Smartlogic

Case study

Powering Safety Search with Semantic Technologies

The Opportunity

The auto industry is always in transition, yet few periods in history match the current rate of change. Over the next 5 – 10 years, self-driving vehicles will emerge, electric vehicles will take off and connectivity will expand – offering opportunities as well as challenges.

Leading auto manufacturers are competing against each other to increase market share while dealing with slim operating margins, customer demands, shorter product lifecycles, and changing regulation. They are increasingly aware of the need to differentiate themselves by offering innovative quality products at a reasonable cost.

One American multinational corporation has played a pivotal role in the global auto industry for more than 100 years. With a production output of 9,600,000 vehicles, manufactured in 35 countries, they're driven to maintain the highest quality standards and provide safe vehicles to the customers they serve.

To control vehicle costs, understanding, managing and preventing vehicle defects is key. They embarked on a project to understand hazards/symptoms that are reported as defects for vehicle models from a variety of customer and field technician touchpoints (e.g. social media, call center information, community forums, etc.) so they could proactively manage the production pipeline and make course-corrections as required.

Their problem was a semantic one; the safety information, reported by customers and field technicians, was stored in textual documents, housed in multiple systems and lacked a formal, consistent vocabulary. They built a taxonomy, but the product/application they used, was unable to apply it in a way that could harmonize the disparate information sources to support their safety search initiative.

The Road to Safety Search

They needed an innovative solution to support their initiative so they collected RFP's, performed Proof of Values and selected Smartlogic's Semantic AI platform Semaphore because it was intuitive, enabled them to easily build their knowledge and fact extraction models using a graphical user interface, and supported the ability to define multiple custom relationships, which was the key to safety search.

They began by building a safety knowledge model using Semaphore Knowledge Model Management (KMM), which contains the relevant domain concepts, subjects and topics associated with hazards and defects. They created relationships between these concepts (e.g. Component, Symptom and Location – "Brake" "went to" "floor") to provide context and meaning to the results.

The use of Semaphore's Knowledge Review Tool (KRT) in the process allow stakeholders and subject matter experts to provide feedback and participate in knowledge model development. This results in a fit-for-purpose knowledge model, which incorporates the latest and widest thinking throughout the organization without the need for expensive methodologies and processes.

To ensure they incorporated hazards and defects from all touchpoints, they leveraged the knowledge models to extract the relevant information using the Semaphore FACTS framework. Semaphore's FACTS framework performs model-driven information extraction by fingerprinting the relevant documents and extracting information by looking for structured groups of information, which can be taken as facts. The FACTS model enables them to extract all the relevant facts from textual content to ensure they are precisely and consistently finding the information they need.

Semaphore's information extraction leverages the rules, AI, NLP and semantic strategies to describe the semantic variations across structured and raw text and uncover "unknown" items that are outside the encoded domain knowledge. Semaphore Semantic Integration Services publishes the model and creates an index, which is integrated into downstream search applications to enhance the user and customer search and navigation experience.

In the Driver's Seat with Semaphore

Today, they are leveraging all enterprise information – structured and unstructured – so that key decisions are made with a full set of information. Business users and subject matter experts are empowered to create, govern and maintain a sophisticated safety knowledge model that accurately reflects the business and use case. The Semaphore FACTS framework uncovers the valuable information, once out of reach of their business intelligence applications, and is now identified, tagged and used to proactively improve vehicle safety.

The integration of Semaphore into the enterprise has positioned them to precisely and quickly identify safety issues, and proactively make course corrections in key processes to improve outcomes and drive positive results.

> **To learn how Semaphore's Semantic AI platform brings all enterprise information – structured and unstructured – into the decision-making process contact us at info@smartlogic.com**

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