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From Knowledge Description to Information Systems: Two Divergent Approaches

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PANEL 15

FROM KNOWLEDGE DESCRIPTION TO INFORMATION SYSTEMS: TWO DIVERGENT APPROACHES

Panel Chair: Wita Wojtkowski, Boise State University

Panelists: Evelyne Andreevsky, INSERM-TLMP
Daniele Bourcier, University of Paris and Royal Netherlands Institute for Advanced Studies
Xavier Fargeas, Centre Psycho-Therapeutique

This panel will debate two divergent approaches to knowledge acquisition and development of knowledge-based systems as they are currently practiced in Europe. Each approach arises from dissimilar understanding of cognitive processes involved in solving domain specific problems. The first approach derives from accumulated experience and is based on intuition and *implicit analogies* between cases. The second approach derives from logical inferences and *explicit normative knowledge*. Until now, knowledge-based information systems have mainly been devoted to the explicit aspects of problems they address. This panel will debate that the implicit aspects must also be part of such systems.

The panel will discuss how solving any knowledge domain problems implies, on one hand, intuition about a given case and, on the other hand, logical and explicit inference required to explain or justify a given resolution of a problem. Since these two approaches have implications for the design and construction of expert systems in any domain, JURI-MIND and JURI-LOG (in legal domain) and MEDI-MIND and PSYSTEME (in medical domain) systems will be demonstrated to illustrate how these approaches work. Panelist will debate if such information systems might be combined to provide a way to generate information and advice concerning the multitude of decisions specific to a domain, the efficacy of which can also be validated.

PANEL 16

IS THERE A THEORY OF REENGINEERING?

Panel Chair: Aditya N. Saharia, University of Illinois, Chicago

Panelists: Terence M. Barron, University of Toledo
Thomas J. Davenport, Ernst & Young and University of Texas, Austin
James K. Ho, University of Illinois, Chicago
Haim Mendelson, Stanford University

Business process reengineering has allowed many businesses to achieve significant improvements in performance, yet it seems that the reengineering promise and progress has reached a plateau of its own and reengineering is poised to enter the second generation (Cypress 1994). The first generation saw development of a number of methodologies that allowed the reengineering projects to follow structured paths. Although methodologies differ in details, most of them emphasize (1) changes in organizational objectives from an internal to a customer- and market-oriented focus, usually in response to competitive pressures, (2) a corresponding reconfiguration of production methods, (3) new information technology-based systems to enable these changes, and (4) significant changes in supporting processes such as human resources (Davenport 1993; Hamner and Chanpy 1993; Guha, Kettinger and Teng 1994). As the next generation of reengineering efforts are undertaken some practitioners are predicting shifts from the "customer value chain" paradigm to the "wealth creation and wealth consumption" paradigm (Cypress 1994). Yet, there is not clear theoretical framework available to evaluate and compare these methodologies and choose the one best suited for reengineering projects under consideration.

The panel members will argue for and against the need for a theory to support reengineering using three different perspectives: organizational economics, cultural, and sociopolitical.

Haim Mendelson and Terry Barron argue for the position that the best theoretical underpinning for understanding reengineering is that of the economics of organizations. In this context, reengineering can be seen as an attempt at finding an optimal (or at least much improved) solution to the problem of designing an organization. Reengineering appears to be a step forward from previous improvement approaches in that it attempts to address all of the major components of an organization the economic theory suggests: incentive and monitoring schemes, information systems, and the organization of work and work flows, both within the organization and across its boundaries. Haim Mendelson further describes the fundamental organizational changes taking place in the computer industry, both in the United States and abroad, in response to extremely short product cycles and globalization of markets.

Jim Ho argues that reengineering does not need a theory. It needs a cultural foundation. The more radical approaches to reengineering have been likened to revolutions. All revolutions have their own cultural foundations, democracy being one example. As the leaders of reengineering efforts tear down existing processes to put up brand new ones, what should the rank and file ground their beliefs on? Are they just pawns in a game played above their heads, or are they all part of a grass-roots movement? Jim Ho argues that the culture of BIO (Business Information and Operations) Rhythm (Ho 1994), which he considers to be a key to prosperity in the information age, can provide such a foundation.

Tom Davenport argues that there are several possible alternative theories that can inform reengineering. These include sociotechnical theories, diffusion of innovation theory, and work design theory. However, most practitioners have ignored these theoretical underpinnings, occasionally to their detriment. Reengineering raises a good test case for the relevance and application of theory to a popular business trend.