

NPS-AM-06-058



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OF THE  
THIRD ANNUAL ACQUISITION  
RESEARCH SYMPOSIUM

**COLLABORATIVE IT TOOLS LEVERAGING COMPETENCE:  
ANTECEDENTS AND CONSEQUENCES**

**Published: 30 April 2006**

**by**

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**3<sup>rd</sup> Annual Acquisition Research Symposium  
of the Naval Postgraduate School:**

**Acquisition Research:  
Creating Synergy for Informed Change**

**May 17-18, 2006**

Approved for public release, distribution unlimited.

Prepared for: Naval Postgraduate School, Monterey, California 93943



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The research presented at the symposium was supported by the Acquisition Chair of the Graduate School of Business & Public Policy at the Naval Postgraduate School.

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# Collaborative IT Tools Leveraging Competence: Antecedents and Consequences

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## Abstract

A fundamental problem for IS academics and managers is how collaborative IT tools can be properly used to create business value. To shed light on this problem, this paper introduces the notion of “Collaborative IT Tools Leveraging Competence” as the ability of groups to effectively leverage the IT functionalities of collaborative IT tools to facilitate their group activities. Collaborative IT Tools Leveraging Competence is conceptualized as a formative second-order construct formed by the group’s effective use of the following six key IT functionalities: workspace sharing, conferencing, file sharing, scheduling, chat, and email. Collaborative IT Tools Leveraging Competence is hypothesized to facilitate group performance (process efficiency, project effectiveness, and situational awareness), particularly in intense work environments. To enhance a group’s ability to effectively leverage collaborative IT tools, the study proposes a set of enabling factors: customization of the collaborative IT tools, the group’s habit in using collaborative IT tools, the group’s perceived usefulness and ease of use of collaborative IT tools, the group member’s mutual trust, and the degree of environmental intensity.

Data from 365 group managers support the proposed structural model with the antecedents and consequences of Collaborative IT Tools Leveraging Competence at different levels of environmental intensity. The paper discusses the study’s contributions of better understanding the nature, antecedents, and consequences of Collaborative IT Tools Leveraging Competence. Implications for evaluating and enhancing the role of collaborative IT tools are discussed.

**Keywords:** Collaborative Tools, IT Leveraging Competence, Group Performance, Customization

## Introduction

Collaborative IT tools, such as Groove and Oracle Collaboration Suite are integrated sets of IT functionalities that enable communication and information sharing among inter-connected entities. By enabling collaboration in places where it was not feasible before and improving existing collaborative work among groups, collaborative IT tools have transformed the established nature of traditional collaborative group work, and they have thus sparked increased interest among academics and practitioners (e.g., Easley, Devaraj, & Crant, 2003). However, despite the widely publicized potential of collaborative IT tools to improve group work, we still know little whether, how, and why these IT tools can enhance group performance.



To shed light on this question, this study follows the proposed focus of Pavlou and El Sawy (2006) on the *leveraging* dimension of IT capability to introduce the notion of “Collaborative IT Tools Leveraging Competence,” which is defined as the ability of groups to effectively leverage the IT functionalities of collaborative IT tools to facilitate their group activities. Since collaborative IT tools can be viewed as generic information technologies whose IT functionalities cannot be differentiated across groups, the proposed focus brings forth the strategic potential of groups to differentiate from other groups on the basis of how well they leverage generic IT functionalities. Moreover, since collaborative IT tools are primarily used by groups to facilitate their group activities, the proposed construct is conceptualized at the process-level of analysis, following Ray, Muhanna, and Barney (2005) who argue that the process (not the firm) level of analysis is the most appropriate level for observing the business value of IT.

A review of numerous commercial software packages identified the core IT functionalities that are commonly found in collaborative IT tools: *workspace sharing*, *conferencing*, *file sharing*, *scheduling*, *chat*, and *email* functionality. Integrating these IT functionalities, Collaborative IT Tools Leveraging Competence is conceptualized as a formative second-order construct formed by the group’s effective use of these six key IT functionalities.

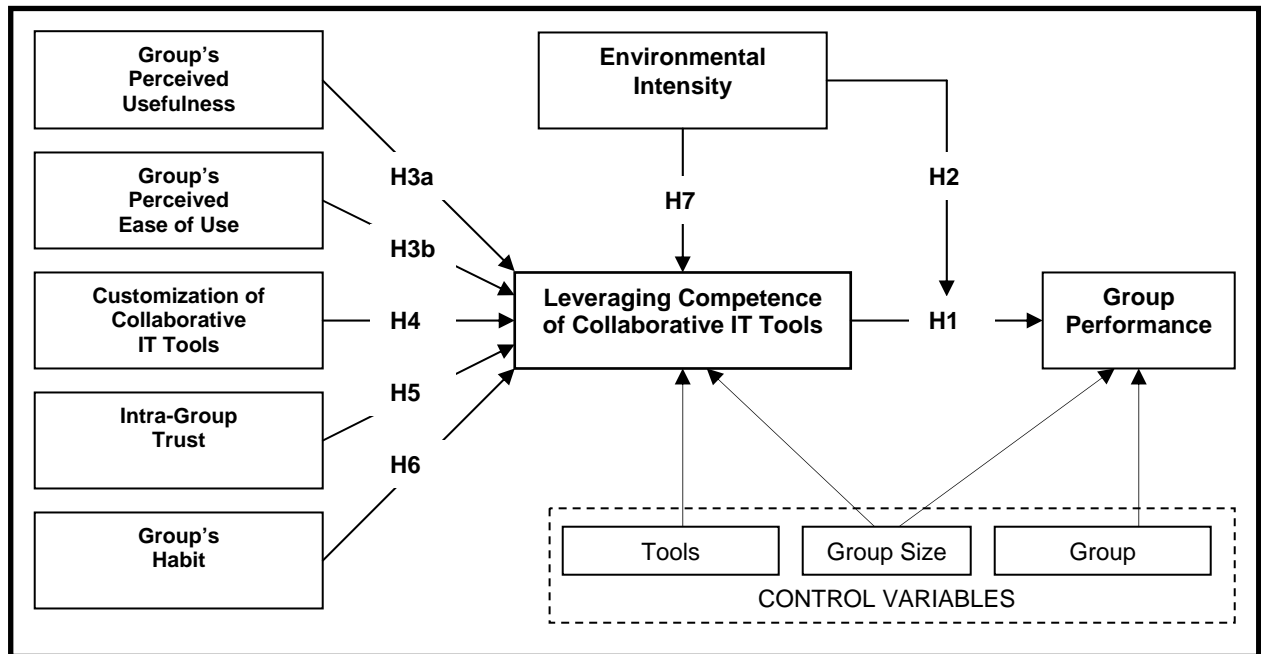
To show the business value of Collaborative IT Tools Leveraging Competence, we formally hypothesize its impact on group performance, and particularly on the group’s process efficiency, effectiveness, and situational awareness. The proposed impact of Collaborative IT Tools Leveraging Competence on group performance is hypothesized to be positively moderated by the degree of environmental intensity in which the group operates.

Finally, the study identifies the key factors that enhance a group’s Collaborative IT Tools Leveraging Competence. Extending the literature on the effective use of IT by groups, a set of antecedent variables is proposed, namely *technology acceptance* variables (the group’s perceived usefulness and ease of using collaborative IT tools), *technology* variables (customization of collaborative IT tools), *social* variables (the group member’s mutual trust), *post-adoption* variables (the group’s habit in using collaborative IT tools), and *environmental* variables (the degree of environmental intensity in which the group operates).

Figure 1 summarizes the antecedents and consequences of Collaborative IT Tools Leveraging Competence.



**Figure 1. PLS Results of Proposed Research Model**



This model offers a first cut at the key issues in ensuring that collaborative technology will provide benefits beyond the cost of the technology. The next steps in this research will be to estimate the actual return on investment of this technology within a test organization and to examine the potential real options (including risks and valuation of the options) this technology will provide to large organizations such as the Navy.

## References

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