

Bachelor's Thesis

Metadata Management for a Water Supplier

(practical / application-focused)

Description

In the context of our MigHANA research cooperation (<https://uol.de/en/vlba/projects/mighana>) and together with our project partner OOWV (<https://www.oowv.de/>), we are developing innovative approaches for information management within a heterogeneous system landscape.

As a water supplier, OOWV relies upon a variety of different software solutions, each tailored to meet very specific needs. In addition to business management applications from SAP SE, special products are used to manage their infrastructure (for example, water supply lines), monitoring natural resources (water bodies), maintain facilities, or handle larger investment projects.

This raises two issues:

1. On the one hand, there are overlaps between the information stored in different systems. For example, assets like a pump play a role in maintenance; on the other hand, they also represent objects that have to be capitalized and depreciated in accounting. This leads to redundancies. Various fields (such as the name of the asset) exist in several systems, resulting in data consistency problems.
2. Secondly, questions requiring information from different departments arise. For example, billing data might be useful to plan preventive maintenance measures. Data from water monitoring may help draw conclusions with regards to extraordinary stress extreme weather events put on the infrastructure. Such information often must be painstakingly compiled by hand in Excel spreadsheets; and by the time it is analyzed, it may already be out of date.

Many companies therefore consolidate data from different sources in data warehouses and use these data warehouses to clean up inconsistencies. However, this does not address the root cause of the problem, because information remains inconsistent at the source, and if data models change in individual systems or if systems are added or removed, the data warehouse's ETL processes become obsolete.

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Basically, the above problems can be approached from two directions:

1. A master data management solution (<https://www.gartner.com/reviews/market/master-data-management-solutions>) can be used to centrally manage and distribute information and to monitor information quality.
2. A system metadata management system (<https://www.gartner.com/reviews/market/metadata-management-solutions>) can keep track of both, master and transaction data and inform applications about changes in the data's properties.

This work focuses on metadata management.

Problem Statement

- Collect functional and non-functional user requirements (across departments)
- Collect functional and non-functional technical requirements
- Develop application scenarios
- Market research
- Configuration of an example in the system
- Workshop to evaluate scenarios/requirements

Requirement(s)

Interest in practical business challenges

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