Sociotechnical Study of e-Business:
Grappling with an Octopus

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EXECUTIVE SUMMARY

This paper reports on a study that investigated the status and anticipated development of e-Business activity. A prime aim of the study was to increase understanding of the human and organizational issues that arise with e-Business, and the extent to which these are currently addressed. An expert panel method was used, which involved interviewing 70 leading practitioners of, and experts in, e-Business in the UK. The findings identify the distinguishing novel features of e-Business, highlight the key issues it raises, and provide evidence of current uptake and impacts. The findings include ideas on good practice. The study emphasizes the importance of taking a holistic, sociotechnical view of the complex set of interrelated changes involved in e-Business.

Keywords: e-Business; e-commerce; good practice; sociotechnical systems

INTRODUCTION

There has been rapid growth of interest in, and adoption of, e-Business since the late 1990s. As with many emerging phenomena, practice has moved ahead at some pace, with research of the underlying issues struggling to keep up. Research that has been undertaken has largely focused on four main perspectives: the strategic (e.g., Timmers, 1999); the technological (Shaw, Blanning, Strader, & Whinston,

2000); the business case (Dai & Kauffman, 2002); and the marketing aspects (Turban, Lee, King, & Chung, 2000). Relatively little work has been undertaken on the human and organizational dimensions, although studies of computer-based technologies in organizations consistently show that insufficient consideration of a system's social environment and the relationships between people and technologies has been a major reason why investments have often been assessed as being a failure, or only a partial success (Brynjolfsson & Hitt, 1998; Clegg, Axtell, Damodaran, Farbey, Hull, Lloyd-Jones, Nicholls, Sell, & Tomlinson, 1997; Nathan, Carpenter, & Roberts, 2003).

The research examining the human and organizational issues in e-Business has led to a number of predicted and observed effects, including the need for new skills (Andersen Consulting and Investors in People, 1998), changes in job content along with the creation of new kinds of work (IRS, 2000) and an increase in company relationships; in particular, the opportunity for companies to increase their supplier and customer bases (Leadbetter, 1999), and to move to relationships based on information-sharing, cooperation and trust (Donington, 1995; Richmond, Power, & O'Sullivan, 1998; Sako, 1992). Some work has also emerged stressing the need for a systemic approach to e-Business, recognizing the importance of changes in business processes (Bray, 2000; PriceWaterhouse Coopers, 1999; Richmond et al., 1998; Timmers, 1999) and the more general need to make a "host of changes in a coordinated fashion" (Cairncross, 2000, p. 2).

Nevertheless, to date there has been little research that identifies in more integrative fashion the range of human and organizational issues arising with e-Business, examines the extent to which such issues are currently being addressed by those undertaking innovations in this area and which sets e-Business in the wider context of earlier work on the use of Information and Communications Technologies (ICTs) in organizations. This research attempts to fill these gaps. More specifically, the main objectives are to:

- Investigate the current status and anticipated development of e-Business in the UK.
- Examine and increase understanding of the main human and organizational issues, and the extent to which these are currently addressed.
- Offer some early views on good practice.
- Set the situation in the wider context of earlier work on the use of ICTs in organizations.

The research adopts a sociotechnical perspective to meet these objectives, for several reasons. First, there is a substantial history of applying these ideas — they have proved useful in understanding the use and impact of technology-based changes of various kinds (Avegerou, 2003; Coakes, Willis & Lloyd-Jones, 2000; Mumford, 1968; Trist, 1981; Trist & Bamforth, 1961). Second, the ideas may prove useful in adopting a more critical and sceptical attitude than sometimes pertains when new phenomena arise, where there is a danger of exaggerated impacts and benefits (Bloor, 2000; Roberti, 2001). Third, the core proposition underlying sociotechnical thinking, that the social and technical aspects of any new systems need to be designed and optimized concurrently, appears valid in principle to this domain. It may help identify the key social (i.e., human and organizational) issues that merit further attention.

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