SEMANTIC WEB FOR AUTOMOTIVE INDUSTRIES

The power of semantic solutions in aggregating vast amounts of data finds particular application in the automotive industry. Both the quantity and variety of information gathered by companies from this sector demand new, more efficient methods of handling data.

The automotive sector can benefit from the semantic web paradigm in particular due to the fact that usually many different parties are involved in business processes of this kind. There are central headquarters, dealers, third-party vendors of accessories, repair workshops and car insurance companies involved – which often have different organizational structure, and most importantly, different software solutions operating on different platforms and producing data in a variety of formats, often incompatible with each other. The semantic paradigm of focusing on **meaning** rather than **format** enables to overcome many of these challenges.

VOLKSWAGEN – HOW TO BENEFIT FROM SHARING YOUR DATA

Volkswagen is one of the pioneers among automotive giants in employing semantic technologies. The company has collaborated with Martin Hepp of Hepp Research GmbH, the creator of the GoodRelations e-commerce ontology, in development of the **Car Options Ontology**. As the name suggests, it provides a vocabulary for options available for different car models. A car is one of the most multi-faceted, configurable products. Combined with the variety of options for each model, this generates tremendous numbers of possible combinations. Application of semantic technologies allows not only for much clearer representation of these combinations, but also to publish them to any external environment.

We are quite keen to share data. It can quite clearly show, when you federate data and compare ours to other brands, you can see in a few minutes that the VW brand is a lot stronger and a better value than other brands. It lets people see that in a factual and consistent manner and visualize that which you can't do with HTML

Therefore, not only is the usage of semantic technologies beneficial internally – for instance to create better search engines, systems for car dealers, car configurators for clients etc. – but it also enables to extend the knowledge of the brand externally. Moreover, due to its flexible nature, this semantic solution can be adapted by any other car manufacturer.

USED CARS ONTOLOGY – A COMPREHENSIVE DESCRIPTIVE SYSTEM

Used Cars Ontology (UCO) is a semantic vocabulary developed by MakoLab SA and Hepp Research GmbH.

*(UCO) represents **knowledge concerning used cars regardless of their manufacturer.** The notions included in it cover properties which are significant in the used cars market and characterize the basic state of a given car, such as car modifications, damages, additions, information about the owner, as well as more detailed data, such as whether the owner of the car smoked cigarettes, what kinds of animals were transported in the car, etc.*

Among the main advantages of using a semantic approach is the ability to abstract data from structure and use it in any compatible system. The clear, easy to adapt representation of knowledge in a semantic ontology can be used in various ways, such as reasoning-based analysis and production of meaningful results. Moreover, as in all semantic solutions, UCO enables data to become completely cross-platform, regardless of origin. This opens possibilities in many regions, such as used car marketing, as data concerning items could be easily transferred across websites and become much more accessible to clients.

AUTOMOTIVE CONTENT INTELLIGENCE – ENHANCING WEBSITES

The Automotive Content Intelligence is a solution aimed at enhancement of car manufacturer websites through application of content-aware semantic mechanisms. It enables website editors to use terms from common vocabularies and employ automated mechanisms of suggestion and content association. Since data is described in universal vocabularies, a site's search engine may also be semantically-driven, greatly increasing relevancy of search results (a feature of crucial importance in car sales).

RESOURCES

UCO Language reference http://ontologies.makolab.com/uco/ns.html

Volkswagen: Das Auto Company is Das Semantic Web Company! By Jennifer Zaino
http://semanticweb.com/volkswagen-das-auto-company-is-das-semantic-web-company_b23233

Use Case: Semantic Web Technologies in Automotive Repair and Diagnostic
http://www.w3.org/2001/sw/sweo/public/UseCases/Renault/