Chapter I

The Concept of Knowledge Media: The Past and Future

Katarina Stanojevska-Slabeva
University of St. Gallen, Switzerland

INTRODUCTION

Knowledge is the internal state of humans that results from the input and processing of information during learning and performing tasks. According to Nonaka (1991), we can distinguish two kinds of knowledge: tacit and explicit knowledge. Tacit knowledge is highly personal and is deeply rooted in an individual’s actions and experience as well as in his ideas, values and emotions. This type of knowledge is difficult to formalize, to communicate, and to share. Explicit knowledge can be expressed independently from its human carrier in the form of data, scientific formulae, specifications, manuals, experience, project reports, and the similar. In its externalized form, “Knowledge is information that changes something or somebody—either by becoming grounds for action, or by making an individual (or an institution) capable of different or more effective action” (Drucker, 1991). As a result, knowledge is considered the most valuable resource in the information age.

Knowledge acquisition, i.e., its transformation from tacit to explicit knowledge, as well as knowledge storage and sharing are two major concerns of research into knowledge management. How can we capture tacit and explicit knowledge held by humans and organizations, codify, store and make it available for further use in an independent manner from its human creator?

Throughout history, several media have appeared, which are capable of storing and transporting knowledge. They can be classified in two groups (see also Armour, 2000):

• natural or human bound media, such as DNA and the human brain, and
• media independent of humans, such as paper and digital media.
The media differ with respect to knowledge persistency, update speed, intentionality, reach and “activeness,” i.e., ability to change the outside world (Armour, 2000). The most recent media for knowledge storage and transportation are digital media resulting from the convergence of information and communication technology. When compared to other media, for example, paper, digital media have had unknown features: They are interactive, ubiquitous and multimedia. Digital media can also store procedural knowledge as algorithms (see also Armour, 2000; Stefik, 1986) and can, to a certain extent, mimic human intelligence. In addition, they are ubiquitous and connected to a worldwide network. They make the knowledge they carry ubiquitously available, active and interactive. These new digital media have revolutionized knowledge management and enabled it in a manner not known before. In order to denote these new media the term knowledge media is used. But what exactly are knowledge media?

In this chapter, the history of the concept and different approaches for the implementation of knowledge media as well as its future will be discussed. In section 2, the term knowledge media will be defined. In section 3, the original concept for knowledge media as defined by Stefik (1986) will be described. Section 4 describes current approaches and section 5 elaborates on the Internet as the future knowledge medium. Section 6 provides a summary of the chapter.

MEDIA AND KNOWLEDGE MEDIA—A DEFINITION

To increase the understandability of the concept of knowledge media, first the basic terms related to it will be explained.

We define the term knowledge as the internal state of human beings that results from the input and the processing of information. This definition implies that knowledge, in a narrow sense, must be associated with human beings (Schmid, 1997b). Before knowledge can be shared, it has to be externalized on an external carrier (Nonaka, 1991). The basic means for knowledge exchange is communication. As a result, knowledge exchange takes place in communication spaces, which Nonaka and Konno (1999) call “Ba.” A “Ba” can be a physical meeting space or a virtual space created by digital media.

Knowledge management refers to all management activities necessary for effective creation, capturing, sharing, and managing of knowledge (Probst, Raub & Rohmhard, 1997). Knowledge management is substantially enhanced by information and communication technology.
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