Chapter XI

ICT for Knowledge and Intellectual Capital Management in Organizations

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ABSTRACT

This chapter describes which information and communication technologies (ICT) can help in the process of managing knowledge and intellectual capital in organizations. We start the chapter examining the risks we face when we use technologies for knowledge management (KM) and for intellectual capital management (ICM). Once we have done this, we review the literature to see which technologies different authors mention; choosing then the most frequently cited ones. We classify these technologies in base technologies and technological applications, getting to a final number of 17. Each of them is then summarily described and its possibilities in helping KM and ICM are stated. The chapter ends by classifying all of them according to their utility in helping in KM and ICM and in which of the processes needed in organizations for managing knowledge and intellectual capital they can be used.

INTRODUCTION

Since the 1960s, information and communication technologies (ICT) have been present in organizations. After some years in which organizations just used ICT to automate repetitive processes, an era begun in which ICT started to be used to process data in order to get information out of it: organizations that were able to carry out this process obtained a sustained competitive advantage over their competitors. But, obviously, and as it usually happens, after some time, all companies
in one sector where obtaining the same kind of information using the same data as input and the same ICT as tools, arriving to a state in which good use of ICT stopped providing a competitive advantage.

But in the last few years, a new opportunity has arisen in this area: the use of ICT to process knowledge and intellectual capital. This is a huge challenge for organizations. In fact, organizations that get to use ICT for these mentioned processes will once again obtain sustained competitive advantage over their competitors. In this chapter we examine which of all the technologies that belong to the vast amount named under ICT can be used for knowledge and intellectual capital management and in which of the processes needed to process these two items in organizations they can be used.

**BACKGROUND**

We start the chapter describing and analyzing technologies that serve as KM facilitators. In this section we review the literature on those technologies.

The first contribution that we cite is that of Bollinger & Smith (2001), who classify the tools that they believe facilitate KM processes into four types: hardware, software, collaborative work and intelligent tools, as shown in Table 1.

We can see that one of the groups, intelligent tools, comprises the tools that permit user needs to be anticipated and new knowledge to be extracted from existing knowledge. Therefore, the tools in this group are more interesting for KM although, as we shall see later, they unfortunately have the problem of a low present level of development,

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<thead>
<tr>
<th>Tool category</th>
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<td>Hardware</td>
<td>• Investment in IT</td>
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<td>• Networks</td>
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<td>• Intranet</td>
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<td>• Knowledge-based systems (KBS)</td>
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<td>• Collaborative hypermedia for documentation of discussions</td>
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<td>• Learned lessons databases</td>
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<td>• Data warehouses</td>
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<td>• Databases for classification, codification, and categorization of information</td>
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<td>• Storage of e-mail threads to create a repository of best practices</td>
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<td>• Corporate memory databases, also known as knowledge archives</td>
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<td>• Corporate yellow pages</td>
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<td>• Employee home pages on an Intranet</td>
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<td>Software and database tools</td>
<td>• Electronic meeting systems</td>
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<td>• Video-conferencing</td>
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<td>• Electronic bulletin boards</td>
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<td>Collaboration tools</td>
<td>• Decision support tools using neural networks</td>
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<td>• Virtual reality</td>
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<td>• Genetic algorithms</td>
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<td>• Intelligent agents</td>
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<td>• Internet search engines</td>
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<td>• Knowledge mapping</td>
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*Source: Bollinger and Smith (2001, p. 12)*