

Web-Based Knowledge Management Model

Pei-Di Shen

Ming Chuan University, Taiwan

Chia-Wen Tsai

Ming Chuan University, Taiwan

INTRODUCTION

Knowledge is a limitless resource in the knowledge-based economy; therefore, organizations should learn, store, transfer and apply knowledge to add value or gain competitive advantage (Sveiby, 1997). Knowledge management (KM) refers to identifying and leveraging the collective knowledge within the organization for competitive advantage (von Krogh, 1998). However, it is usually discussed and implemented in high-tech industries (e.g., TI, TSMC and Winbond) and the software industry (e.g., Microsoft and Oracle). In Taiwan, the upstream firms or suppliers of the electronics industry (e.g., Winbond and UMC) implement KM in their organizations. As well as the suppliers, the downstream firms or manufacturers (e.g., Quanta and ASUS) also put KM into practice. However, in the intermediaries or distributors, only a meager number of firms really implement KM in their companies. Therefore, we have neglected whether KM is still suitable to implement in the distribution industry.

The IC distributors in Taiwan evolved from partnerships or intra-family enterprises into the overall arrangement in Asia, with output value in 2004 beyond \$38.7 billion (United States dollars). IC distribution industry outsiders may consider that distributors just transact business, but don't have their own products, even though the scale of IC distributors has expanded. So an inaccurate notion exists that it isn't necessary to innovate or put KM into practice therein. In fact, IC distributors have to face not only the rapidly changing

upstream firms, but also the variable requirements of downstream customers. Therefore, distributors have to adapt and learn even faster than their suppliers and customers to face the drastically changing and intensely competitive environment.

LITERATURE REVIEW

Knowledge Management

KM consists of the creation, storage, arrangement, retrieval and distribution of an organization's knowledge (Demarest, 1997; Saffady, 2000). Alavi and Leidner (2001) classified the processes of KM into four steps: knowledge creation, knowledge storage/retrieval, knowledge transfer and knowledge application, representing a detailed process view of organizational KM with a focus on the role of information technology. This systematic framework is shown as Figure 1, and each process will be illustrated in the following subsections.

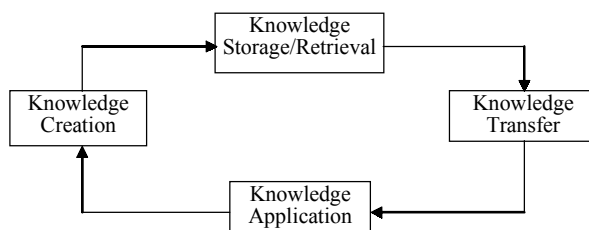
Knowledge Creation

Organizational knowledge creation involves developing new content or replacing existing content within the organization's tacit and explicit knowledge (Pentland, 1995). New knowledge is a necessary raw material for innovation and the creation of knowledge, both closely tied to new products and services (Hauschild, Licht, & Stein, 2001). When a firm starts to develop new products or services, or when organizational knowledge is antiquated or insufficient, a firm should create new knowledge through organizational learning activities.

Knowledge Storage/Retrieval

While new knowledge is developed by individuals, organizations play a critical role in articulating and amplifying that knowledge (Nonaka, 1994). Actually, the storage, organization and retrieval of organizational knowledge are referred to as organizational memory (Stein & Zwass, 1995; Malhotra, 2000). An organizational

Figure 1. Four processes of KM (modified from Alavi & Leidner, 2001)



memory includes knowledge residing in various component forms, including structured information stored in electronic databases, written documentation, expert systems, documented organizational procedures and processes, and tacit knowledge acquired by individuals and networks of individuals (Tan, Teo, Tan, & Wei, 1999).

Knowledge Transfer

The distribution and transfer of knowledge is an important process in knowledge management (Alavi & Leidner, 2001; Huber, 1991). Knowledge should be shared and generalized within the organization; generalization occurs not only when single ideas are moved, but also when the entire process of moving ideas becomes institutionalized within an organization (Yeung, Ulrich, Nason, & von Glinow, 1999).

For shared knowledge to be meaningfully used, it needs to be coupled with mechanisms for organization, retention, maintenance, search and retrieval of the information (Stein & Zwass, 1995). Such mechanisms are often computer-based, ranging from simple keyword organizers to complex intelligent agents and neural networks that grow with the growth of knowledge repositories (Ellis, Gibbs, & Rein, 1991; Johansen, 1988; Maes, 1994). Collaborative technologies (CT) application is fundamental to virtual teams. One CT, known as a virtual workplace, should at least be able to record the process of the group, an agenda and libraries of solutions and practices, as well as provide different forms of interaction, meta-information and shared information storage, access and retrieval (Ellis, Gibbs, & Rein, 1991; Ishii, Kobayashi, & Arita, 1994; Kling, 1991; Nunamaker, Briggs, & Mittleman, 1995; Romano, Nunamaker, Briggs, & Vogel, 1998; Thornton & Lockhart, 1994). For knowledge sharing and reuse with CTs, however, they must include mechanisms for exchange (such as e-mail) and access the knowledge repository (Majchrzak, Rice, King, Malhotra, & Ba, 1999).

In newly implemented IT-enabled communications environments, individual media choice was found to be overwhelmingly informed by so-called socialcultural determinants of how these technologies might most adequately and effectively be used (Webster & Trevino, 1995; Fulk & Boyd, 1991). Therefore, management may influence participation in the technologies of choice.

Knowledge Application

Knowledge application means making knowledge more active and relevant for firms in creating value through applying organizational knowledge to a company's products, processes and services (Bhatt, 2001; Demarest, 1997). Employees use all available resources, including

the corporate knowledge base, to improve their chance of reaching the goals of the organization (Hauschild, Licht, & Stein, 2001). As stated by Prokesch (1997), using knowledge more powerfully than your competitors is key in the global information era. Knowledge should be applied to create suitable, real value for the company.

CASE STUDY: WORLDPEACE

Company Overview

Worldpeace Group, established in Taipei, Taiwan in 1981, became an OTC-listed company in 1987 and a TSE-listed company in June 2000. Its capital was \$0.97 billion in 2004, and its group sales in 2003 were one \$160 million. It is the largest and leading electronic component distributor in the Asia Pacific region; moreover, in 2003 it was ranked the sixth-largest among top global semiconductor distributors worldwide by EBN (a dedicated semiconductor Web site). Its suppliers include 60 world-famous firms, like Intel, TI, Philips, Hynix, Vishay and so forth.

Worldpeace's department of KM was founded to facilitate the implementation of KM. Worldpeace invested positively in the information technologies and systems that help them to gain competitive advantage. They stored and transferred their knowledge, information, order status and market conditions in their self-developed information system named Enterprise Internal Portal (EIP).

KM Strategies

The implementation of KM in Worldpeace was guided according to three weighted strategies (see Figure 2) as follows:

- **Marketization strategy:** To find the knowledge within the organization, marketization strategy was applied to build up the knowledge map (IP map) to record the locations of knowledge owners, providers or experts. Most knowledge in Worldpeace is explicit, so they just put 20% weight on marketization efforts.
- **Systemization strategy:** Being in a mature industry and being the largest distributor in Asia, Worldpeace need not provide different products for customers, but rather focus on "low cost" instead. Worldpeace emphasizes the storage of knowledge within the organization. Therefore, Worldpeace put 60% weight on systemization strategy when putting KM into practice. For effective knowledge sharing and optimum users' understand-

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