

Integrating Data Mining within a Strategic Knowledge Management Framework: A Platform for Sustainable Competitive Advantage within the Australian Minerals and Metals Mining Sector

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Abstract : In the highly leveraged business world of today, an organisation's success depends on how it can manage and organize its traditional and intangible assets. In the knowledge-based economy, knowledge as a valuable asset gives enduring capability to firms competing in rapidly shifting global markets. It can be argued that ability to create unique knowledge assets by configuring ICT and human capabilities, will be a defining factor for international competitive advantage in the mid-21st century. The concept of KM is recognized in the strategy literature, and increasingly by senior decision-makers (particularly in large firms which can achieve scalable benefits), as an important vehicle for stimulating innovation and organisational performance in the knowledge economy. This thinking has been evident in professional services and other knowledge intensive industries for over a decade. It highlights the importance of social capital and the value of the intellectual capital embedded in social and professional networks, complementing the traditional focus on creation of intellectual property assets. Despite the growing interest in KM within professional services there has been limited discussion in relation to multinational resource based industries such as mining and petroleum where the focus has been principally on global portfolio optimization with economies of scale, process efficiencies and cost reduction. The Australian minerals and metals mining industry, although traditionally viewed as capital intensive, employs a significant number of knowledge workers notably- engineers, geologists, highly skilled technicians, legal, finance, accounting, ICT and contracts specialists working in projects or functions, representing potential knowledge silos within the organisation. This silo effect arguably inhibits knowledge sharing and retention by disaggregating corporate memory, with increased operational and project continuity risk. It also may limit the potential for process, product, and service innovation. In this paper the strategic application of knowledge management incorporating contemporary ICT platforms and data mining practices is explored as an important enabler for knowledge discovery, reduction of risk, and retention of corporate knowledge in resource based industries. With reference to the relevant strategy, management, and information systems literature, this paper highlights possible connections (currently undergoing empirical testing), between an Strategic Knowledge Management (SKM) framework incorporating supportive Data Mining (DM) practices and competitive advantage for multinational firms operating within the Australian resource sector. We also propose based on a review of the relevant literature that more effective management of soft and hard systems knowledge is crucial for major Australian firms in all sectors seeking to improve organisational performance through the human and technological capability captured in organisational networks.

Keywords : competitive advantage, data mining, mining organisation, strategic knowledge management

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