A Semantic Approach to Manage Ideas in an Innovation Process

Pedro Chavez Barrios, Davy Monticolo, Sahbi Sidhom, Davy Monticolo, Sahbi Sidhom

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	Pedro CHAVEZ BARRIOS
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Directeur(s) de Thèse :	**Davy MONTICOLO & Sahbi SIDHOM**
	ERPI & LORIA Lab. (University of Lorraine, France)
Laboratoire :	8 RUE BASTIEN LEPAGE 54000 NANCY
Adresse :	Pedro.chavez-barrios@univ-lorraine.fr
Contact :	University of Lorraine, France

Abstract :

For almost one decade, the organization "48 hours generating ideas" (48H) makes every year a creativity workshop (CWS) to generate thousands of idea cards (IdC) by mean of creative methods with the purpose of solving industrial problems; inside of this organization, creativity depends on solver participants, creative experts, organizators, technical expert and industrial managers like Acar states in [1] "Organizational creativity is influenced by many thing. Some are social other are brought to the organization by individuals who comprise it. To certain degree, the organizational creativity depends on the individuals inside it"; the huge quantity of these IdC's creates a problem "how to manage, to select and to compare these ideas that contain several and different fields" as Khemiri wrote in [2] "Text representations in a multimedia corpus with heterogeneous ideas"; the 48H has several complexities such as people from different continents and cultures, but also, different industries and educative centers are participating during this event; We want to implement a semantic approach to manage ideas for the same industrial problem.

This project started in september 2016, the proposal has five stages: to understand creative methods, to analyze a creativity workshop, to identify knowledge by mean of Organizational Model, to propose a Model to compare and evaluate ideas, and to develop an annotation system.

We have observed that more than 1200 idea cards were generated during the last 48H creativity workshop. Each idea card describes an idea which is our main source of data. An example of an IdC: the 48H's idea card called Multifunction flying tractor (figure central), it is well structured according to nine components: Title of the idea (Text informative), Team, Description, Schema (draw),The topic (industrial problem), Priority clients, Scenario of use, Advantages, Risks, Competences; We will take in account the fields Title and Description.

The proposal contain three principal steps:
a) to design a model to highlights knowledge,
b) to propose a semantic approach to annotate idea cards, and
c) to implement an Intelligent system.

The design of the model which highlights knowledge from the organizational creativity workshop 48H uses the meta-model KROM (Knowledge Reuse Organizational Meta-Model) by Girondon in [3] which facilitates the understanding of the collaboration among roles and highlight knowledge by collaborative activities; This organizational model has three domains: description of organizational structure (presented on the poster), description of expertise management, and description of knowledge management. The description of organizational structure shows missions, goals to identify the 48H and procedures inside the organization.

The semantic approach to annotate ideas is carrying out, our model of knowledge has the concept as base, the concept has semantic relation in a generic and specific level however, we are interesting in the immediate level in both cases. In addition, we take in account the synonyms and identical concepts which are in the same level. Having all data from concepts by mean of semantic lexical tool (WordNet) [4], we could start the analytic process between Idea Cards (Semantic Approach) and obtain a semantic lexical relation among concepts. And finally, to implement an intelligent system

In this research, our goal is the Architecture System, to achieve this, we have: a) to get the corpus of data that is created by the group of thousands idea cards during the Creativity Workshop 48H, b) how to get a representation of concepts, to represent all these concepts we use annotation of concepts, synonyms, generic and specific concepts, c) Model of knowledge concept that we are working in it; d) how to get a graphic representation, we are working on it, and to carry out a comparison between idea cards; At the Final, we have to build three models: Data model, Annotation Model and Semantic Model to obtain our goal the Architecture System.
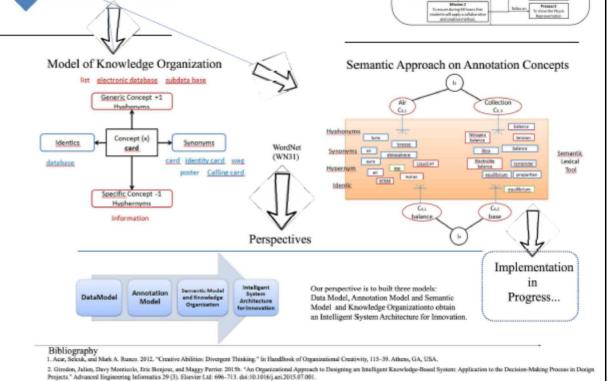
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Poster presentation: