Cool Vendors in Conversational and Natural Language Technology

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Initiatives: Artificial Intelligence

Organizations' need for knowledge structuring and self-service is becoming more complex, so solutions integrating HITL and AI components start to emerge. In this research, applications and software engineering leaders will find examples of Cool Vendors with innovative synergies in this space.

Additional Perspectives

- Summary Translation: Cool Vendors in Conversational and Natural Language Technology
  (10 June 2022)

More on This Topic

This is part of an in-depth collection of research. See the collection:

- 2022 Cool Vendors Pave New Paths for Democratized Digital Delivery

Overview

Key Findings

- Organizations are storing increasingly higher volumes of fluid data across different formats and systems, which they are struggling to convert into knowledge and insights.
- Employees play a critical role in keeping such data updated and consumable, and there is an emerging need to integrate knowledge-structuring automation with human-in-the-loop (HITL) interfaces.
- Stakeholders inside and outside the organization are required to access pertinent, updated knowledge efficiently, through different interfaces and using natural language.
- Tactical, use-case-specific approaches to knowledge handling and conversational solutions, which neglect a broader language automation strategy, will generate higher costs and lower adoption rates.

Recommendations

Applications and software engineering leaders tasked with automating knowledge-structuring and consumption workflows should:

- Organize their corporate data, in terms of formats and relevance to building a knowledge base humans can consume in a self-service mode leveraging artificial intelligence (AI) techniques.
- Adopt solutions that involve both AI-driven automation methods and HITL components, as incomposite AI approaches, while structuring data into knowledge.
- Leverage conversational AI as the new standard, multimodal and multichannel interface layer between their employees or customers and corporate knowledge.
- Adopt use-case-agnostic approaches that allow assets to be reused across different scenarios and can meet the language-automation needs of the whole organization.

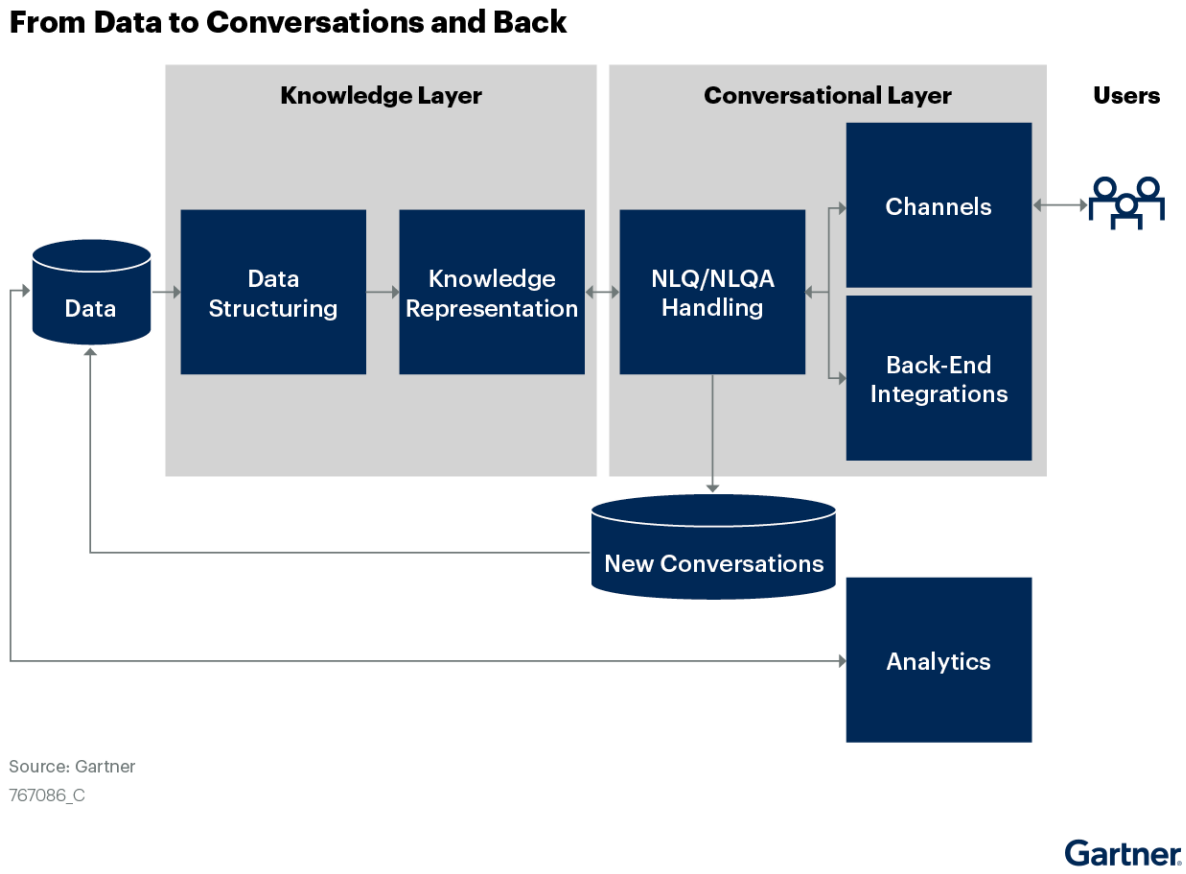
Analysis

This research does not constitute an exhaustive list of vendors in any given technology area, but rather is designed to highlight interesting, new and innovative vendors, products and services. Gartner disclaims all warranties, express or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

What You Need to Know

Figure 1 illustrates the automated process that allows the conversion of data into knowledge, which is leveraged by the conversational layers to create new conversational data.

Figure 1: From Data to Conversations and Back



While the amount of corporate data increases, and it is generated ubiquitously across many systems and in diverse formats, organizations should focus on the urgency of understanding their own knowledge for the purpose of improvement and expansion efforts, rather than focusing exclusively on understanding users' behavior. This is critical to allow an efficient, seamless structuring and consumption of such knowledge, regardless of the rate at which it may change over time.

The Cool Vendors in this research bridge different subfields in the natural language technology (NLT) space to increase organizations' capabilities to transform data into knowledge and allow users to query in a natural, conversationlike fashion. Figure 1 offers an idealized representation of these vendors' capabilities.

Within this framework, leaders are empowered to:

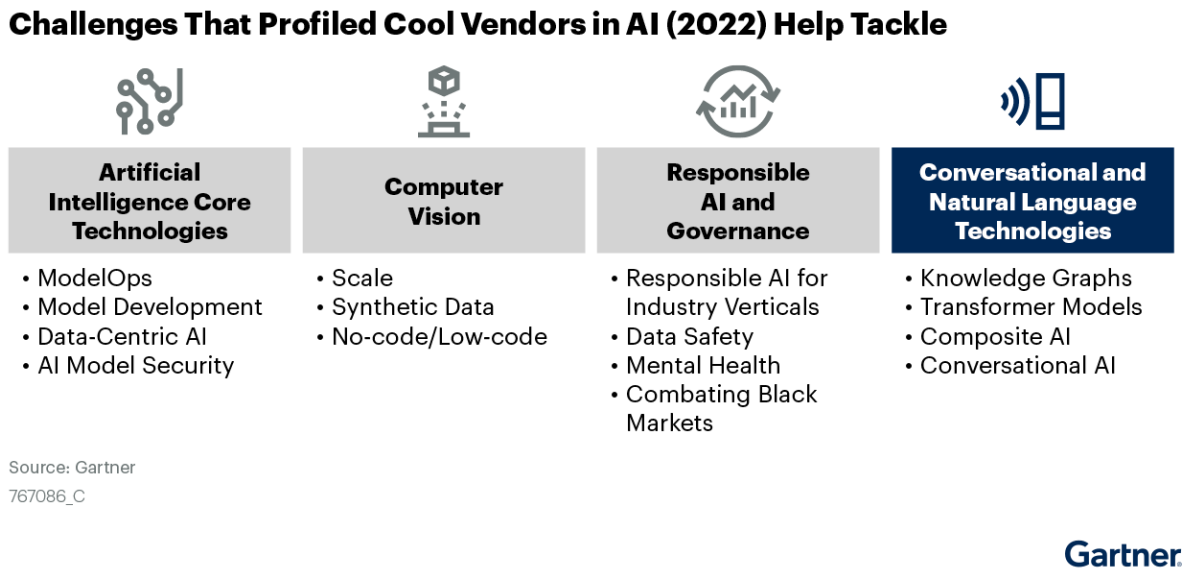
- **Narrow their attention to relevant data.** Such data may come in structured (e.g., databases [DBs]), semistructured (e.g., enterprise knowledge bases [KBs]) or unstructured (e.g., emails, live chat) formats. Notably, the latter type comprises user-generated data in the form of conversations.
- **Convert data into usable knowledge.** Such a process is pivotal to the whole pipeline, and it may include both AI-driven and HITL components. The outcome of this conversion step is knowledge represented in such a way that it can be accessed by a conversational AI agent (knowledge graphs or topic/process identification).
- **Enable natural-language consumption of corporate knowledge** by leveraging the conversational AI capabilities of the platforms. Interactions can be labeled as natural language queries (NLQs) or natural language question answering (NLQA) requests. This layer, as it is pictured in Figure 1, includes any required channel and back-end integrations. VAs built within this kind of framework tend to be intentless or even intent-free types of conversational AI (CAI) implementations.
- **Generate new conversational data** as users interact with virtual assistants (VAs), and put such dialogues back into the circuit to improve the quality and coverage of the knowledge layer.
- **Derive statistics and insights** to better understand both data and users.

To get a more holistic view of the Cool Vendors in artificial intelligence, leaders can also review the following research (see Figure 2):

- Cool Vendors in AI for Computer Vision

- Cool Vendors in Conversational and Natural Language Technologies
- Cool Vendors in AI Governance and Responsible AI

Figure 2: Challenges That Profiled Cool Vendors in AI (2022) Help Tackle



Got It AI

Burlingame, California, U.S. (https://www.got-it.ai/)

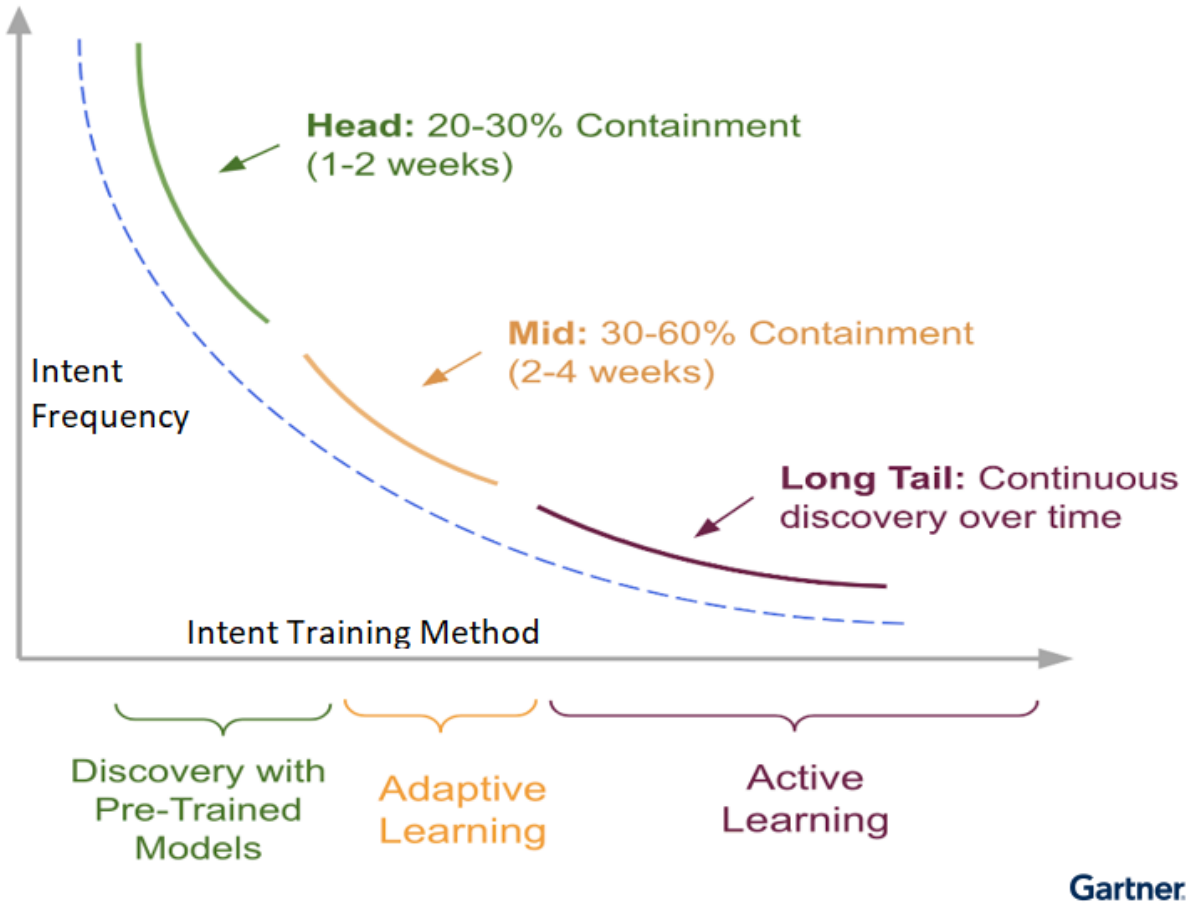
Analysis by Bern Elliot

Why Cool:

Got It AI leverages transformer neural network models, large language models (LLMs) transfer learning and HITL methods, collectively called TrueNLP, to self-start and continuously enhance conversational AI applications. Any size organization can take advantage of a key innovation: the use of transformer models powering an "auto discovery engine" to identify automatable flows (AutoFlows) from historical records of chat logs, voice transcripts, trouble tickets and emails with minimal manual work. AutoFlows remove the need for professional-services-based manual flow building (see Figure 3). In the Dialog Manager, separate, specialized transformer models are available to address overlaps between conversational FAQ search queries and conversational dialogue intents, and to route to the appropriate model accordingly at runtime. Similarly, chit chat and generic requests can be identified and addressed separately. Personally identifiable information (PII) can be removed prior to ingestion into training so as to maintain compliance.

Figure 3 illustrates the different methods Got It AI uses to address customer Intents of different frequencies.

Figure 3: Got It AI's Process Flow



Source: Got It AI

Challenges:

- Although Got It AI has a unique new approach, it will have to work hard to gain visibility and acceptance in a crowded and highly competitive market. Competitors span many areas, from the large cloud hyperscalers to established best-of-breed vendors and contact center portfolio providers. As a result, the company will have to create go-to-market messaging that clarifies how it differentiates itself, while also illustrating the sophistication and differentiation of the platform and its underlying technology.
- Got It AI will need to make its sophisticated, transformer-based approach more accessible and self-serve for business users to deploy and maintain implementations with limited ongoing technical support.

Who Should Care:

- Enterprise leaders interested in developing customer self-service solutions that can get operational with reduced effort and with limited natural language understanding (NLU) training time. The Got It AI solution offers out-of-the box integrations with leading customer CRM, contact center as a service (CCaaS) and sales platforms, as well as API options for custom integrations with no code UI.
- Customer service leaders responsible for rapidly deploying solutions for new environments, such as a customer service business process outsourcer. In this case, the ability to rapidly discover and get operational with the most pressing customer requirements is an advantage. Subsequently, the ability to discover additional customer intents using integrated adaptive and active training methods allows the operation to continue to broaden and improve the self-service over time.

Onlim

Vienna, Austria (https://onlim.com/en/)

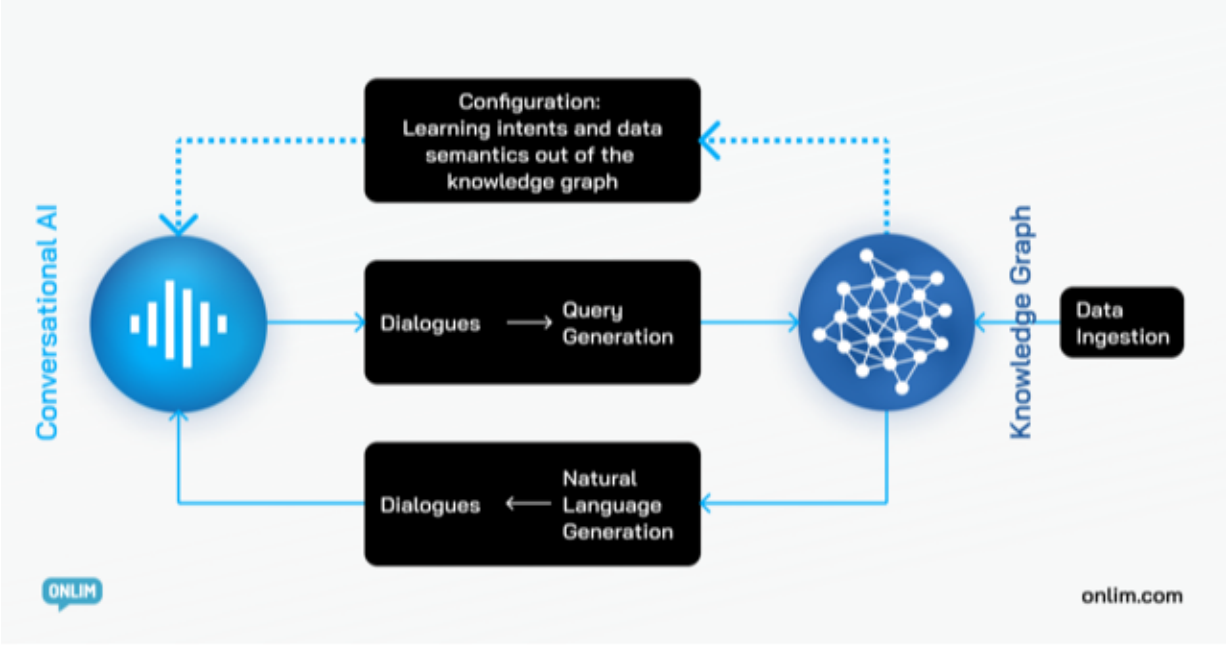
Analysis by Magnus Revang, Bern Elliot

Why Cool:

Onlim is cool because it allows for intentless conversations enabled through creation of enterprisewide knowledge graphs that are used as a knowledge store to enable conversations with data. Its focus has been on developing a conversational AI framework capable of ingesting large sources of structured and unstructured information into a knowledge graph (see Figure 4). This knowledge graph preserves factual information and relationships across it and is unique for each customer. This is especially suited for use cases that need to support a large number of questions based on large and multiple data sources. For instance, destination information in travel, policy documents in insurance, and product information and technical manuals in manufacturing are areas where Onlim already is currently deployed.

Although knowledge graphs are mostly used on static information, Onlim also supports dynamic information in the graph — which enables the automatic creation of actual multiturn conversational flows and allows asking questions of delivery times, inventory and departure times. This expands the possible use cases into travel, digital commerce and education.

Figure 4: Onlim Platform's Process Flow



Source: Onlim

Challenges:

Intentless knowledge graph conversations are particularly suited for a subset of use cases, such as FAQs, queries about entities and their relationships, and slot-filling multistep dialogue. More advanced use cases, due to compliance and control, are still better suited for intent-based vendors. This makes Onlim a niche vendor for certain conversational AI use cases and not a platform vendor capable of addressing all possible enterprise requirements. The introduction of new capabilities in the latest release of the platform, capabilities that allow users to build their own dialogues, can possibly mitigate this challenge. To grow, Onlim will have to identify clients and use cases where the savings enabled by a knowledge graph surpass the synergies a general conversational platform vendor can bring.

As customers mature from FAQ, it is important that Onlim keeps innovating with capabilities like dynamic data in the knowledge graph. Onlim is in a race to solve increasingly sophisticated dialogues and to broaden its use cases using its knowledge graph approach before competitors with a broad set of capabilities can add similar knowledge graph approaches to their arsenals.

Who Should Care:

- Enterprise leaders developing conversational AI capabilities that are primarily FAQ-based from high-quality, but large, knowledge bases — where traditional intent handling will be too much effort.
- Enterprise leaders developing conversational AI capabilities against audiences with a high level of specialization or knowledge about the domain that will be asking detailed questions.

Hyro

New York, New York, U.S. and Tel Aviv, Israel (https://www.hyro.ai/)

Analysis by Annette Jump

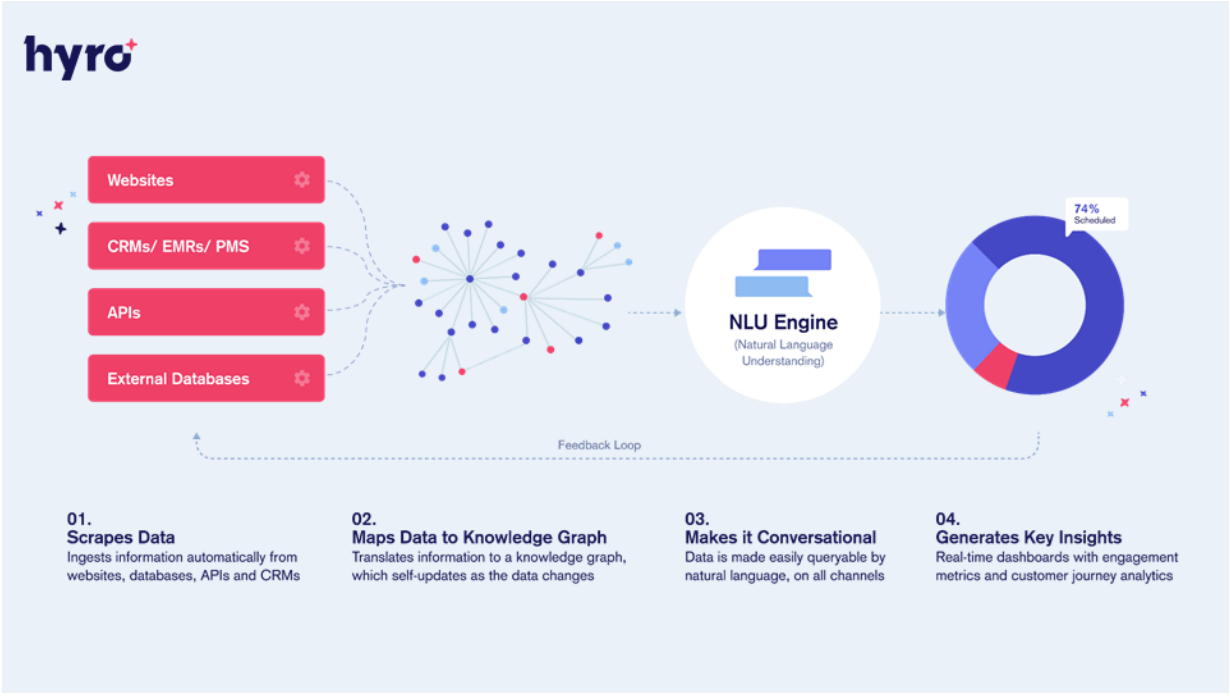
Why Cool:

Hyro's conversational AI platform is unique as it has open "intentless flow" by combining computational linguistics with knowledge graphs and automatic scraping of various data sources for information. This approach is effectively about enabling AI models to better understand the basics of human language without very time-consuming intent model training. The information from websites, internal databases and enterprise applications is automatically converted into a knowledge graph that can be queried via natural language interactions (see Figure 5).

According to Hyro, the knowledge graphs can be updated on a daily basis, so VAs developed using Hyro's conversational AI platform are always up to date with previous-day enterprise data. The Hyro platform is able to easily integrate with various call center solutions to support automation and deflection of customer calls, as well as various CRM software to provide real-time information to sales teams on prospects, and to qualify leads and funnel them to close deals.

This solves major challenges for enterprise organizations adopting conversational AI solutions around complexity and lack of internal skills for developing and maintaining solutions built on predefined intents. It also significantly reduces model training efforts and solves issues around training data. In addition, Hyro's CAI solution is designed to continuously evolve over time while requiring minimal maintenance as more data flows into the system and is used to update the VA's coverage automatically. This enables easy scalability across various use cases, platforms and channels. For users, conversational solutions built with Hyro's platform will enable more contextual understanding during interactions and thus more value and improved customer satisfaction. Hyro's current focus is around virtual customer assistant use cases in healthcare, government and real estate.

Figure 5. Hyro Conversational AI Platform Process Flow



Source: Hyro

Challenges:

Hyro is operating in a very crowded conversational AI space, so differentiation and brand awareness are typical barriers for any startup company in this technology space. Hyro's clear vertical specialization at the early stage of the company's expansion is a definite advantage. However, it is not a good fit for organizations with use cases beyond navigation and routing, catalog/directory search, appointment scheduling and symptom checks to address more complex use cases, like review of recent medical test results, proactive outreach suggestions around relevant real estate properties or automatic renewals for various government-issued documents.

Hyro currently supports only English and Spanish, as it mostly operates in North America. This can be a limitation for organizations that have business operations across multiple countries or support customers speaking multiple languages.

Who Should Care:

- Enterprise leaders developing customer-facing virtual assistants in healthcare, real estate and government that can be deployed quickly with reduced model training effort and avoiding challenges around integration with enterprise applications and data sources.
- Enterprise leaders developing automation solutions for front end of customer interactions, especially requiring multiple search attributes, context understanding or scheduling.
- Enterprise business leaders looking for VAs that can be rapidly scaled up within their organization across various use cases and domains without AI developers' involvement.

Where Are They Now?

Deepgram

San Francisco, California, U.S. (www.deepgram.com)

Analysis by Soyeb Barot and JC Martel

Profiled in Cool Vendors in AI Core Technologies, 2017

Why Cool Then:

Deepgram's forte has been within speech-to-text (STT) technology that addresses use cases around contact centers, call analytics solutions, conversational AI platforms, and sales and support enablement providers. It specializes in long-form audio and transcribing one billion words per month. In addition, Deepgram provides AI-based speech recognition, keyword search and a classification engine for a variety of audio formats. Typical contact center human reviewer teams only analyze a random sample of 2% to 5% of call recordings due to time and resources, whereas Deepgram analyzes the entire dataset within a day.

Where They Are Now:

Through the years, Deepgram has significantly built upon the original solution and capitalized on its flexible deep-learning architecture to enhance the accuracy of its ASR solution, which can also be improved in each individual case by adding the customer's real-world audio. Through transfer learning using the customer's audio domain, Deepgram allows the creation of use-case-specific speech models optimized for increasing the accuracy in the transcription of specific terms, jargon and accents, while removing any noise that may inhibit accuracy. Tools are also offered for customers to label their own data on-premises or in the cloud. Deepgram can identify structure in recorded speech by keyword spotting and phrase detection, and provides diarization, redaction, profanity filtering, keyword search, numeral formatting and other features for all users. Such techniques and features could be applied to a wide spectrum of cases like fraud detection, sales optimization and call categorization, among others.

Rather than stacking together individual acoustic, pronunciation and language models, Deepgram uses an end-to-end deep-learning model where acoustic signals are model inputs and transcriptions are model outputs. Its deep-learning neural network is built on CNN, RNN and transformer-based models that self-learn from the audio data being inputted. The closer the input audio is to the company use-case audio, the more accurate the result. Customers interact with a speech API to access base and adapted models supporting batch (prerecorded) and real-time data flows. The solution, which works on-premises or in the cloud, supports 20 languages and dialects.

Who Should Care:

- Enterprise leaders who need better insights from their audio or video media but are struggling with transcription accuracy or need real-time speed.
- Enterprises looking to improve user (internal/external) experience by analyzing all their audio and video interactions but were inhibited by high costs or resources.

Talkmap (formerly Discourse.ai)

Dallas, Texas, U.S. (www.talkmap.com)

Analysis by Van Baker

Profiled in Cool Vendors for Conversational Platforms, 2019

Why Cool Then:

Discourse.ai, which is now Talkmap, appeared to be one of the few vendors to bring both conversation mining and intent-model-development acceleration together as chatbots and conversation intelligence accelerators.

Discourse.ai moved beyond text and speech mining of historical conversations for retrieving intents to the more reusable approach of modeling conversations as graphs. This approach allows users to view how conversations change over time and predict how conversations will progress. Discourse.ai used a mixture of semantic and machine learning (ML)/deep neural network (DNN) technologies to parse huge volumes of conversation data, highlight the types of conversations that could be automated, and provide tagged and ready intents/utterances to train the underlying model of choice. Discourse.ai's analytics tool provided a visualization of the company's aggregate conversations and was used to help data scientists and analysts discover conversation patterns, customers' behaviors and opportunities for automation. As a result, Discourse.ai positioned its platform as a middleware between raw conversation data (call logs and recordings) and CAI platforms such as Salesforce Einstein, IBM Watson, Google Dialogflow, Amazon and Kore.ai.

Where They Are Now:

Talkmap is a rebranded company with a more refined focus. Most enterprises are realizing that they need to be laser focused on the customer and that real-time customer conversations are the best source of this insight. These ongoing interactions contain valuable and timely insights that identify issues and opportunities for the company to improve both its products and its customer engagement. Talkmap has focused on extracting value from customer communications. It takes companies' calls and chats, and transforms them into actionable customer intelligence in real time with unsupervised and automatic learning at scale. By ingesting raw, unstructured customer data, Talkmap enables conversations to be analyzed, structured, organized and visualized across every area of an organization.

This can be done in aggregate to extract insights after the communications have been collected as well as in real time to identify opportunities to address interests and solve problems for the customer. Talkmap uses computational linguistics combined with artificial intelligence and machine learning to extract insights for the business from its customer communications. The platform is offered as a SaaS service.

Who Should Care:

- Enterprise leaders responsible for contact center, customer experience or any customer-facing operations that would like to extract actionable insights about their product or service should look to Talkmap to produce this added value by classifying these assets.

- Enterprise leaders that want to improve their customer engagement by discovering additional actions and offers on a near real time basis to guide their call center agents should consider the Talkmap SaaS service.

Acronym Key and Glossary Terms

CAI	Conversational AI
CAIP	Conversational AI platform
HITL	Human in the loop
KG	Knowledge graph
STT	Speech to text
NLQ	Natural language query
NLQA	Natural language question answering
NLT	Natural language technology
LLM	Large language model
VA	Virtual assistant
CRM	Customer relationship management
CCaaS	Contact center as a service
KB	Knowledge base
PII	Personally identifiable information
NLU	Natural language understanding
GPU	Graphical processing unit
SDK	Software development kit
DB	Database

Evidence

This research is grounded in interactions (inquiries and briefings) with vendors and clients about natural language technologies and innovative approaches in the knowledge structuring and conversational AI spaces that Gartner analysts have fulfilled in the last year.

Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

Expert Insight Video: Evolve to a Strategic Approach for Natural Language Automation

2021 Strategic Roadmap for Enterprise AI: Natural Language Architecture

Cool Vendors in Conversational and Natural Language Technologies

Top Strategic Technology Trends for 2022: Generative AI

Top Strategic Technology Trends for 2022: AI Engineering

Emerging Use Cases for Natural Language Technology

Magic Quadrant for Enterprise Conversational AI Platforms

Solution Criteria for Enterprise Conversational AI Platforms

Selecting Conversational AI Solutions for Chatbot and Virtual Assistant Initiatives

Emerging Technologies: Introducing the Artificial Intelligence Roadmap for Virtual Assistants

Improve Customer Self-Service and Self-Solve With Knowledge-Centered Service