

AN INNOVATIVE DESIGN METHODOLOGY FOR THE METADATA IN MASTER DATA MANAGEMENT SYSTEM

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ABSTRACT. *For global value chains, the distribution arrangement has led to difficulties in the management and integration of complicated information. As a popular technology, data warehouse has been widely used by many global value chains to manage complicated information requirements for decision making. However, data warehouse technology cannot guarantee the quality of data. To resolve data quality problems occurring in global value chains, the concept of Master Data Management (MDM) is proposed. The concept of MDM is that the management rights of Master Data (MD) should be isolated from enterprise systems. And this concept can be applied to resolve issues over global management, such as global flexible automation.*

To construct an MDM system, the metadata in an MDM system should be designed first. However, current literature is too limited to construct MDM systems. Therefore, this paper presents an innovative design methodology for metadata in MDM systems. The design methodology consists of four steps: MD Dimensions, MD Views, MD Classifications, and MD Definitions. The logic applied in each step is illustrated. Following the methodology, the metadata in an MDM system can be systematically clarified. As demonstrated in this paper, two simple scenarios for global recreation brand are presented to illustrate the benefits of an MDM system on product introduction. The concepts in this paper are not specific to the recreation industry only. It can be easily adapted to other global industries. MDM system can maintain the accuracy, the completeness, and the consistency of global data. With MDM system, system integrated (SI) applications can be invented to support global value chain operations, such as global flexible automation.

Keywords: Master data management, Global information integration, Data quality

1. Introduction. For global value chains, the distribution of operation units, humans, and information systems has led to difficulties in the management and integration of complicated information. The concept of “value chain” originates from Michael Porter’s manuscript [11], which consists of market chain, design chain, supply chain, and customer chain. Decision-making requires that sufficient information be extracted from distributed information systems firstly. Once the information is extracted, data analysis can be performed, and analysis results can be given for decision makers as references.

Currently, data warehouse is a popular technology utilized by many global value chains to manage complicated information requirements for decision making. The architecture of data warehouse is illustrated in Figure 1. As shown in Figure 1, heterogeneous data from mixed data sources are transformed for analysis in required format and then stored in data warehouse. Different data analysis technologies and tools, such as Online Analytical Processing (OLAP), Data Mining, and so on, are utilized for further analyses to support