Chapter 12
Lifelong Learning in the Knowledge Economy:
An Empirical Analysis of E-Learning Adoption at Firm-Level

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INTRODUCTION

In a global knowledge-based economy, the performance of business organizations depends on ensuring that all categories of employees possess current and up-to-date knowledge and skills. Therefore, businesses must analyze their training needs in greater depth and update workers' skills much more rapidly than in the past, while attempting to reduce training costs to remain competitive in this changing environment (Roy & Raymond, 2008). This requires organizations to educate and train anyone, anytime, and from anywhere with the lowest possible costs (Ong et al., 2004). Thus, many enterprises have turned to e-Learning as a best practice to provide adequate training to their employees.

The aim of this paper is to examine e-learning adoption among a sample of European firms (an area for which empirical evidence is quite scarce), and investigate the factors driving its introduction.

BACKGROUND: FACTORS DRIVING ICT DIFFUSION AT FIRM-LEVEL

The last few years have seen a growing interest in explaining the diffusion of information and communication technologies (ICT) at firm-level. The vast economic literature that has been developed in this field highlights that a firm will only choose to adopt ICT if it perceives that doing so will provide greater benefits than existing technologies (Hollenstein, 2004; Karshenas & Stoneman, 1995).

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Therefore, a firm will only choose to adopt e-learning if it believes that doing so will provide greater benefits than traditional training methods, in which there is no use of ICT. Overall e-learning breaks the limitations of time and space. For corporations, finding training facilities and then allocating large chunks of time for staff to attend sessions away from their workplace is often not a productive or cost-effective way to conduct training. The use of e-learning eliminates or, at least, reduces facility costs as well as the travel costs of workers to the training centre (Britt, 2004; European Commission, 2005; Harun, 2002; OECD, 2002; Servage, 2005). Moreover, it allows training needs being met at a more appropriate time for both the organization and its employees, and not having to replace employees during work hours. There are also benefits for workers, in particular the convenience and the opportunity to learn at their pace.

Nonetheless, it is important to take into account that there might be obstacles to the use of the new technology. Firms experiencing economic or financial difficulties are less likely to invest in new technologies (Bocquet et al., 2007).

Another major determinant of ICT adoption is the firm's absorptive capacity. The endowment with human and knowledge capital is the main factor involved in this capacity. Thus, firms with a high level of human capital exhibit a higher propensity to use information technology and its applications (Black & Lynch, 2001; Bresnahan et al., 2002; Brynjolfsson & Hitt, 2000). In this context, it is important to consider a possible double causality between the use of e-learning and human capital: firms with a high level of human capital are more likely to adopt e-learning, and at the same time the use of e-learning leads to better skilled labor force.

Research and development (R&D) activities, as an element of firm's absorptive capacity, are also important for technology adoption. Cohen & Levinthal (1989) showed that firms' innovative activity facilitates the successful use of external knowledge in general and of new technologies in particular.

Firm size is another of the most commonly studied determinants of technology adoption. Starting with the classical contribution of Schumpeter (1912), various other authors have seen a positive relation between size and the adoption of a new technology since larger firms are in a better position to appropriate the returns from adoption and have greater funds available to invest in the new technology. Moreover, many technologies, like the Internet and its applications, are scale-enhancing and, therefore, larger firms adopt them sooner because they capture economies of scale more quickly (Fabiani et al., 2005; Hall, 2003).

Likewise, competitive pressure has long been recognized in the economic literature as a driver of technology diffusion. Firms in a competitive environment are more likely to adopt those innovations and technologies that can enhance their decision making, strengthen their performance, and quickly improve their employees' skills, than those operating in a more sheltered environment (Porter, 1990).

Finally, research has also shown that the industry in which the firm operates has an important influence on ICT adoption. In contrast to Solow's famous remarks "you can see computers everywhere but in productivity statistics" (Solow, 1987), ICT are in fact heavily concentrated in the service sector. e-Learning, as an application of these technologies, is very likely to be used more intensively by service firms. Nevertheless, it is important to bear in mind that ICT are general purpose technologies (Bresnahan & Trajtenberg, 1995), which implies that all sectors might be able to benefit from their use and the use of their applications.