Organizational Impacts of Collaborative Information Technologies: Case Studies and Empirical Evidence

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1. Introduction

Our research focuses on information technology (IT) enabled collaboration systems. We refer to these systems as Collaborative Information Technologies (CITs). Traditional collaboration systems were designed to improve performance of group members or teams by supporting communications and the flow of information. However, modern day CITs have the capabilities to support not only communication and information flow, but also the computing needs of teams/groups engaged in accomplishing tasks/projects. There are many CIT options that organizations can deploy to support team work with varying degrees of virtuality. While some of these technologies have been around for decades (for example, audio conferencing, video conferencing, proprietary groupware, group support systems etc.), others became popular more with the commercialization of the Internet (email, intranets, extranets, web conferencing, data conferencing etc.). Although most CITs support limited functionality for collaboration, integrated e-collaboration tools are beginning to emerge to support a range of functionality required in collaborative efforts [Munkvold and Zigurs 2005].

In recent years, the increasing popularity of CITs has triggered a large number of research investigations and the trend continues to grow. Much of this research has focused on groups as the unit of analysis. There have been only a few large scale organizational level studies exploring CITs. Moreover, for the most part, these studies have investigated specific/individual CITs despite the notion that most collaborative efforts should typically be supported by multiple tools. Some studies exploring adoption of multiple CITs have been undertaken [see Bayo-Moriones and Lera-Lopez 2007; Bajwa et al. 2008]. However, to our knowledge there are no large scale organizational level empirical studies exploring CIT impacts. Here we describe our efforts to explore post adoption impacts of CITs at the organization level.
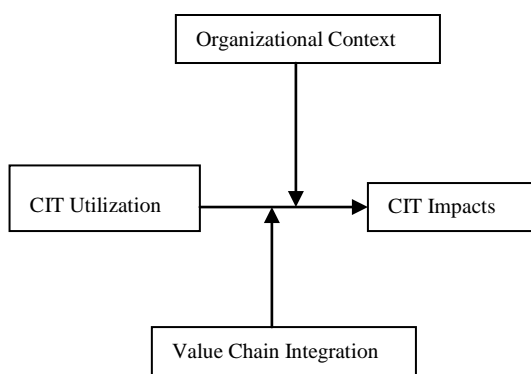
2. Research Model

The impact of IT on organizational performance has been widely researched [for a review see Dedrick et al. 2003]. While the results have been somewhat mixed, it has been proposed that extensive use of an IT can lead to greater net positive benefits [DeLone and McLean 2003] for the adopting individual, unit, or organization. Findings from an early study of CIT use (specifically use of Lotus Notes) tend to support the notion that there is a significant positive relationship between use and organization level impacts [Vandenbosch and Ginzberg 1996-1997]. However, after a review of 18 case studies of Lotus Notes, Karsten [1999] found that organizational level impacts are likely to be observed with extensive and engaged use of a CIT rather than when use is exploratory, conservative, or planned. These findings parallel the notion that use of an IT and the consequences it produces are context specific [Barley 1986; Orlikowski 1993; Robey and Sahay 1996].

Synthesizing the past research on the link between IT use and organization context, Pinsonneault and Rivard [1998] suggest that when an organization is undergoing radical change (i.e. reorientation context), IT is typically used to facilitate major strategy and structural changes. On the other hand, when an organization is undergoing incremental and evolutionary change (convergent context), IT is more likely to be used to "reinforce existing strategy and structure" (pp. 290). Thus in the context of intra-organization CIT use, organizational impacts are likely to be moderated by the firm's context in terms of its strategic orientation. For example, in a reorientation context, IT use is more likely to focus on "effectiveness" related impacts while in a convergent context, IT use may focus on "efficiency" related impacts. This notion

is also consistent with that of Freeman and Cameron (1993) who use the convergent and reorientation contexts to explain organization downsizing.

The growing body of literature in supply chain initiatives suggests that many organizations also engage in IT based inter-organization collaboration [for a review see Rai et al. 2006]. When CITs are used across supply chain entities for inter-organization collaboration, the relationships between their use and organizational impacts are likely to be moderated by the extent of integration of the value chain in which the focal firm participates/operates. Firms that have stronger relationships with their external entities (suppliers, business partners, customers etc.) operate in tightly coupled value chain activities and are likely to use CITs to greater extent and therefore realize more benefits than those where relationship ties are weak and value chains are loosely coupled. Figure 1 shows the proposed research model.

Figure 1: Research Model

3. Methodology

The research initiative to test the proposed model was undertaken in 2006. We first conducted two case studies in the US. The organizations varied significantly in size and scope of their geographical operations. Telephone interviews were conducted with five managers in the larger organization and one manager in the smaller organization. Each participant was sent a detailed document of our research objectives and sample semi-structured questions. Average time of each interview was about forty five minutes and all the interviews were recorded. This was followed by two case studies in Australia in 2007. A similar interview process was adopted except that the interviews were conducted face-to-face. Average time for each interview was about sixty minutes. We then followed this with two case studies in India. These studies followed a somewhat different approach. In the first case study, the primary researcher interacted with several executives over a period of about four months, observing their collaboration patterns. The second case study involved discussions about collaboration practices with the top executive of the organization. We found substantial support for our research model in all the cases.

We have now developed operational measures for our research model constructs by tapping upon the existing literature. The resulting survey instrument has also been pilot tested in three Australian organizations and the measures have been further refined. We are now in the process of collecting data in Australia. In our presentation, we will share the results of our case studies and preliminary analysis of data collected from Australian organizations.

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