

Case study

Semantic AI Enables Transport Authority to Create National Data Standard

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Introduction

Cities are the center of economic life. More than half the world's population lives in cities, it's where we create ideas, exchange knowledge, and interact and connect – they're the powerhouse of global economies.

The transportation sector is faced with multiple challenges. How the future unfolds depends on the technologies and services consumers and businesses embrace and how policymakers respond.

Transportation authorities must:

- Sharply curb greenhouse gas emissions to slow the rate of climate change
- Serve a growing population and cope with worsening highway congestion
- Maintain and upgrade assets such as, roads, bridges, ports, waterways, airports, and public transit and determine how to pay for improvements
- Adapt to shifts in trade, energy, and funding sources that affect all modes of transportation

One transport agency focused on providing an integrated land transport system that is efficient, sustainable, and provides opportunity, leveraged the power of Semaphore's Semantic AI capabilities to develop a data standard that delivers a mature and consistent infrastructure to drive informed transportation asset investment decisions.

The Opportunity

Charged with creating an infrastructure that provides a sophisticated approach to asset and activity management across the transportation sector, the organization embarked on a multi-phase plan to develop a standardized data structure that supports land transportation assets throughout their lifecycle to drive informed investment decisions.

The organizations current method of developing solutions was for each municipality to build siloed solutions to common problems on their own; the process was costly, inefficient, and disconnected.

They needed a platform and process that would allow them to:

- Develop and implement the first draft of a national, shared data standard for land transportation infrastructure assets that will be used by all municipalities to improve efficiency and drive network planning and resilience. The data standard should be simple, extensible, future-proofed and technology software system-neutral.
- An agile process to publish the standard, solicit feedback from other agencies, and enrich the model as required.

Semaphore provides the tools and technologies they need to efficiently, effectively, and collaboratively build a national data standard and a well-tested process to extend it as required.

How They Did It

They started with a Semaphore POC to ensure the platform's model development capabilities supported their vision. After successfully demonstrating that the out-of-the-box deployment of Semaphore met their needs, they moved into a pilot with an aggressive timeline to deliver an initial draft of the standard.

Using Semaphore Knowledge Model Management (KMM), subject matter experts collaborated with engineers and other stakeholders to identify the assets, attributes, characteristics, properties, locations, and performance for 5 classes of land

transportation assets -pavement and surfacing, signs, poles and supports, and barriers. In its initial version, the model contains a few thousand concepts.

The model is published and used by Semaphore's Semantic Enhancement Server (SES) to integrate into their website, which allows stakeholders to visually query and review the model in real-time. The Knowledge Review Tool (KRT) allows stakeholders to suggest additional concepts, pose questions, and leave notes that model builders can review and incorporate as required.

To gain consensus and bring focus to their efforts, the team did a roadshow, traveling around the country to communicate their mission, goals, and reveal the model to a broad audience.

The Results

Today the transportation authority has a vision, process, and platform to share transportation asset data between organizations. Decision makers are confident the information they have is relevant and additional releases of the standard will measure suitability for use, aid discussion, gather feedback, gauge impact, and provide visibility to providers.

The standardized data structure - expressed in a common language, defines and describes land transportation assets, their attributes, characteristics, properties, locations, and performance to enable efficient and effective end-to-end life cycle asset management.

The enrichment of the model to incorporate additional land transportation assets will use an efficient and well-tested process to model, gain feedback from stakeholders, and enhance the model as appropriate. Additional asset types will be published in each release, in addition to incorporating changes from feedback on the previous release.

The data standard offers a consistent, integrated approach to data structures and asset management. It will enable better asset data acquisition and analytics, better management of land transport asset data, and greater opportunities for sharing and collaboration.

To learn about the capabilities of Semaphore, our Semantic AI platform, connect with us at info@smartlogic.com or contact your Smartlogic Account Manager

SMARTLOGIC – AMERICAS

111 N MARKET ST.
SAN JOSE, CALIFORNIA, 95113
TEL: +1 408 213 9500

SMARTLOGIC – EUROPE, MIDDLE-EAST AND AFRICA

200 ALDERSGATE
LONDON, EC1A 4HD
TEL: +44 203 176 4500

WWW.SMARTLOGIC.COM
INFO@SMARTLOGIC.COM

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