Chapter XV
Knowledge Sharing and Pervasive Computing:
The Need for Trust and a Sense of History

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ABSTRACT

This chapter explores the implications of knowledge sharing in an era of pervasive computing, and concludes that, perhaps counter-intuitively, people will need to come together more to establish the trust that is necessary for effective knowledge sharing. Practices such as team-work should result in closer ties between peers, and this relationship can encourage increased sharing of knowledge related to the work at hand. With the advent of pervasive computing, the question can be asked as to what the impact of this technology could/will have on the sharing of knowledge in a team situation. At the same time, the changing attitudes to how knowledge is acquired make it even more important that knowledge is acquired in its historical context, which may be best achieved by person-to-person knowledge transfer. It is argued that these social aspects will be more important in a world of pervasive computing than in conventional businesses.

INTRODUCTION

This chapter is concerned with the implications for the sharing of knowledge that arise when pervasive computing technologies are adopted in an organisation. The term knowledge sharing (KS) is used in preference to knowledge management (KM) so as to move the focus away from an im-

plied (by common practice) focus on technology, to a focus on the social aspects. The literature on KM that has developed over the last twenty years or so has generally been written from one of two broad perspectives: the theoretical issues related to the representation of knowledge in an automated environment, or the psychological / biological aspects of knowledge representation in people. When these two perspectives are combined, there is much concern about how internal knowledge (especially tacit knowledge) is transformed into explicit knowledge that may be captured, stored and disseminated in some automated way.

An area that has received less attention is the issue of how the sharing of knowledge is encouraged by organisational designs and actions. For example, it is accepted that effective knowledge sharing cannot be mandated by management decree, but that teams routinely share knowledge when there is a common purpose to be achieved. The introduction of pervasive computing into this environment raises additional questions, centred on what the social conditions need to be for effective knowledge sharing when face-to-face contact become less and reliance on computer-mediated communication increases.

In an environment of face-to-face communication, participants have available to them cues other than the words that constitute the communication. These cues have been well-documented as providing much-needed information about the communicator, such as temperament, attitudes and reactions to the interactions taking place. As a reaction to these needs, the use of such computer-mediated communications as emails and similar different-time / different-place means of communication have not replaced more personal forms of communication: face-to-face meetings still are a regular business activity. As somewhat of a compromise, video-conferencing and similar technologies have been used with varying degrees of success.

Pervasive computing (synonym: ubiquitous computing) refers to a contemporary trend to-

wards computing devices being incorporated into artefacts and the environment in such as way as to make their presence effectively invisible. That is, it is not necessarily apparent to the users of this computing ability that in fact computing devices are being used. It is a trend that is accelerated by a number of related technologies, especially communication (particularly) wireless technologies. In the context of this chapter, the important characteristics of pervasive computing are taken as being the uses of computer-mediated communication that are available essentially anywhere at any time, leading to people spending less time in traditional office environments, and therefore less time in the physical presence of others. Other defining characteristics of pervasive computing, such as location-awareness, are also of interest to the extent that they may affect communication and / or knowledge sharing. In addition, acknowledgement is given to such technical developments as video streaming that are available on computing platforms.

When we acquire information, we need to judge the veracity of the source, that is, make some assessment as to its "correctness" or "reliability". Traditionally this has been by assessing its authorship and relationship to other trusted sources. With the advent of electronic sources, much of this ability has been taken away: authorship is not clear (if stated at all), rarely are references available (or indeed given). One view about this is that the decline in publishing books (excluding the one-week holiday fillers), and the decline in reading has diminished the appreciation of the history of development of an idea: no longer do we see the trials and mistakes made in arriving at "what we know" today. By not being aware of these lessons of history, we may repeat them. To overcome this problem, it is argued that by knowing the source (that is, the authorship) of knowledge we can judge its quality, and that one way that this can be achieved is by person-to-person communication, be that electronically mediated or otherwise. Through such a person-

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