

57th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Emerging trends of knowledge management in organizations (2)

Author: Dr. Daniel Galarreta
Centre National d'Etudes Spatiales (CNES), FranceMr. Sylvain Michel
Centre National d'Etudes Spatiales (CNES), France
Dr. Vincent Holley
Geeglee, FranceKNOWLEDGE ENGINEERING AND AUGMENTED HUMAN INTELLIGENCE. AN APPLICATION
TO THE SUSTAINABLE USE OF SPACE**Abstract**

In a number of previous contributions, we tried to show that knowledge engineering is not limited to the realization of devices designed for knowledge transfer/capitalization or information retrieval to acquire knowledge. This approach to knowledge engineering assimilates knowledge with information, knowledge management with advanced information management, and the human subject to an information processor. In contrast, we have chosen to consider the human subject as a cultural and historical actor who participates in social processes of knowledge, meaning-making and intelligent action. It is precisely this creation of meaning in a cultural and historical context which is at the heart of knowledge production, and that guides our conception of knowledge engineering. By refocusing on the question of knowledge creation, rather than its capitalization or transfer, knowledge engineering becomes relevant to innovation issues. This enabled us to envisage knowledge engineering applied to spatial data (e.g. calculating the heat balance of a building), and apply it to the design of innovative concepts in response to a particular issue (e.g. protecting pollination). In an ecosystem-based approach, we moved from a single issue to a collection of questions within an ecosystem (e.g. sovereignty vs exoplanetary commons) and the conditions for the emergence of innovations. Given the space ecosystem alone is not enough to select an issue that will lead to innovation. Its complexity is such that it is impossible to identify from the outset the viewpoints that explain its current behavior and those that will enable the emergence of future innovations. In this paper, we will assume that a problematic is already chosen. We will not go into the possibility of identifying an innovative problematic in a different way. Given the problematic - we choose the sustainable use of Space - we will be able to survey the viewpoints mobilized by this problematic. However calculating all the interactions between these viewpoints - i.e. listing the production of views and constraints - will very quickly make it impossible for human brains to reach a clear consensus on any of the issues raised by the problematic. We then have to compensate for this human limitation by using an augmented human intelligence (AHI) approach and software - GeegleeTM - that generates all possible combinations of views for all the viewpoints considered, and retains only those likely to be admissible. The compromise to reach a solution remains to the humans. We will finally conclude on our case and approach.