranet. The mission of the cross-functional team was to find the right technology to unleash this potential of technology-based support. Hereby Cortical.io Semantic Search solution was part of the evaluation.

The Cortical.io Solution

In order to prove the ability of the solution it was initially implemented as a proof of concept for internal Siemens departments, responsible for Financial Reporting and Tax & Customs. Cortical.io Semantic Search was trained with domain-specific language models in English for Financial Reporting and in German for Tax & Customs. The training of the solution was accomplished in an unsupervised manner, without the need for AI experts. The solution allowed the domain experts to inspect and fine tune the search results through a dashboard that displays the semantic similarity between query and answer. Cortical.io Semantic Search allowed sophisticated and domain-specific search without the time-consuming task of manually creating vocabularies and taxonomies.

The solution can intelligently process natural language queries while taking advantage of the specificity of keywords. It is capable of inferring the context of a given keyword or a short phrase, and retrieve the corresponding information, regardless of the query wording. Search results were sorted by relevance, with keywords displayed within each document. This enabled the end user to quickly identify the best answers. The solution also supported the end user with real-time confidence scores. These features make the AI-based search results fully explainable.

The Cortical.io Impact

Cortical.io Semantic Search showed the best performance of the tested solution portfolio by Siemens. For natural language queries in Financial Reporting, Cortical.io achieved a 22% higher accuracy compared to the existing, non-semantic search engine and a 15% higher accuracy than the solution ranked second. In the Custom & Tax use case, Cortical.io's accuracy for natural language queries, compound terms and keywords indicated to increase the hit rate by 60%.

Based on these results, Siemens has decided to conduct a semantic search pilot project with Cortical.io on a real-world use case in the domain-specific area of tax and customs.

Company Profile

Global industrial manufacturing company

The Goal

Improve the information retrieval productivity across multiple knowledge databases

The Solution

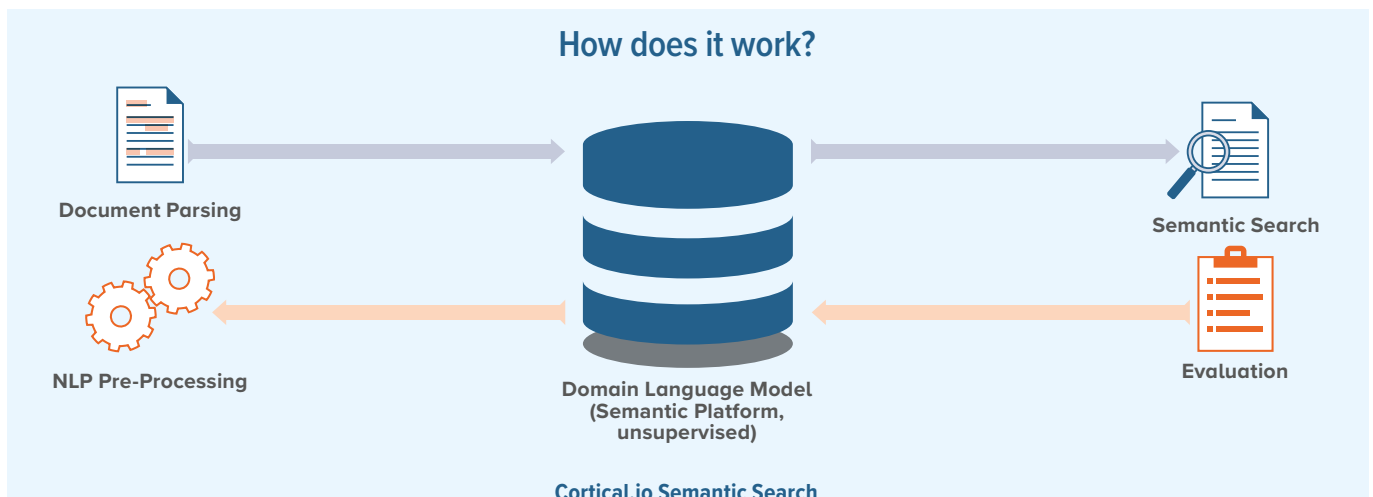
Cortical.io Semantic Search

Cortical.io Semantic Search Case Study

SIEMENS

With Cortical.io Semantic Search, Siemens was able to automatically:

- Fine-tune pre-processing steps for query understanding
- Utilize context and similar terms for simple keyword or natural language queries
- Explain and rate how well search results match the search queries
- Get improved results over time through a combination of machine learning algorithms and user feedback



“The proof of concept performed by Siemens showed that Cortical.io natural language processing technology with its domain-specific semantic language space was able to achieve significantly better search results in the area of taxes than keyword-based search engines. It has the potential to become a key technology for semantic use cases.”

Darja Meyer,
Head of Tax Tech Lab Germany, Siemens AG

“Cortical.io demonstrated in our proof of concept that they have created an efficient search technology based on the Semantic Folding theory, and best fulfilled the expectations of our users for complex tax-specific search queries.”

Florian Schelle,
Head of Digital Finance Workplace, Siemens AG

For more information about this case study and Cortical.io solutions, visit www.cortical.io or email info@cortical.io

