University of Huddersfield Repository

Alabed, Asmaa and Chen, Xun

Web-Based Knowledge Warehouse Development 2

Original Citation


This version is available at http://eprints.hud.ac.uk/id/eprint/5240/

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

http://eprints.hud.ac.uk/
Web-Based Knowledge Warehouse Development 2

By Asmaa Alabed and Xun chen

Huddersfield University

Aim & Objectives
The aim of the research is to facilitate knowledge management process for grinding technology by building a flexible and easy to use web-based knowledge warehouse (Web-KW), which could manage both explicit and tacit knowledge. The objectives are to design and develop the following modules:

- Data Interface (DIM)
- Database (DBM)
- Problem Solving (PSM)
- Learning Knowledge Discovery (LKDM)
- Knowledge warehouse (KWM)
- Knowledge Analysis (KAM).

Methodology
Web-GKW is constructed by incorporating tacit and explicit knowledge. Explicit knowledge is found as experimental data and grinding cases. Tacit knowledge (human experts) is transferred into production rules and mathematical models. Based on knowledge established, problem solving module and knowledge discovery module performs search for the recommended grinding case that will maximise the user input using case-based, rule-based and model-based reasoning. On the other hand, LKDM extracts implicit, previously unknown and potential useful rules and patterns to modify and update existing rules and patterns. Web-based software is developed using PHP, MySQL and Apache for a wide accessibility.

Potential Benefits and Future Plans
The new KW will encourage and facilitate the sharing of explicate and tacit knowledge. The grinding cases will be kept in the knowledge warehouse that will support the decision making process for selecting grinding conditions for new processes and optimisation. As a result, it will save the time for CoP members by providing them with most relative answer to their questions. It also helps them sharing up-to-date knowledge. The current work is to develop confidence level measure for imputing missing data and apply this procedure to the collected grinding cases.