



# The role of IS capabilities in delivering sustainable improvements to competitive positioning

Neil F. Doherty<sup>a,\*</sup>, Mark Terry<sup>b,1</sup>

<sup>a</sup>The Business School, Loughborough University, Loughborough LE11 3TU, United Kingdom

<sup>b</sup>KSI Technologies (UK) Ltd., Saxon Business Park, Stoke Prior, Worcestershire B60 4AD, United Kingdom

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## ABSTRACT

It has long been argued that organizations have struggled to achieve business benefits, and in particular sustainable competitive advantage, from their IT investments. In this paper we draw upon resource-based theory to explore how the effective deployment of IS capabilities might deliver sustainable improvements to an organization's competitive positioning. In so doing, this research makes a significant departure from the enterprise-level orientation of prior studies, by focusing upon the role of IS capabilities in leveraging sustainable improvements to competitive positioning from individual IS initiatives. Based upon the responses to a quantitative and qualitative survey of practicing managers, it has been shown that an organization's ability to leverage and sustain improvements in its competitive positioning, from IS initiatives, are directly dependent upon its ability to effectively apply an appropriate portfolio of IS capabilities. Moreover, it has been shown that sustainable improvements in competitive positioning are most likely in circumstances in which the successful outcome of an IS initiative is dependent upon 'outside-in' and 'spanning' capabilities, which are both lacking in transparency and difficult to replicate.

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## 1. Introduction

Over the past 30 years a great deal of academic effort has been devoted to better understanding how the deployment of IT might support improvements to an organization's operational performance (Brynjolfsson and Hitt, 1996; Hitt et al., 2002). Within this broad domain, a significant number of researchers have been particularly interested in exploring the extent to which the innovative application of IT might have the potential to deliver an outright competitive advantage to their adopters (Mata et al., 1995; Powell and Dent-Micallef, 1997; Dehning and Stratopoulos, 2003). Much of the early work in this field (Ives and Learmonth, 1984; Porter and Millar, 1986) adopted a 'competitive forces' perspective, in which competitive advantage is attained when IT is used innovatively to re-write the rules of competition by significantly lowering costs or facilitating differentiation. However, it wasn't long before serious questions were being asked about the sustainability of these strategic information systems (Clemons, 1986; Galliers, 1993).

More recent contributors to this debate have used the 'strategic necessity hypothesis' (Powell and Dent-Micallef, 1997), to argue that it is unlikely that any individual application of IT will deliver a sustainable competitive advantage. This is so because it is relatively easy for firms to understand, and then copy their competitors' systems, and that failure to do so, will leave them competitively disadvantaged (Melville et al., 2004). However, even if one accepts that the IT artifact, no matter how innovatively applied, is always susceptible to imitation, it is then possible to draw two very different inferences from

\* Corresponding author. Tel.: +44 1509 223328; fax: +44 1509 223960.

E-mail addresses: [n.f.doherty@lboro.ac.uk](mailto:n.f.doherty@lboro.ac.uk) (N.F. Doherty), [mark.terry@ksi-ltd.co.uk](mailto:mark.terry@ksi-ltd.co.uk) (M. Terry).

<sup>1</sup> Tel.: +44 1527558448.

this insight. One group of authors would infer from the '*strategic necessity hypothesis*', that IT is now such a readily accessible, affordable and homogenous commodity that has limited potential to deliver a sustainable competitive advantage (Carr, 2003; Thatcher and Pingry, 2007). By contrast, others would use the resource-based theory of the firm (Wernerfelt, 1984; Barney, 1991) to contend that it is possible to gain a strategic advantage if the adoption of information systems is supported through the deployment of an appropriate portfolio of complementary resources and capabilities (Wade and Hulland, 2004). From these contrasting views, a very lively debate has erupted, within the information systems community, as to whether IT can provide a differential advantage to individual firms (Bhatt and Grover, 2005), or whether because of its ubiquity, '*IT doesn't matter*' (Carr, 2003).

Against this backdrop, the broad aim of this paper is to draw upon resource-based theory, to explore whether it is possible to identify a portfolio of IS-related resources/capabilities that are necessary to facilitate the delivery of sustainable improvements in competitive positioning from the application of business IT. However, in so doing, we make a significant departure from previous studies by using individual IS initiatives as the unit of analysis, and explore the competitive impacts of IT at the process level. To this end, the remainder of the paper proceeds as follows. The next section presents a critical review of the literature, from which the study's specific objectives are derived. We then develop a conceptual framework, before presenting a review of the research methods that were applied to collect data to test the model. The framework then provides the basis for a mixed, quantitative and qualitative analysis, which is presented in the Section 5. We conclude by summarizing the findings and limitations of our study, and by proposing an agenda for future research.

## 2. IT-enabled competitive positioning: a critical review

The purpose of this section is to provide an overview of the resource-based theory of the firm, before critically reviewing its use in prior studies of the role of IT in delivering sustained improved competitive positioning. In so doing, gaps in the literature are identified and the objectives of the study explicitly presented.

### 2.1. The resource-based view (RBV)

For an organization to realize a competitive advantage, it must satisfy a number of conditions: it must be doing something appreciably better than its competitors, this difference must be valued by its customers, but it must not be readily replicated by its competitors (Day, 1984; Porter, 1985). Whilst it has been recognized that any competitive advantage is to be valued, it is also recognized that it is likely to be eroded over time, as competitors take steps to imitate the winning formula. Consequently, the holy grail of strategic management is to find sources of sustainable sources of competitive advantage (Porter, 1985), which Barney (1991) defines as ones that: '*continue to exist after efforts to duplicate that advantage have ceased*'. In recent years the resource-based view of the firm has attracted many adherents, as it provides a coherent explanation of how any competitive advantage might be sustained.

The origins of the RBV lie in the work of authors, such as Penrose (1959, p. 7) who suggested that a firm should be viewed as 'a collection of human and physical resources bound together in an administrative framework, the boundaries of which are determined by the area of administrative coordination and authoritative communication'. However, the various writings on the subject didn't really coalesce into a distinctive and coherent theoretical position – the 'resource-based view of the firm' – until the publication of an influential article by Wernerfelt (1984), in which he noted that 'both strategy scholars and managers often failed to recognize that a bundle of assets, rather than a particular product–market combination chosen for its deployment, lies at the heart of their firm's competitive position'. The RBV posits that firms compete on the basis of heterogeneously distributed, 'unique' resources that are valuable, rare, inimitable and non-substitutable – the so called VRIN characteristics (Barney, 1991). Firms that were once thought of as being homogenous are now seen to be differentiated through their possession of difficult-to-imitate resources, which are responsible for the observed variability in their financial and operational performance (Wernerfelt, 1984). With respect to the role of IT in competitive positioning, there is a growing recognition, as discussed below, that it is those resources which support the effective application of IT, rather than the technological artifact itself, that are best suited to sustaining a competitive advantage.

### 2.2. Resource complementarity and IT-enabled competitive advantage

When seeking sources of sustained competitive advantage, it soon became apparent to members of the business and the academic communities, that the speed, power and flexibility of IT might be effectively harnessed (Porter and Millar, 1986). Whilst a variety of different theoretical perspectives have been adopted, Melville et al. (2004, p. 289) argue convincingly that it is the '*resource-based view of the firm*', which is '*inherently suitable for analyzing the complexity of IT and firm performance*'. The RBV posits that when searching for IS-based sources of sustainable competitive advantage, organizations must focus less on the role of the technical artifact and more on the potential of the resources/capabilities needed to support and exploit information systems within the firm (Mata et al., 1995; Dehning and Stratopoulos, 2003; Ravichandran and Lertwongsatien, 2005).

Any researcher wishing to contribute new insights upon the '*under-examined*' topic of how '*IT assets affect firm performance*' (Ravichandran and Lertwongsatien, 2005, p. 238), using a resource-based approach, faces the significant

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