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**Title of the Thesis: Extension and Standardization of Data Dictionary in DBMS**



## **ABSTRACT**

- The thesis has focused on system metadata type of metadata, which is called the metasytem, this metadata type is meant to record information regarding organizations and enterprise developed systems.
- It then presented the work to extend the general data dictionary concept by defining a framework for building a standard system data dictionary that is meant to store the system metadata (metasytem) type.
- The proposed dictionary data model has been defined and extracted, then the set of metasytem elements for each entity of the data model have been extracted and defined using a semantic units table for every element.
- A set of representations for this proposed dictionary have been developed, using RDBMS schema representation, chart representation, and XML schema representation.
- The chart representation encompasses of a set of system components (charts); each component represents some features of the system.
- The DBMS and XML representations standardize the proposed standard dictionary so that it can widely be used by using XML schema registries since an XML schema registry has the role of registering XML schemas, RDF schemas of metadata standards in addition to a set of authoritative information, mapping information from one standard into another, and global descriptions for every standard term, the dictionary will widely be used by web users, applications, and other standards schemas through the internet.
- The system data dictionary records information about big granule units, instead of recording metadata regarding each specific data object in the system, big granule

units either logical, or physical units such like, the development process, the product, the evaluations, the assessments, the resources, the system quality

- System metadata elements (components) have references to other detailed documentation tools such like automated dictionaries that record large volume of metadata regarding system data objects for further and detailed information about lower granule units
- The proposed system data dictionary also plays the role of an index or a summarized dictionary to refer to other documentations to ease and speed system analyst and project manager process of finding the required information regarding the current organization working system
- It is the first metasytem standard that concentrates on system metadata rather than concentrating on data objects metadata from the perspective of system analysis and design
- This standard records metasytem regarding an organization system each time the system has to be altered to reflect some change in the enterprise and during all its life time development and enhancement stages and versions, giving the interested Analysts and Managers a significant information on the documented system at any stage to check its suitability and then they can conclude with either keeping the system without any change, enhancing the system, or reengineering the system or developing a new system.
- The global metasytem elements declarations in the XML schema standardize the proposed system dictionary, and give all the interested users the ability to use its XML schema either totally or partially by utilizing some of the schema global defined elements in their systems application profiles, for building their own metasytem schemas and schemas instances regarding their organizations systems, this could be done after using schema registries systems for registering the standard system data dictionary XML schema and storing its global metasytem elements definitions and declarations, in addition to registering other metadata standards schemas to increase the proposed standard interoperability across the internet.