Chapter 2
Philosophy in the Knowledge Structure Pyramid:
Knowledge Elicitation and Management

Ronald John Lofaro
Embry-Riddle Aeronautical University, USA

ABSTRACT

Currently, and with almost lightspeed, new advances in both human-centered and technology-driven efforts have led to new methods in obtaining, structuring, and using knowledge. This chapter will look at a newer knowledge structuring effort, the knowledge pyramid (KP), attempting to bring in a philosophy-based term, understanding. Knowledge management (KM) has incorporated the philosophy term ontology as a knowledge structuring tool. The chapter will look at how knowledge sets gotten via knowledge elicitation/management can be used and shared to make any organization more effective. The author will consider how the philosophical concept, understanding, can be used in the on-going debate about the structure of KP. The author's goal is to explicate a new model for eliciting, structuring, using, evaluating knowledge for organizational betterment. This resultant paradigm also points the way to future KP debate and research.

INTRODUCTION

Currently, and with almost light speed, new advances in both human-centered and technology- driven efforts have led to new methods in obtaining and using knowledge. For the purposes of this Chapter, Organizational Knowledge will be seen as the different knowledge and skill sets that the employees of a large company or

organization have, and how these can be used and shared to make the organization more effective. The emphasis will be on how to elicit those knowledge sets, how to structure, use and evaluate their usage. As examples, organizational knowledge can be used in analyses of the structure, techiques and functioning of an organization. Organizational knowledge can also play in identifying the areas where research is needed, what new knowledge is needed for possible re-organization…and be part of any decision-making that impacts the organization. This Chapter will build a model composed of both old techniques and technological advances in human knowledge elicitation, then using and evaluating the human knowledge gained, plus elements of knowledge management and Pareto analysis. This new paradigm uses all of the components above in a blended Delphi. Advantages of using the components listed are that they are all content-area neutral and, in a real sense, generic in application. There will also be a look at the knowledge pyramid through a combination philosophy/cognitive lens.

BACKGROUND

The Delphi method was developed by the now USAF's Project RAND during the 1950-1960s. and derived its name from a contraction of the term research and development (**R**esearch **AN**d **D**evelopment). The Delpi technique has long been used for eliciting knowledge from subject matter experts (SMEs) and has become a common methodology/methologies for eliciting analyses, expert opinions and evaluations on a variety of topics. Delphi techniques, a subset of CE/KE, have a goal at arriving at something closer to expert consensus. The Delphi method has been widely adapted to work problems and is still in use today. It has changed over the years from SME anonymity to allowing face-to-face groups (estimate-talk-estimate; ETE) of SMEs. Meister (1985) noted "The (Delphi) methodology is by no means fixed…[it] is still evolving and being researched." This is as true now as it was when Meister stated it. In point of fact, with the leaps in communication methods and related computer technology, this is even more true today as Delphi techniques have recently begun to look at and attempt to take full advantage of these advances.

One also finds that an expansion in the the field called cognitive/knowledge engineering (CE/KE) has occured and is still in progress. KE was defined in 1983 by Edward Feigenbaum and Pamela McCorduck as follows: "KE is an engineering discipline that involves integrating knowledge into computer systems in order to solve complex problems normally requiring a high level of human expertise." For a more complete overview and discussion on KE, differing views and uses, the reader is referred to Studer, Benjamins and Fensel (1998).

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/philosophy-in-the-knowledge-structure-pyramid/244876

Related Content

Financial Crisis Modeling and Prediction with a Hilbert-EMD-Based SVM Approachs

Lean Yu, Shouyang Wangand Kin Keung Lai (2009). *Intelligent Data Analysis: Developing New Methodologies Through Pattern Discovery and Recovery (pp. 286-299).*

www.irma-international.org/chapter/financial-crisis-modeling-prediction-hilbert/24225

Formation of Faden Quartz Druses in Mid-Carboniferous Sandstones of the Donetsk Basin

Oleg Krisakand Vyacheslav Bezrukov (2018). *Dynamic Knowledge Representation in Scientific Domains (pp. 155-162).*

www.irma-international.org/chapter/formation-of-faden-quartz-druses-in-mid-carboniferous-sandstones-of-the-donetsk-basin/200175

Cooperation Between Expert Knowledge and Data Mining Discovered Knowledge

Fernando Alonso, Loïc Martínez, Aurora Pérezand Juan Pedro Valente (2011). *Knowledge Discovery Practices and Emerging Applications of Data Mining: Trends and New Domains (pp. 198-221).*

www.irma-international.org/chapter/cooperation-between-expert-knowledge-data/46897

Data Warehouse Facilitating Evidence-Based Medicine

Nevena Stolba, Tho Manh Nguyenand A Min Tjoa (2010). *Complex Data Warehousing and Knowledge Discovery for Advanced Retrieval Development: Innovative Methods and Applications (pp. 174-207).*

www.irma-international.org/chapter/data-warehouse-facilitating-evidence-based/39592

Heuristic Search-Based Stacking of Classifiers

Agapito Ledezma, Ricardo Alerand Daniel Borrajo (2002). *Heuristic and Optimization for Knowledge Discovery (pp. 54-67).*

www.irma-international.org/chapter/heuristic-search-based-stacking-classifiers/22149