AI-Based
Support
Intelligence

In a nutshell:

· Exceptional support experience

· AI-based assistance for agents

· Instant answers to complex problems

· 70% savings in request handling time

· Natural language understanding

· Continuous learning

· Easy updating with new vocabulary

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Create an exceptional support experience for your customers

🔷 Introducing Support Intelligence

While chatbots can easily answer simple questions, they cannot satisfactorily handle more nuanced support requests and complex problems, which still require huge manual effort. As a result, human agents spend great amounts of time investigating previous support cases in order to formulate appropriate answers.

The **Cortical.io Support Intelligence Engine** is a search system based on artificial intelligence (AI) that picks out precise, relevant information from hundreds of thousands of your company's documents–previously solved support cases, service notes, user forum posts, technical manuals, training material, known issues, and other related knowledge sources–and puts that information at the fingertips of your support personnel, for quick, accurate responses to customer requests.
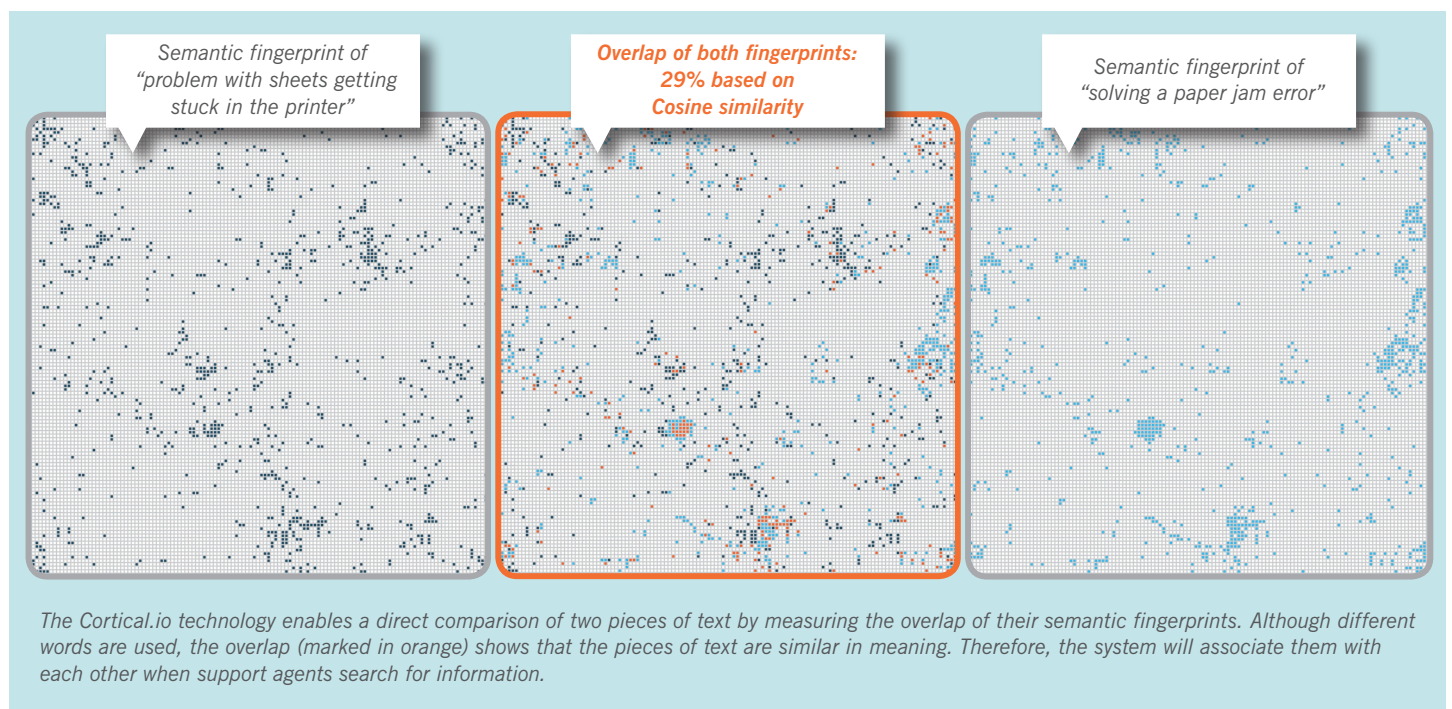
🔷 70% time savings

With the deployment of Cortical.io technology, large enterprises are reducing the average handling time of support requests by approximately 70%. The outcome is increased customer satisfaction, repeat purchases, greater retention of contact center agents, and lower overall support cost without compromising quality.

🔷 Understanding natural language

A big challenge for automated support systems has been to understand the natural language in questions submitted by customers and to match requests with existing solutions that use different, and often more technical, terminology. Search engines that are based only on keywords typically miss correct solutions that do not contain those keywords.

Cortical.io technology understands natural language by employing a unique, meaning-based algorithm that converts text into a new format called a **semantic fingerprint**, which captures the meaning of the text. The Cortical.io approach draws upon neuroscientific research into how the human brain processes information.

Semantic fingerprint of "problem with sheets getting stuck in the printer"

Overlap of both fingerprints: 29% based on Cosine similarity

Semantic fingerprint of "solving a paper jam error"

The Cortical.io technology enables a direct comparison of two pieces of text by measuring the overlap of their semantic fingerprints. Although different words are used, the overlap (marked in orange) shows that the pieces of text are similar in meaning. Therefore, the system will associate them with each other when support agents search for information.

The Support Intelligence Engine overcomes the problems of language ambiguity and vocabulary mismatch by analyzing not just keywords but also the meaning of whole support cases, including customers' written requests and agents' notes, and the meaning of sections of text from support documents, long or short.

Quickly solve complex support requests using semantic search technology

Unsupervised training with reference material

The Support Intelligence Engine learns the vocabulary of your company's business domain by analyzing a corpus of relevant text documents—existing support cases and product documentation—in an unsupervised machine-learning approach.

Removal of nonrelevant text from support cases

All support cases are automatically filtered so that duplicate text and irrelevant text, such as generic introductions, greetings, and email signatures, are removed. The Support Intelligence Engine identifies variations of this type of text throughout all support cases, without requiring exact text searches for each variation.

Semantic indexing of all support documents for fast retrieval

The Support Intelligence Engine converts each support case into a semantic fingerprint and compiles an index of all fingerprints. When support agents submit new support cases and the engine automatically generates semantic fingerprints for the new cases and compares them with the indexed fingerprints.

Continuous learning from user feedback

Search results are first sorted by fingerprint similarity. Support agents can rate results according to relevancy. The system continuously analyses the ratings and learns which support-case fields to give most weight to when ranking top results for subsequent searches.

How is the Cortical.io Support Intelligence Engine different?

· Achieves 70% savings in support request handling time

· Is three times as accurate as traditional search engines

· Finds relevant information based on the meaning of text rather than on keywords

· Identifies important terms in new documents, ignoring surrounding background noise

· Is quickly trained, in an unsupervised machine-learning approach

· Is re-indexed in a question of hours rather than weeks

· Learns new vocabulary on the fly

Integration with your support-case software

The Cortical.io Support Intelligence Engine can be integrated via a REST API as the search component of your support workflow, supplying results that are visualized in your company's support-case software. When agents submit new support cases, they instantly get back the most similar existing support cases or documents.

Easy updating with new vocabulary

As new product names, feature names, and other technical terms enter the jargon of your agents and customers, the Support Intelligence Engine can be easily retrained (for example, every 6 or 12 months) in the updated domain vocabulary of your business. Retraining can be done in parallel with normal functioning of the engine and takes only a few hours.

To bridge the gap between the time when a new term begins to show up frequently in support cases and the time when the system is retrained, the Support Intelligence Engine automatically generates a provisional fingerprint of the new term. The provisional fingerprint is based on a set of recent search queries that contain the term. In this way, the engine adapts to new language on the fly.

Case study:

Implementation of the Cortical.io Support Intelligence Engine at a Fortune 100 company

Company
Major manufacturer of computer network equipment

Goal
Reduce by 50% the manual effort required to resolve support requests

Challenges
· Presence of much non-relevant text
· Complexity of support cases
· Varying vocabulary and ways of describing problems
· Attempts with other search systems failed in the task of quickly and consistently matching up similar support cases; searching by keyword produced poor results

Solution
· Unsupervised training of the Support Intelligence Engine so that it learns the vocabulary used in the company's support cases and product documentation
· Removal of non-relevant text from support cases
· Automatic learning of new vocabulary in real time
· Autosuggestion of topics for support agents, to standardize support case text

Results
· Relevant search results found more quickly than with previous search methods
· 70% reduction in average handling time of support requests
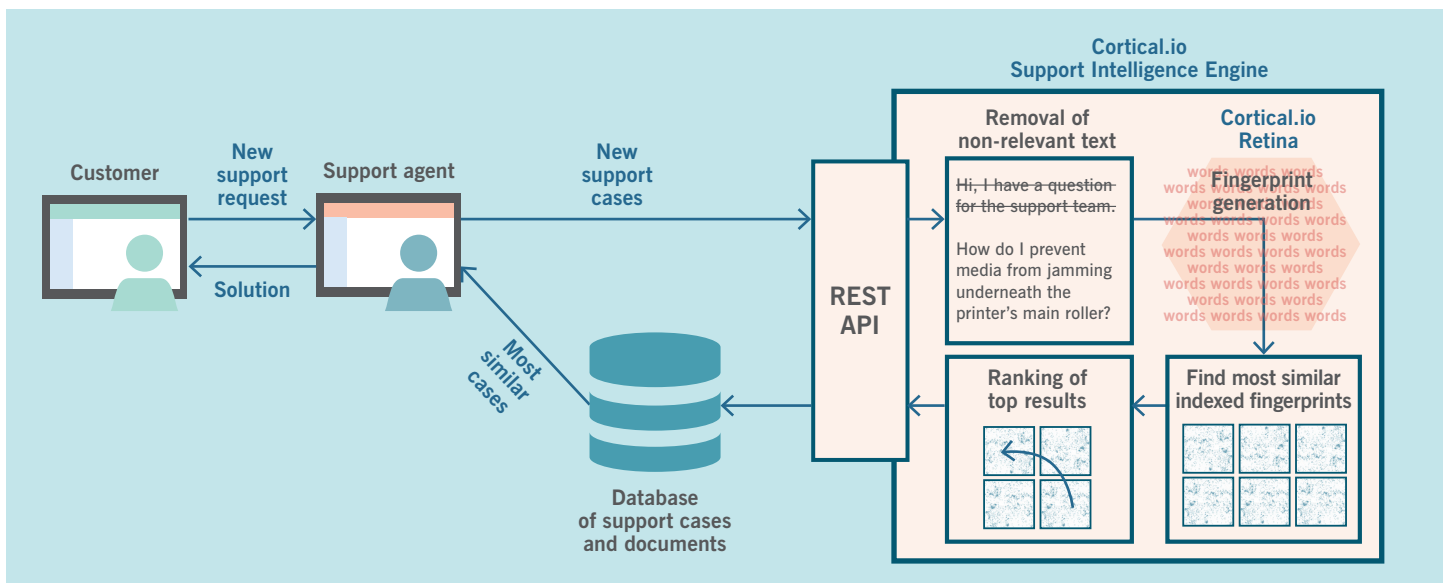
About Cortical.io:

Cortical.io offers natural language understanding (NLU) solutions based on Semantic Folding, a methodology that opens a fundamentally new perspective on the handling of big text data. Inspired by the latest findings on how the brain processes information, the Cortical.io Retina engine converts language into semantic fingerprints, numerical representations that capture meaning explicitly.

The uniqueness of the Cortical.io algorithm makes it possible to solve many open NLU challenges, like meaning-based filtering of terabytes of unstructured text data, real-time topic detection in social media, and semantic searching through millions of documents across multiple languages.

Cortical.io was founded in 2011 in Vienna, Austria and holds a broad general license for Numenta's Hierarchical Temporal Memory technology.

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