Ontological Model for Information Systems Development Methodology

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Abstract

The Information Systems Development Methodologies (ISDM) is applied for providing methods and skills of developing an information system. Although there are many methodologies, there is a need of new methodologies for meeting different problem situations and requirements. In this thesis, we propose a new approach and explanation on ISDM that is developed from a strong philosophical foundation of ontology. In order that the philosophical views can be translated into practice, we also proposed steps to follow for system implementation. More specifically, we propose a step which we call Systems Establishment, to be followed with our Function, Operation, and Procedure nexus. It can be utilized by less experienced system developers as the details in each step require more mechanical implementation than creativity.

Our proposed ontological model for ISDM provides a new approach to explain the ISDM. The ontology views the information system as the reality which can be described and explained for its existence, specification, and structure. The perceived situations of the people are also taken into consideration, which assist to define the nature and get acceptance of the system. The reconciliation of the perceptions is also suggested for improving the coherence and performance of the resulting system. The extraction of information from the people’s perceptions is also emphasized. The information identified can be fully utilized for providing details of the system. Less effort on creativity is required, which reduce the difficulties and increase the efficiency when developing the system. As a conclusion, we have provided a new approach and added some additional elements and characteristics into the model for describing an ISDM.

This thesis is divided into three parts. The first part is to study the fundamental knowledge on the ISDM, systems concepts and systems thinking, and ontology. The study of these topics provides the basic knowledge on the areas that we research. The second part is to propose our Ontological Model on the ISDM. The details of our approach are described and explained. Several theories are applied, such as perceived situation, reconciliation, and information extraction. The third part is then the illustration of our proposed model to show how it works.
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