Understanding cloud adoption : Integration of TCE, capabilities and modularity

Abstract

Cloud computing is an innovation that has gathered a huge amount of interest in Information Technology (IT) industry. This new concept promising substantial IT cost savings and innovation possibilities has generated much industry hype. This novelty and the hype found in some media stories make it difficult for organizations to evaluate its potential, costs and risks. The Broad research objective of this study is to understand the organizational adoption of cloud computing by identifying the factors that influence cloud adoption decisions in organizations. The decision to adopt cloud computing is a boundary choice decision where the alternatives of procuring the IT resources are – in-house provision or cloud vendor provision. Hence, to understand this cloud adoption decision, the concept of boundary choice has to be studied in detail.

Several theories have emerged to explain the boundary choice decisions of a firm. Among them, Transaction Cost Economics (TCE) provides a widely tested explanation for boundary choice. several organizational researchers argue that, TCE is fundamentally incapable of being a complete theory of economic organization. In this study, the focus is on the two major debates that have advanced research in this area – Firm Capabilities and Modularity. Prior research identifies the need to integrate the three main streams of research - transaction costs, firm capabilities, and modularity – in a strategic theory of the firm. Through an empirical study of cloud adoption decisions in various organizations, this research integrates these three main drivers of governance choice and provides a more nuanced understanding of the boundary choice decisions. This research proposes a conceptual model to understand governance choice and validates it through a survey-based study that involves quantitative analysis of the data.

Data is collected for two hundred and six cloud adoption decisions across forty-five firms from different sectors.

This study contributes to the extant literature on boundary choice in several ways. It provides an integrated view of boundary choice that brings out nuanced understanding of the phenomena. This study highlights the role of managerial cognition and aspects of governance. It establishes that capability differential – difference between the production and governance capabilities of firm and market – plays an important role in boundary choice decisions. This study provides a framework for understanding firm's capabilities by unbundling them into production and governance capabilities. In the context of IT capabilities, production and governance capabilities are identified. This study also contributes to the literature on modularity by bringing in clarity to the complex role played by modularity in conjunction with transaction characteristics. The study findings establish that the capability differential and process level modularity not only influence boundary choice directly, but also moderate the influence of transaction attributes such as asset specificity on boundary choice.

In addition to the contributions to theory, this research provides important implications for both cloud computing adopters and providers. Organizations are looking for guidance in developing technology roadmaps, in order to decide which applications are best positioned for moving to the cloud. This study comes up with guidelines for identification of IT enabled services suitable for cloud migration taking into consideration the firm's internal IT capabilities, specificity of the process and IT assets, modularity of the IT assets and business process. At the same time, vendors can work towards identifying obstacles to cloud adoption and take steps towards reducing potential transaction costs for the adopting organizations. This study will also help them identify market segments and specific organizations, in particular, those that have a higher propensity to adopt cloud. Based on the findings from this study in relation to modularity, cloud

providers can come shape their product appropriately to reduce costs of integration for adopting organizations.