Establishment of A Green Product Knowledge Base Retrieval System Using Ontology

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ABSTRACT

Information retrieval of green products is a complex issue which concerns many disciplines and depends on varied knowledge and experiences. In resent years the ontology coming from fields of Intelligent Information Processing and Knowledge Management Engineering is a new method for knowledge representation sharing and reusing. In this research, the ontology-based knowledge representation and the technique of ontology-based knowledge base system(KBS) were applied in the green product information retrieval domain. Firstly the necessity and innovation of using the ontology-based KBS in the process of green product information retrieval was discussed. According to the system target of green product information retrieval application, the framework of ontology-based KBS and the key technologies to implement it were prompted. Based on analysis of green product, the core concept set and relevant set of domain ontology model were extracted and green product ontology was developed by RDF the resource description framework language. The ontology was created and stored in the ontology-based knowledge base by using the Protege system. We present an example of green product information retrieval to prove the feasibility and practicability of the system. The research shows that the ontology-based knowledge based system can make effective use in the process of green product information retrieval and increase knowledge sharing and reusing.

Keywords : Knowledge Management、Ontology、KBS、Protege、RDF

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REFERENCES

一、中文文獻 【1】Drucker，Peter著，傅振焜譯。「後資本主義社會」。台北市:時代文化，(1999)。 【2】Thomas H. Davenport & Laurence Prusak著，胡瑋珊譯。「知識管理」。台北市:中國生產力中心，(2011)。 【3】比爾.蓋茲著，樂為良譯。「數位神經系統:與思考等快的明日世界」。台北市:商周周刊，(1999)。 【4】阮明淑、溫達茂，「ontology 應用於知識組織之初探」。佛教圖書館館訊。第32期，(2002)。 【5】吳天明，「本體論建置稅務知識庫以執行業務為例」。碩士論文，國立成功大學工程科學研究所，(2006)。 【6】黃居仁，「語意網、詞網與知識本體:淺談未來網路上的知識運籌」。佛教圖書館訊。頁 6-21，(2003)。 【7】靳炯彬，「以企業界知識管理探討未來圖書館經營之展望」。第五屆兩岸中華文化經營管理學術研討會論文集，頁G2-17~33，(2001)。 【8】戚玉樑、劉邦權，「使用描述邏輯於建置知識庫之知識呈現應用」。電子商務與數位生活研討會，台北福華文教會館，頁2074-2088，(2005)。 【9】曾志超，科經(研)100-013號，綠能產業發展芻議－國家政策研究基金會網址 http://www.npf.org.tw/post/2/9992，(2011)。 【10】葉柏成，「消費性太陽能商品之設計策略研究」。碩士論文，實踐大學產品與建築設計研究所，(2009)。 【11】溫源鳳、郭淑賢、連文仁，「企業知識管理能力與技術移轉績效關係之探討」第五屆兩岸中華文化經營管理學術研討會論文集。頁G7-89~97，(2001)。 【12】劉弘雁，全球台商Ｅ焦點－全台商服務網 http://twbusiness.nat.gov.tw/epaperArticle.do?id=101220354，(2011)。 【13】劉文卿、馬芳資、張孟元，「知識管理之理論與實務探討」。第十界國際資訊管理學術研討會論文集。頁 25-32，(1999)。 二、英文文獻 【1】A.G. Perez and R. Benjamins, "Overview of Knowledge Sharing and Reuse Components:Ontologies and Problem-Solving Methods". IJCAI-99 workshop on Ontologies and Problem-Solving Methods (KRR5), Stockholm, Sweden, August 2, 1999. 【2】Borst, W. N., "Construction of Engineering Ontologies for Knowledge Sharing and Reuse". PhD thesis, University of Twente, Enschede, 1997. 【3】Davenport, T.H., Prusak, L. "Working knowledge:how organizations manage what they know". Harvard Business School Press, Boston , 1998. 【4】Gartner Group., "Knowledge Management:Understanding the Core value andscience". Gartner Group Business Technology Journal, July,

http://www.infopower.com.tw/btj/special/july/knowledge.asp, 1999. 【5】Grosso W. E., Eriksson, H., Fergerson, R. W., Gennari, J. H., Tu, S. W., and Musen, M. A., "Knowledge Modeling at the Millennium:the Design and Evolution of Protege-2000". SMI Technical Report, SMI-1999-0801, 1999. 【6】Gruber, T.R., "A Translation Approach to Portable Ontology Specification". Knowledge Acquisition, 5(2), pp.199-220, 1993. 【7】Gruber, T.R., "Toward Principles for the Design of Ontologies Used for Knowledge Sharing". International Journal of Human-Computer Studies, 43(5-6), pp.907-928, 1995 【8】Guarino, N., Understanding, Building and Using Ontologies:A Commentary to "Using Explicit Ontologies in KBS Development". by van Heijst, Schreiber, and Wielinga, International Journal of Human and Computer Studies, 46(2/3), pp.293-310, 1997. 【9】Harris, D.B., "Knowledge Environment - Creating a Knowledge Centric Information Technology Environment". Seattle W.A., September 15, http://www.dbharris.com/ckc.htm.(visited Nov. 2, 2001), 1996. 【10】Hedlund, G., "A Model of Knowledge Management and the N-Form Corporation". Strategic Management Journal, 15(15), pp.73-79, 1994. 【11】Hendler, J., "Agents and the Semantic Web". IEEE Intelligent Systems, 16(2), pp.30-37, 2001. 【12】Irma, B.F., & Rajiv S., "Organizational Knowledge Management:A Contingency Perspective". Journal of Management Information Systems, 18, Armonk,(Summer), pp.23-55, 2001. 【13】Kotnour, T., Orr, C., Spaulding, J. & Guidi, J., "Determining the Benefit of Knowledge Management Activites". Internal Conference on Computational Cybernetics and Simulation, pp.94-99, 1997. 【14】Laurie, J., "Harnessing the power of intellectual capital Training & Development". Management Accounting, June, pp.49-53, 1997. 【15】Noy, N.F., and. McGuinness D.L, "Ontology Development 101:A Guide to Creating Your First Ontology", Stanford Knowledge Systems Laboratory Technical Report KSL-01-05, 2001. 【16】Newman, B.D., "What is knowledge management". IN The Knowledge Management Forum. http://www.km-forum.org/what_is.htm(17 Nov. 2000), 1996. 【17】Nonaka, I., & Konno, N., "The Concept Of Ba:Building A Foundation For Knowledge Creation". California Management Review, 40(3), pp.40-54, 1998. 【18】Polanyi, M., "The Tacit Dimension Routledge & Kegan Paul", London, 1966. 【19】Smith, B., & Welty, C., "Ontology:Towards a new synthesis". In Proceedings of the International Conference on formal ontology in Information system. Ogunquit, Maine，USA, 2001. 【20】Uschold, M., and King, M., "Towards a Methodology for Building Ontologies". Workshop on Basic Ontological Issues in Knowledge Sharing, International Joint Conference on AI (IJCAI-95), Canada, 1995. 【21】Zack, M. H., "Managing codified knowledge". Sloan Management Review, Summer, pp.45-57, 1999. 三、參考網站 綠色能源產業資訊網 http://www.taiwangreenenergy.org.tw/ 財團法人國家政策研究基金會 http://www.npf.org.tw/ 經濟部投資業務處-全球台商服務網 http://twbusiness.nat.gov.tw/page.do?id=13