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Cloud resource adaptation: A resource based perspective on value creation for corporate growth

Amit Mitra^{a,*}, Nicholas O'Regan^a, David Sarpong^b

^a Bristol Business School, University of the West of England, Frenchay Campus, Bristol BS16 1QY, United Kingdom

^b College of Business, Arts & Social Sciences, Brunel Business School, Brunel University London, Kingston Lane, Uxbridge UB8 3PH, United Kingdom

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ABSTRACT

Instantaneous access to firms' resources, any-time, any-where dominates contemporary discourse on business systems transformations. The advent of utility computing through cloud based resource development has therefore altered both the perception of IT resources and the expectations of their use in practice. Drawing on the resource based view as a theoretical lens; we examine the nature of unique capacity development in adapting cloud based technologies for corporate growth. Focusing on the experiences of two multinational firms that have recently implemented strategies aimed at integrating and leveraging value from cloud computing, we argue that while cloud computing may improve organizing at systems and operations levels, the development of unique competencies of skills and knowledge acquired through the implementation of cloud is what is likely to lead to the creation and capture of value relevant for competitiveness. Our case evidence suggests that as information management infrastructure gets altered, the cost savings and efficiency gains that result, may lead to sustained corporate growth and stronger external networks. We conclude with some implications for the theory and practice of value creation for corporate growth.

1. Introduction

Instantaneous access to firms' resources, any-time, any-where, dominates contemporary discourse on business systems transformations. The advent of utility computing through cloud based resource development has therefore altered both the perception of IT resources and the expectations of their use. The need for business system transformation means interest in cloud computing has increased significantly in the past decade. As a "model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" (Mell and Grance, 2011: 3), cloud computing is characterised as a fundamentally different way of invention, development, deployment, scaling, updating, and paying for information and communication services (Marston et al., 2011), and has become the driving force for corporate growth. Nevertheless, many organisations that are moving 'onto the cloud' are initially challenged by the notion of billing at point of use and subsequently by the whole changes to decision making that this sort of service orientations create (Sultan, 2014). In addition, they face the challenge of developing the requisite capabilities that will enable them capture relevant value from

their cloud resource investments.

A feature of new developments using cloud computing has been the re-orientations of capacity (Gupta et al., 2013). It is common to find cloud use by organisations in general and SMEs in particular to scale operations to cater to hitherto unknown levels of client requests. Expectations of sustainability and society demand drastic reductions in carbon footprints that would be infeasible to support with big data centres for organisations. In this regard, cloud implementation by large organisations could provide various pointers to bolstering of green credentials within specific industries.

In this paper, we examine how organisations reconfigure their cloud based resources to develop competitive advantages. Given that technologies are not neutral in their impact on organisations, we argue that cloud based resources by virtue of their intangible nature will require unique managerial capabilities to leverage their potential for corporate growth. Developing our contribution in the context of two multinational firms that recently implemented strategies aimed at integrating and leveraging value from cloud computing, we draw on the resource base view (RBV) as a theoretical lens to examine how unique and inimitable skills may contribute to successful implementation of cloud technology and the subsequent capture of sustainable value that drives corporate growth.

* Corresponding author.

E-mail addresses: Amit.Mitra@uwe.ac.uk (A. Mitra), Nicholas.O'regan@uwe.ac.uk (N. O'Regan), David.Sarpong@brunel.ac.uk (D. Sarpong).

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Our study makes two distinct contributions. First, it contributes to the literature on cloud based computing by demonstrating that the skills for implementing the cloud are difficult to acquire and only possessed by very few which makes it less likely to be mobile. Second, we delineate how unique competencies of skills and knowledge acquired through the implementation of cloud may lead to the creation and capture of value relevant for competitiveness. The paper is organized as follows. First we present a resource based view of cloud computing and go further to delineate the nature of cloud based resource capabilities. Following this is our research methodology. Next we present our research findings and a comparative case analysis of the two case organisations. We then conclude with a discussion of our findings and some limitations of our study.

2. The resource based view

The resource based View (RBV) emerged as a corrective in accounting for differential performance among firms embedded in the same environment. RBV theory argues that the type of resources employed by a firm to compete is crucial for its profitability and resources can only confer sustainable competitive advantage when they are valuable, rare, inimitable, and lack substitutes (Barney, 1996, 2001; Priem and Butler, 2001a; Wernerfelt, 1984). For the RBV to hold there are two critical assumptions. The first assumption is that firm resources are heterogeneous. The second more important assumption is that the resources are indeed “sticky” or immobile. While the first assumption may help to account for why firms may have different implementation capabilities for the cloud, the second, with respect to implementation capabilities is more difficult to leverage in practice in today's business environment (Kraaijenbrink et al., 2010). We argue that while cloud implementation ability is possibly valuable (V), it is not necessarily rare (R) or Inimitable (I). The rate of change and evolution in the technology industry is fairly quick and there exists a strong market for individuals and organisations with skills in cloud deployment. Given that there exists such a market, the resource (competencies in cloud computing), is essentially tradable and therefore difficult to believe that such resources need not necessarily confer superior advantages (Kraaijenbrink et al., 2010; Peteraf, 1993). From this perspective, Wade and Hulland (2004) argue that Information system (IS) resources of the firm may be accounted for through a couple of determinants that include IS assets (technology based) and IS capabilities (systems based). These IS assets have an inherent disadvantage, in that they can be easily copied by competitors and therefore fragile with regard to the sustainability of competitive advantage (Leonard-Barton, 1992). By its nature, deployment of IT resources drives development of technical capacities among staff responsible for rolling out, as well as those who are using the new IT resource. Such emerging applied embedded IT capacity as a result of new deployments is often inimitable as it is usually distinctive to specific organisations (Ravichandran and Lertwongsatien, 2005). In this article we concede many of the criticisms pioneered by the static approach but resist abandoning the pre-existing reality of competitive advantages that inimitable capabilities could deliver to an organisation (King and Zeithaml, 2001; Priem and Butler, 2001b).

Corporations are continually seeking to develop unique inimitable capacity so that they can create competitive advantage as well as remain ahead of competitors. At the same time technology implementation that would enable development of such capacity is likely to encounter resistance to change within them. Corporations that succeed in implementing change by overcoming such resistance are usually supported by leadership that has foresight, are able to handle risk at the same time become considerably unique in the way their business systems operate (Mitra and Neale, 2014). It must be noted here that instances of successful IS implementations within corporations over the last couple of decades seems to have been significantly driven by the need to address business goals. Such an orientation, as for instance in the study conducted within Nestlé by Mitra and Neale (2014), is in

contrast to findings which showed that co-ordinating IS plans with business plans impedes effective IS planning (Lederer and Mendelow, 1989). Despite many successful IS implementations, instances of IS failure have lingered. Such failure has enabled the issue of alignment to be pre-eminent in the context of large corporations. Just like Mitra (2001) identified maturity to be a key parameter in Geographic Information Systems (GIS) implementation within British local government, similarly Luftman (2003) categorises alignment to be dependent on six categories of maturity.

Elsewhere, prior literature makes a case for when resources tend to possess mobility barriers. A key argument here rests on causal ambiguity- when the tacitness, complexity, and specificity in a firm's skills and resources make the source of competitiveness unknown (Lippman and Rumelt, 1982; Mosakowski, 1997). It also follows that the relationship between causal ambiguity, resources and firm performance is unknown (King and Zeithaml, 2001). Arguably, the creation of inimitable resources is that which drives competitiveness as it impedes the imitation. Nevertheless, it can be extremely difficult to transfer or leverage inimitable resources for potential re-use at a marginal cost, thereby constraining replication required to sustain competitiveness. In the IS context, we observe that the development of such critical resources underpinning competitiveness is driven by a number of factors. First, all discrete operations prevalent in different regions of the corporation are transformed into a single uniform system. Second, once this uniform system becomes operational it produces its own uniqueness. While the first development through integration brings about a capacity to monitor enabling centralised control, and greater efficiency in use of resources (Mitra and Neale, 2014). The second development tends to affect the organisations external position with reference to competitive advantages.

3. Cloud based resource capabilities

Growing evidence suggest that IS capacity development leads to resource advantages. Nevertheless, maturity of using competencies can make a difference to the way organisations eventually acquire competitive advantages (cf. Bharadwaj, 2000; Mitra and Neale, 2014). For example, Mitra (2001) in his study of the implementation of geographic information systems found that different levels of maturity in IS use usually leads to competing formats through which IS capacity development evolves. Cloud computing as IS capacity, in recent times, has become an integral part of successful organizing. This refers to both the applications delivered as services over the Internet and the hardware and systems software within data centres that provide those services (Armbrust et al., 2010; Voorsluys et al., 2011). Embedded in high velocity environments characterised by frequent disruptions of technological trajectories, the competencies required for cloud capacity development requires continuous adaptation and change which may be distinctly linked to the maturity levels of the implementing organisation. Note that the notion of introducing cloud computing is probably somewhat different in contrast to traditional systems. Owners of systems are readily aware of the resource modifications that result with the introduction of cloud computing yet the users apart from realising a rise in resource availability are unlikely to be able to discern any changes to system functionality. So the issue of creating user incentives that will promote alignment (Ba et al., 2001) does not apply in the strict sense within a cloud computing construct.

Bharadwaj (2000) posits that IT capability is a rent generating resource that is not easily imitated or substituted in large companies, further Armbrust et al. (2010) has clarified that pay as you go, as used in cloud computing, is clearly tied to cloud based usage. Renting usually involves paying a negotiated amount over a fixed period irrespective of use. Pay as you go involves metering usage and charging based on actual usage, independently of the period over which the usage occurs. With the advent of cloud computing, this is perhaps a key difference that has come about in the estimation of IT resources consumption.

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