



ConverSight.ai

Actionable Insights. Instantly. Anywhere.

WHITE PAPER

Empowering Supply Chain Resilience Through Conversational AI

A Use Case: Using Proactive Insights and Actions for Improved Decision Making



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Introduction

Packaging Material Distributor Decreases Costs of Operations By 20% With Conversational AI

MAVPAK's operations team needed an affordable and efficient alternative to the hours and resources spent on tedious reporting and management of over 600 products, 300+ vendors, 200+ customers and three warehouses. Their original system managed these constantly moving pieces with traditional excel sheets and filing systems that were time consuming and complicated to analyze and gather insights from. When first shown the ConverSight.ai platform, they thought it was almost too good to be true, but it soon became the solution they could not operate their business without.

About MAVPAK

MAVPAK is an Indianapolis based packaging material distributor focused on end-to-end packaging needs for large companies. The organization's mission is to fully serve their customers in the best possible way through providing packaging design and distribution, equipment maintenance, warehousing and leadership development services to the Central Indiana community.

Exhausting Resources with Limited Capabilities

MAVPAK's operations team needed access to real-time business insights with the ability to scale with their quickly growing business. With customer satisfaction and order accuracy top of mind, they required a solution that integrated seamlessly with existing ERP systems and empowered both the management and warehouse staff with instant access to data and orders. Additionally, MAVPAK needed to monitor inventory and purchase costs across products, vendors, and warehouses, a time consuming and detailed process vulnerable to human error.

Before ConverSight.ai, MAVPAK was managing their 600+ products and three warehouses with a complicated, lengthy reporting process that involved excel sheets and Quickbooks. Gathering data out of existing systems was very difficult and daily decisions were often made off of gut feel. Reports that existed inside of Quickbooks were limited when it came to drilling into details that the company was needing to scale to growth.

"Most of the business intelligence tools out there require a lot of training and onboarding with advanced technology just to create custom reports. It was taking me up to eight hours to generate reports and it wasn't a good use of my time. Now I can generate the same sort of report in seconds. The time impact has been monumental."

- Nick Campbell, Director of Operations, MAVPAK

ConverSight.ai: Actionable Insights. Instantly. Anywhere.

ConverSight.ai brings a new approach in the information search & analytics space that allows users to take an unscripted journey, asking questions they had not anticipated and discovering patterns and anomalies they did not know were there.

ConverSight.ai's intelligent business companion, ATHENA, understands user behavior, context and intent of the conversation and uses machine learning, data science and cognitive techniques to deliver personalized insights and actions.

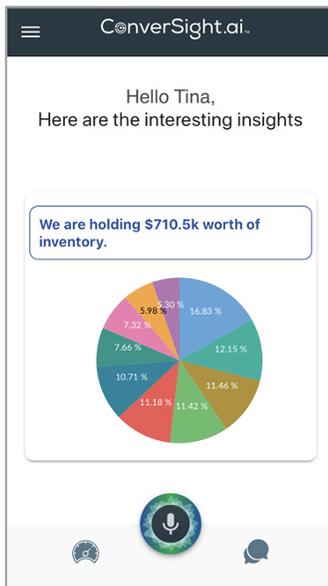
ATHENA is available through multiple text and voice channels to understand user input as well as deliver the output in the form of voice or text in different channels like web, mobile voice/chat, voice-first devices like Amazon Alexa and Google Home, and online communication tools like WebEx, Teams, and Skype for Business.

Deep reinforcement learning is embedded into every aspect of ConverSight.ai. Cognition and reasoning are built using knowledge graphs that understand and build pragmatic data structures from distributed heterogeneous cloud and on-premise datasets.

ConverSight.ai's characteristics include the ability to:

- Connect to multiple data sources, both structured and unstructured
- Integrate with online applications through web services and APIs
- Access to insights through narratives and questions (e.g., sales metrics)
- Uncover data anomalies through data science
- Provide personalized proactive-insights
- Retrieve information (e.g., product search and specifications)
- Execute transactions (e.g., place orders)

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Proactive Business Insights

ConverSight.ai delivers key business insights as business news in the morning. Similar to a newsfeed, ATHENA monitors the key insights and creates a narrated story at any preferred time of day. Insights are configured at a role level and triggered based on a threshold.

When the user opens the application, ATHENA will proactively provide insights and initiate the conversation. Users can ask follow-up questions to understand the insights and then perform actions. Unlike a chatbot, ATHENA will continuously engage users via bi-directional voice conversations.

Natural Interaction with Data

When an end user asks ATHENA a question, ConverSight.ai must “translate” the question into an appropriate algorithm, run the algorithm to answer the question, and then deliver the answer to the user. ConverSight.ai has built unique natural language processing (NLP) capabilities that enables a user to ask a question in simple terms (e.g., no training required to ask a question) and build context from one question to the next, supporting a user’s insight discovery process.

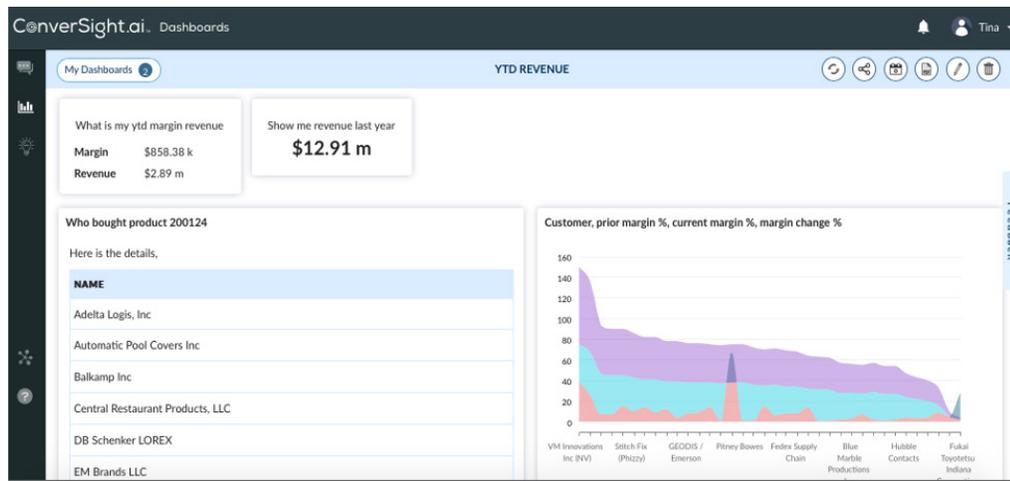
Other NLP platforms parse phrases or entire sentences at a time for understanding. ConverSight.ai’s NLP includes proprietary data annotation and semantic parsing algorithms that parse individual words for meaning using the knowledge base referenced earlier. The individual parsing, coupled with the dynamic knowledge base is a complex process that delivers greater accuracy (86% successful conversations), contextual understanding and truly natural language processing.

To retrieve the relevant information, an Abstract Syntax Tree (AST) Logical Form algorithm is created and runs directly on the customer databases to enable real time insights and reduce network latency. Query results are then delivered to the end user across the preferred channel.



Auto-Generated Reports/Dashboards

When the user asks for insights from a particular system, the corresponding data is presented in a meaningful visual without the need for a developer or analyst. Visualization results may be represented in a graph, table, pie chart, bar chart or any preferred format. Users can then extract the data and export to excel, PDF and other formats.



User Collaboration and Data Enrichment

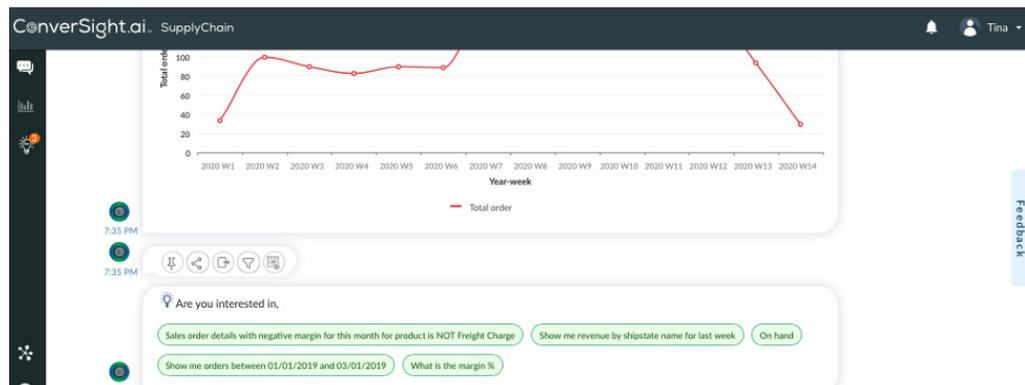
One of the critical needs for MAVPAK was analyzing metrics to a “why” question (e.g., why did revenue grow last month?). In larger enterprises often one or two key subject matter experts know the answer but it is rarely documented in an easy to find location for others to see. ConverSight.ai has built a collaborative framework for when a user knows the answer to certain metric fluctuation, there is an option to “annotate” the data or leave a note to be visible by other users. If a team member has a question on a metric, the user can ask ATHENA to follow up with the subject matter expert to add more details.

Unscripted User Journey

Related Metrics and Follow-Up Questions

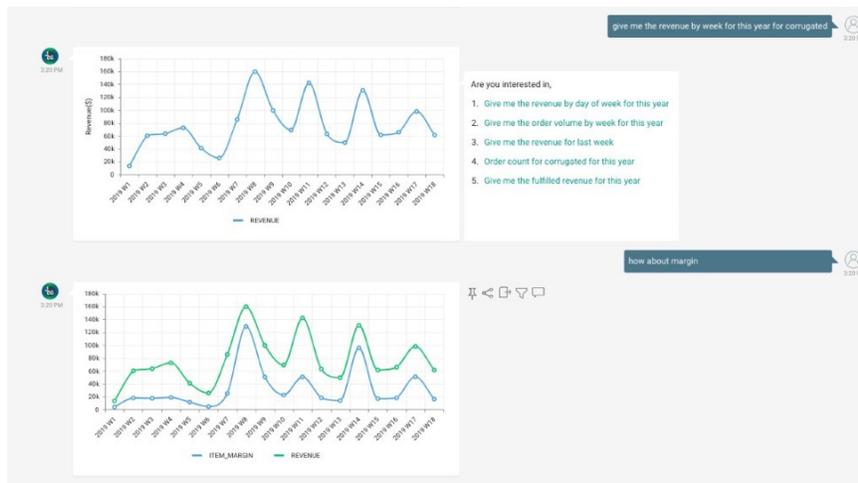
Once ATHENA answers a question, the user is then presented a list of related questions or follow up actions to consider. This enables the user to be proactive and allows for easy exploration of the data set.

In MAVPAK's case, when the user asks to review the order volume by week, ATHENA provides the insight and then suggests that the user follow-up with a question to progressively analyze the order count by "Day of week." Specifically in the supply chain industry, having the orders rationalized across the weekdays is required to manage an efficient dispatcher bandwidth.



Contextual Conversation

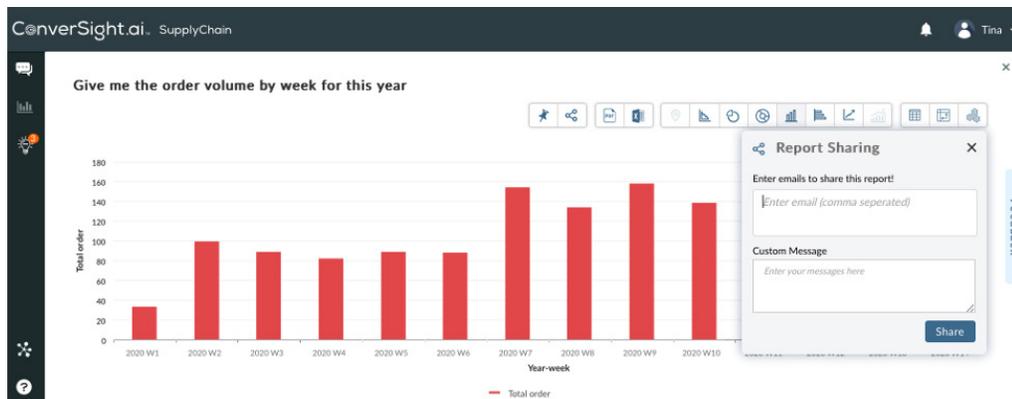
In conversational systems, remembering the current context and understanding the questions within the context is very much required. Without context, users need to repeat the questions and context every time. For example, if the sales leader wants to understand the order volume in the East region for last year's first quarter for a particular product, in the next moment, the user may want the answer for the same question but for the West region instead of the East. ATHENA understands the context and applies the context automatically. Users also have options to retain filters and force the context.



Data Sharing With Customers and Suppliers

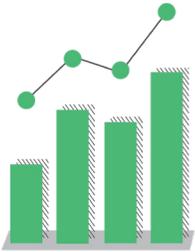
In MAVPAK's day-to-day business process, users share business data with customers and suppliers. In their previous process, most of the information was stored in excel sheets and shared through email. The process was not just time-consuming, but also created confusion on the single version of truth. To avoid issues of expired data and automate data sharing, ConverSight.ai has an option to provide the insights embedded in a webpage.

Users can ask a set of information, review it and then tell ATHENA to share it with anyone inside or outside the organization through a voice command. Upon receiving the request, ATHENA will send a link and also monitor the usage of the data. The links are set to expire after a certain period to ensure security.



Processing Speeds and Performance

Response speed is vital for any conversational system for higher adoption. To achieve a sub-second response time, ConverSight.ai apply several techniques.



- GPU-based Graph database for faster retrieval
- Data transfer from database to front-end through Arrow (an in-memory columnar datastore)
- Data is split into multiple stores to enable processing at high speeds
- Algorithms are run within the database layer without extracting it for processing
- Scalable kubernetes based deployment and cloud-neutral

Scalable Knowledge Module and Adaptive Learning

ConverSight.ai built and maintains four levels of knowledge common across industry, customer and user role level. The platform brings the first two layers of knowledge as a ready-to-use asset and continuously enriches while the platform is in use. While loading data, a data dictionary will be created. For example, "rev_amt" will be called "revenue". When the user asks "What were the sales for last week?", ATHENA responds "I don't understand sales, did you mean revenue?". Based on user confirmation, the knowledge module is enriched. Adaptive learning via "Did you mean" features allows ATHENA to learn as the platform is being used.

"Two reports, four spreadsheets, three hours of work to get product sales comparison is now in few seconds."

Nick Campbell
Director of Operations
MAVPAK

Automating Sales and Purchase Orders

ConverSight.ai's TaskBot is a multi-channel bot that provides a goal-oriented conversational interface for business tasks like order creation, approval, and other form filling that is done on a consistent and one-off basis. The TaskBot engages the users through multiple channels like voice & text and is also available through the many devices users carry like a computer or a voice-first device like Google-Home or Amazon Alexa. TaskBot is also available through collaboration channels that many organizations leverage like Microsoft Teams, Slack, WebEx Teams, etc

ConverSight.ai provides task definition and conversation training modules to provision the TaskBot for users quickly. This module helps the bot admin user define the task, the actions of the task, utterance and allows users and admin to train by interaction models using human assisted reinforcement.

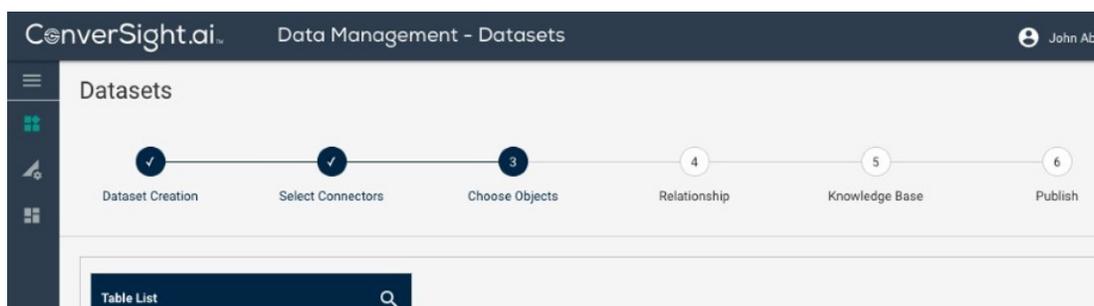
In MAVPAK's case, decision makers were focused on automating orders including the placing and receiving of orders and all steps in between. ConverSight.ai's TaskBot enabled these reports to be generated automatically in a seamless, user interface that users could return to for updated data and recurring reporting. For example, a user may be looking for one input (how many quantities on hand), ATHENA then runs the query and brings back data to the user from four different tables. With 60 sales people creating 10 orders a day, it was taking MAVPAK a lot of time to manually find these quantities – upwards of 50 hours a week. With ConverSight.ai, MAVPAK saved an average 4 minutes per order, averaging \$200K saved per year.



The TaskBot uses the underlying ConverSight.ai platform along with ConverSight.ai's insight solutions to offer a unified conversational interface for users from insights to action. The platform brings a unique style of conversation based on a user's skill and facility of a task. For example, for a non-technical user like a factory employee, the conversation will follow a step-by-step guided approach while a subject matter expert may have a conversation that will be a much more complex and direct interaction -- allowing a true user companion experience.

Data Ingestion and Knowledge Creation

A significant insights and analytics challenge for many corporations, like MAVPAK, is the ability to normalize data so that insights can be gleaned from multiple data sources. ConverSight.ai is unique in its ability to ingest data from multiple sources, both structured and unstructured. These data sources may include transactional data, data lakes, internal product data or external data feeds.

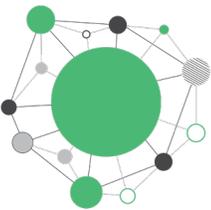


Knowledge Creation includes the ingestion of data and then the profiling of that data to facilitate end user queries. ConverSight.ai ingests data from multiple enterprise data sources, including data lakes, ERP systems, CRM systems, real-time transactions, IOT data and external data feeds. This data is then used to create a dynamic graph database, which facilitates data mapping and contextual understanding. The knowledge base increases in effectiveness as data is ingested and AI powers adaptive learning so that new data types and structures can be readily ingested and incorporated into the graph database.

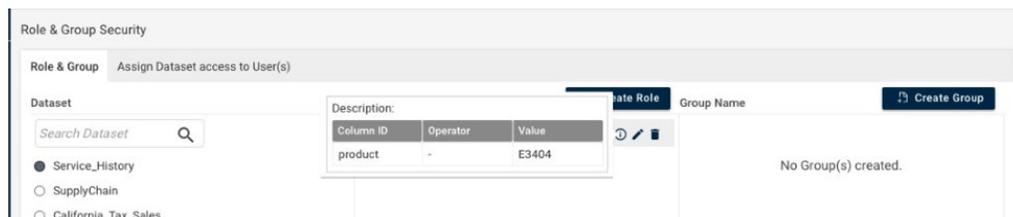
The data profiling process typically takes 2-7 weeks. The amount of unstructured data is the primary driver of time required.

Data Security

ConverSight.ai is designed to work in a large enterprise with multiple business users, user roles, external partners, customers, and supplier user ecosystem. Various levels of security layers are defined.



- Application Level Security
- Row & Column level data security
- Role/User Level Security
- Device Level Security
- Authentication codes for initial setup
- Key transactions are performed after validating one-time passcode
- Single Sign-on and integration with existing security modules like LDAP, Active Directory, OKTA
- Admin user interface to manage the data security



“*With ConverSight, everyone at your company becomes an expert in retrieving data to make information-based decisions.*”

Nick Campbell
Director of Operations
MAVPAK

Summary

"The cost benefit, simplicity and speed of data access is unmatched"

Following the implementation of ConverSight.ai's platform, MAVPAK experienced immediate results including significant savings on time, operations costs and resources. Since using the solution, they have seen a:

- **70%** decrease in report creation cost
- **80%** time savings for ad hoc queries
- **85%** reduction in order creation time

Additionally, they have seen significant shifts in internal alignment and positive improvements on productivity and efficiency across teams in alongside these realized benefits:

- 1** The organization as a whole has gained instant to access to data which has eliminated the need to go off of gut feel. Now teams rely on factual and accurate information.
- 2** Efficiency in the organization has improved 10-fold. Hours creating reports has turned to seconds. Hiring additional manpower like a data analyst has been saved.
- 3** The process of inputting data into their systems leans on Athena to save time from MAVPAKs input service team.
- 4** By simply speaking to Athena, data input, extraction and report merging and creation is seamless and non-technical for the end-users.

Most of all, MAVPAK found that the solution has opened a world of accessible data available for all of the organization's employees to find. *"ConverSight.ai gives instant access to data that previously would take a data analyst to mine and build custom reports. Now, I can just ask Athena. The cost benefit, simplicity and speed of data access is unmatched"*

-Nick Campbell, Director of Operations, MAVPAK

Discover how your organizations can empower its sales and service teams with insights to instantly generate reports and improve efficiency and customer service. Visit www.conversight.ai to request a demo and learn more.

“ With ConverSight.ai, everyone at our company became an expert in retrieving data to make information-based decisions. The solution provides instant access to data that previously would take a data analyst hours to mine and build custom reports from. Now, I can just ask Athena. The cost benefit, simplicity and speed of data access is unmatched.”

Nick Campbell
Director of Operations
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