

# **Computational Ontology for Knowledge Representation in Disaster Management**

Feng-Tyan LIN

Professor and Dean, College of Planning and Design, National Cheng Kung University,  
Taiwan

Over the last few years, many catastrophes, such as the Great East Japan Earthquake and tsunami in 2011, have astonished the world. Phenomena of climate changes, such as extreme rainfall and draught, further worsen the situation. Scientists, engineers, social workers, governments, and NGOs have been devoting their efforts to study the causes, mechanisms, strategies, plans, and take actions to prevent, adapt, or ease the suffering. However, people studying or working on different kinds of disaster managements use their own terminologies which cause confusing and misunderstanding each other. Even in the same domain knowledge, new terms which are ill-defined bring innovative ideas but also puzzle the research and general communities at the same time. In this article, we will take terms, including resilience, recovery, vulnerability, risk, exposure, sensitivity, adaptation, hazard, disaster potential, etc., as examples to show how computational ontology can help to clarify the relationship and structure among these terms. This article will also describe how this method can help two local governments in Taiwan to make their strategic plans for adapting climate changes. A comparison of these two local governments' strategic plans and their institutional difference will be made then. This study shows that computational ontology is a promising approach to resolve the puzzle of unceasing appearance of new terms. Future research work will also be discussed in this article.