

Small firms and e-business: cautiousness, contingency and cost-benefit

Jurong Zheng^{a,*}, Nigel Caldwell^a, Christine Harland^a, Philip Powell^b,
Maria Woerndl^b, S. Xu^b

^aCentre for Research in Strategic Purchasing and Supply, School of Management, University of Bath, Claverton Down, Bath BA2 7AY, UK

^bCentre for Information Management, School of Management, University of Bath, Claverton Down, Bath BA2 7AY, UK

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Abstract

This paper examines how e-business affects small firms in supply chains. Research in four UK supply chain cases, assistive/medical technology, construction, computer consumables and apparel, indicate widening gaps between large and small firm investment and strategy for exploitation of e-business. Existing models of e-business operationalisation are critically evaluated; and their appropriateness in providing insight and guidance is reflected on. While each model individually provides some useful insights, none are appropriate for examining small firm take up of e-business. Therefore a new framework is developed based on three key issues—cautiousness, contingency and cost-benefit.

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1. Introduction

The Internet presents opportunities for small and medium-sized enterprises (SMEs) to harness the benefits of information and communication technologies (ICT) in an affordable, simple way, and to reach new customers and suppliers. Simultaneously, however, ICT offers customers cheap, global reach to seek out new suppliers. While offering opportunity to SMEs, internet-based commerce also threatens to introduce new competitors into what were domestic markets. This threat is particularly relevant to manufacturers. However, hype and the creation and deflation of an e-bubble make it imperative that empirical work uncovers the real impacts of e-business on SMEs.

To date, business-to-business (B2B) technologies have been predominantly exploited by larger firms downstream in the supply chain rather than by upstream SMEs (Hawkins and Prencipe, 2000). Various models that address appropriate use of e- and IT-induced business transformation have been proposed. Yet, these models tend to be derived from research in large firms;

and there is little investigation of the applicability of e- across all businesses in supply chains. For example, approaches used in managing websites with IT developed for large firms may not be applicable to many SMEs (Tesar and Moini, 2001). The problems encountered by SMEs are often different from those of large firms and require different approaches (Blili and Raymond, 1993). Thus existing models may not take into account SME decision processes and SME individuality (often highly idiosyncratic and owner-led). This research addresses the need for exploratory, empirically grounded work on how e-business affects SMEs. While e-business take-up and use is dynamic, the key findings presented here have a continuing salience for policy makers.

The paper is divided into five sections. First, existing e-business models are discussed and seven are reviewed drawing from research in purchasing, IT and SMEs. In combination, these models are used to help understand the case firms' current use of e-. Second, the research method and contextual background to the case SMEs in the four supply chains are given. The third section reports key findings from the case analysis including current use of e-, e-business strategy, nature of business, competitive pressure, benefits and risks, owner's interests and behavioural and cultural issues. Section four

*Corresponding author. Tel.: +44-1225-386512; fax: +44-1225-323-223.

E-mail address: mnsjz@management.bath.ac.uk (J. Zheng).

provides a critical review of the relevance of existing models for assisting SMEs in e-business development, in the light of the fieldwork. Finally, conclusions and recommendations are provided.

2. e-business models, SMEs and supply chain management

In this paper a multi-disciplinary research approach is taken to combine current thinking in purchasing, supply chains, information management and SME management. Seven models are reviewed to understand how e-business may develop in the context of supply chains and SMEs. As with the SME sample of case firms, the choice of these models is purposeful. They were chosen from among a much larger set of contender models as they either implicitly or explicitly focus on elements that prior research has shown to impact on the research domain. Garcia-Dastugue and Lambert (2003) and Kraljic (1983) are included for their focus on contingency, Willcocks et al. (2000) and Venkatraman (1991) for their focus on development. The SME focus-dominance model (Levy et al., 2001) and the transporter model (Levy and Powell, 2003) address both the contingent and development issue. The Internet adoption model (Mehrtens et al., 2001) is included for its focus on factors that influence SME decisions. Other e-procurement models, for example, e-marketplace

models (e.g. (Kaplan and Sawhney, 2000)), are excluded here as they assume a level of market dominance and investment that does not reflect the business realities of SMEs; the contingent and emergent nature of SME initiatives is discussed in the analysis and conclusions.

2.1. Internet-enabled co-ordination mechanisms

Garcia-Dastugue and Lambert (2003) present a framework (Table 1) that suggests managers need to choose the appropriate level of integration for a particular relationship in the supply chain and an appropriate degree of information sharing. It classifies different internet-enabled co-ordination mechanisms and situational dimensions including asset specificity, complexity of product description, transaction risk, operational performance risk, frequency and item value. These dimensions are important for the effect of IT on co-ordination costs.

2.2. Portfolio model

Kraljic’s (1983) purchasing portfolio model (Fig. 1) presents a system view of how to differentiate purchasing strategies according to the impact of strategic importance/value to the business, supply risks and supplier relationships. It is argued that different electronic solutions may be appropriate for different purchasing strategies (van Weele, 2002). For example,

Table 1
Internet-enabled co-ordination mechanisms

Co-ordination mechanism		Dimension for evaluation					
		Complexity of product description	Asset specificity	Traction risk	Operational performance risk	Frequency of purchase	Item value
		Definition of dimension					
		Amount of information needed to specify the attributes of a product	The firm is ‘locked-into the transaction to a significant degree’.	Risks from managing a closer relationship	Potential impact of operational failure on the firm’s efficiency	Number of times the same item is purchased per unit of time	Value of item(s) in the transaction
Market mechanisms	Auctions	Low	Low	Low	High	Low	Medium
	Multidimensional auctions	Low	Low	Low	High	Medium	High
	Closed auctions	High	Medium	Medium	Medium	Low	High
	Purchasing groups	Low to medium	Low	Low	High	Low to medium	Medium
	Electronic purchasing aids	Low	Low	Low	High	Low	Medium to high
	Electronic agents	Low	Low	Low	Medium to high	High	Medium
Co-ordination flows		Low to high	Medium	High	Low	High	Low to high

(Source: Garcia-Dastugue and Lambert, 2003).

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