Chapter X

Using Actor-Network Theory to Identify Factors Affecting the Adoption of E-Commerce in SMEs

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ABSTRACT

Just because e-commerce seems like a useful tool that may assist a small to medium enterprise (SME) do its business better, it does not necessarily follow that it will be adopted by this business. The implementation of an e-commerce system in an SME necessitates change in the way the business operates, and so should be considered as an innovation and studied using innovation theory. In this chapter we will argue that the decision to adopt, or not to adopt, a new technology, has more to do with the interactions and associations of both human and non-human actors involved in the project than with the characteristics of the technology. Information
systems are complex socio-technical entities and research into their implementation needs to take account of this complexity. This chapter describes three case studies of adoption (or, in one case, of non-adoption) of e-commerce by small business. The chapter describes a research approach based on actor-network theory and innovation translation that we show can be usefully employed in many socio-technical situations involving technological innovation.

**INTRODUCTION**

Electronic commerce (e-commerce) is concerned with how computers, information systems and communications technologies can be used by people to improve the ways in which they do business. As e-commerce necessarily involves interactions of people and technology, any study of how it is used by a small business must be considered in a socio-technical context. Although there is no universal consensus on what constitutes e-commerce, we believe that it contains elements of information systems, business processes and communications technologies. The complexity of studies in e-commerce is due, to a considerable degree, to the interconnected parts played by human actors and by the multitude of non-human entities involved. Small business managers, sales people, staff involved in procurement and warehouse operations, computers, software, web browsers, Internet service providers (ISP), modems and web portals are only some of the many heterogeneous components of an e-commerce system. In this chapter we will argue that the complexity of these systems will only be seen if it is reported in all its ‘messy reality’ (Hughes, 1983), and that research into their implementation and operation needs to take this heterogeneity into account and to find a way to give due regard to both their human and non-human aspects.

The implementation of an e-commerce system in a small business necessitates change in the way the business operates and we contend that it be studied in the light of innovation theory. The dictionary defines the process of innovation as “the alteration of what is established; something newly introduced” (Oxford, 1973), and “introducing new things or methods” (Macquarie Library, 1981). It thus involves getting new ideas accepted and new technologies adopted and used. In this chapter we describe a research approach to the study of technological innovation in small business that is based on actor-network theory (Callon, 1986b; Latour, 1986; Latour, 1996; Callon, 1999;
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