

## CONCEPT FEATURE-BASED ONTOLOGY CONSTRUCTION AND MAINTENANCE

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**ABSTRACT.** *Advent of the knowledge economy has highlighted the importance of knowledge management (KM) in entrepreneurial success. Effectively implementing KM in enterprises depends on the pervasive use of ontology in developing KM systems and the facilitation of enterprises in the construction, integration, evolution, access and evaluation of knowledge. This study develops a concept feature-based mechanism for constructing and maintaining ontology. In addition to assisting enterprise knowledge engineers in constructing and classifying knowledge more precisely to increase knowledge maintenance efficiency, the proposed mechanism assists knowledge users in accurately searching for required knowledge based on use of concept features. Specifically, this study focuses on the following tasks: (1) designing a concept feature-based ontology construction and maintenance framework, (2) developing techniques related to the concept feature-based ontology construction and maintenance, (3) implementing a concept feature-based ontology construction and maintenance mechanism. Developing techniques associated with concept feature-based ontology construction initially involves using concept feature annotation to distinguish between the concepts. Based on this distinction, the concept features are then represented by using the Boolean function. Next, the proper position of newly-added concepts in the ontology is pinpointed based on the concept location map and the feature constraint relation. Additionally, the concept feature-based ontology maintenance develops an algorithm incorporating merging and deletion functions are based on concept feature-based ontology construction. Results of this study significantly contribute to efforts to increase the efficiency and accuracy of ontology construction and maintenance for knowledge management in enterprises, ultimately increasing entrepreneurial competitiveness.*

**Keywords:** Knowledge management, Ontology, Ontology construction, Ontology maintenance

**1. Introduction.** Advent of the knowledge economy has highlighted the importance of knowledge management (KM) in entrepreneurial success [5,11,13,15,19]. However, the vastness, complexity and inconsistency in terms of format and semantic pose a major obstacle to enterprises attempting to construct KM [5,7,8,17,28-30]. To effectively solve these problems, ontology is the conventional approach in enterprise knowledge management [3,4,6,8,10,17,26,27] to assist enterprises in the construction, integration, evolution, access and evaluation of knowledge.

Ontology [3,5-7,12,15,16,21-23] is characterized by a common understanding and machine readability, which makes it applicable to define and construct enterprise knowledge.