Semantic Interaction in Airbus Spreadsheet Reports

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Abstract

The introduction of spreadsheets - tabular calculus and information representation as an expanding basis for several tasks within large companies has led to the creation of various mechanisms to support the human understanding factor of the content representation and utilization process. Syntactic processes are generally solved by mechanical functions within a company, whereas semantics are covered by people's ability to understand and render information. Consequently, a more extensive level of productivity should be achieved by inputing semantics into the automated processes of a department.

Semantic Alliance (SAlly) is a software framework which encloses semantic systems. It operates with applications oriented towards using semantic services established on structured ontologies. In a nutshell, it is a complete, invasive and in-place structure, proficient in creating the connections between the information in an open-API application and the linking concept in a background ontology. Therefore, Semantic Alliance [1] is an open source framework that facilitates the introduction of semantic services into open-API media applications. The semantic ally ('SAlly'), an application-independent tool, confers full semantic transparency to the accessed document by connecting its content objects to a background ontology through an 'interpretation mapping'. The application under discussion is currently Microsoft Excel - a spreadsheet player - and therefore the target documents will be represented by spreadsheets.

In this proposal, I suggest a practical, industry-deployed use case for the SAlly framework (part of the Jacobs University's Kwarc Research Group) in view of building and analyzing its services and feasibility in a practical environment. This task fulfills the immediate need for the right semantic interactions within an on-going performance reporting activity in Airbus, by yielding a more structured category system embedded into the process.

It is thus a thought-provoking perspective for future research which can be achieved by setting this prospective paper in an industry-based infrastructure in order to build a real, practical use case for SAlly. This paper's contribution intends on covering a rather limited, but impactful part of the reporting activities enclosed in Airbus, one of today's leading aircraft manufacturers. The proposed semantic services and features can add quality and clarity to the reporting activities employed daily in Airbus' Information & Communication Technology (ICT) Performance Management Department. These activities are built on the general need for information and ultimately for knowledge understanding and representation. Therefore, a primary goal of the industry part is to achieve a strong basis for a knowledge management system to support its activity.

Airbus' knowledge work in the ICT Performance Management Department partly depends on building a help system that provides a wide array of classifications and categories for the spreadsheets' working content. Therefore, I aim to create an interpretation mapping that connects the ontology-bound concepts of the reporting activity to the increasing amount of incoming information from the spreadsheets, ultimately demonstrating the beneficial impact of semantics in this particular industry field.

Research Questions

In order to address a part of Airbus' knowledge management scheme, here are my supporting research questions. The first one primarily requires a general, possibly also reflective, answer and will deliver a proof in case of an affirmative outcome, while the second question outlined here aims at providing a specific piece of the whole knowledge work mosaic.

- **Question 1**: Can semantics refine industry knowledge work?
- **Question 2**: How can semantic interactions in spreadsheet performance reports improve the knowledge creating process within the ICT Performance Management Department at Airbus?

References

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