

## Integration of Knowledge and Metadata for Complex Data Warehouses and Big Data

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**Abstract :** This document constitutes a resumption of work carried out in the field of complex data warehouses (DW) relating to the management and formalization of knowledge and metadata. It offers a methodological approach for integrating two concepts, knowledge and metadata, within the framework of a complex DW architecture. The objective of the work considers the use of the technique of knowledge representation by description logics and the extension of Common Warehouse Metamodel (CWM) specifications. This will lead to a fallout in terms of the performance of a complex DW. Three essential aspects of this work are expected, including the representation of knowledge in description logics and the declination of this knowledge into consistent UML diagrams while respecting or extending the CWM specifications and using XML as pivot. The field of application is large but will be adapted to systems with heteroge-neous, complex and unstructured content and moreover requiring a great (re)use of knowledge such as medical data warehouses.

**Keywords :** data warehouse, description logics, integration, knowledge, metadata

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