

ADAPTING KNOWLEDGE AND METHODS FROM OTHER DISCIPLINES

Hierarchical Linear Modeling for multilevel analysis in IS

Applying new product development methods to software product development

Allocating customized bundles of multimedia content to users

CFP: wide audience system development

CFP: investments in global collaborative IS

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This issue opens with two special issue calls for papers. In the first, Tuunanen (2005) addresses wide audience information systems development. More and more IS development is intended for users who are located outside the boundaries of the firm, are widely distributed, and likely to be demographically diverse. Developing systems for such users is likely to be problematic and expensive because such systems target users who are not within easy reach of the development team and have little direct connection with the firm. Further such users may be widely dispersed, may have little motivation to contribute to system development, may have little familiarity with the products and technologies of the firm, and may cross cultural boundaries. This special issue will focus on and showcase IS research that addresses these problems and needs and opens up new avenues for further research in this emerging area.

In the second, Romano, Pick, and Roztocki (2005) plan a special issue to investigate issues related to collaboration across organizational and national boundaries and their effects on IS productivity and

success. Collaboration across national boundaries has become quite germane in the context of the burgeoning global economy as firms continue to expand globally for new markets, new global suppliers, and new production and operations facilities staffed with skilled and cheaper labor. However, many collaboration models in the literature are based solely on the cultural environment of North America or Western Europe. Many factors, such as different IS infrastructures, legal systems, national cultures, languages, and the conflicting goals of international collaborators, are expected to affect cross-national collaboration and its impact on IS productivity. This special issue will publish papers that focus on these problems and point to new avenues of research in this emerging area.

Authors in this issue's three papers adapt knowledge and techniques from other research disciplines and apply them innovatively in the IS field for use by IS researchers and practitioners. In the first research paper, Short, Piccoli, Powell, and Ives (2005) introduce the IS research community to hierarchical linear modeling (HLM) through

its application in global virtual teams. HLM is a quantitative analysis technique that has been used extensively in education, management, and the health sciences but less so in the IS field. Tuunanen (2005) borrows the new product development (NPD) framework from marketing and applies it in the context of developing mobile software products. Finally, in the third paper Parameswaran (2005) draws on economics and engineering to develop an allocation model for customized bundles of media content.

Short, Piccoli, Powell, and Ives (2005) introduce the IS research community to hierarchical linear modeling (HLM) in the issue's lead paper. This is an analytical method that may be a very good alternative to ordinary least squares (OLS), especially when the subject of the analysis involves multilevel analysis, i.e., analysis that assumes relationships among entities at different levels of abstraction, such as among individuals and teams or among firms and industries. For such analysis tasks OLS analysis may be inappropriate and its use may result in errors that can be avoided through the use of HLM, including assumption violations, increased chances for type I errors, or the inappropriate address of conceptual issues, the authors assert.

A number of IS research questions seem appropriate for multilevel analysis, including behavioral research that seeks to explain IT phenomena in organizations that involves individual behavior and reasoning, along with organizational culture or policy, and/or the industrial and market context in which all of this is occurring. Research on technology adoption or acceptance, on system development success, on the business impacts of IT investments, on training or education efficacy issues, or on computer interface design all involve factors and effects at two or more levels of abstraction.

Short, Piccoli, Powell, and Ives (2005) demonstrate the use of HLM in an empirical study of global virtual teams, about how task liking, team cohesion, and team work processes affect affective commitment to the team and satisfaction with the team. This is a multilevel analysis because the independent variables are at different levels. Task liking is

an individual variable, but the other two are team level variables. They analyze data collected in a virtual team experiment using both OLS and HLM, finding substantial differences in the results and seek to explain the differences that result from use of the two techniques. This very well-crafted paper can serve as a template for IS researchers who might want to try using this technique.

Tuunanen and Vainio (2005) adapt research from the marketing discipline, the NPD framework, for use in IS development, and test its use in a case study of two mobile software development firms. They first review IS development methods as well as NPD methods, and assess the suitability of NPD methods for IS development. They then use IS development and NPD methods as the interpretive lens through which to investigate participation in mobile software product development in two firms. The authors report findings in terms of communication flows during the various phases of software product development and the quality and nature of the information exchanged. They reach some preliminary conclusions about how to improve software development in terms of its responsiveness to market opportunities.

Parameswaran (2005) develops an economic and engineering model for the shared distribution of customized bundles of multimedia content over public networks. He develops a framework through which to understand how the network resources could be allocated to facilitate the distribution of such media, while being compatible with existing network protocols. The result is a two stage allocation model, the first part of which allocates content to internet service providers and the second part of which clusters users into homogeneous communities to receive content bundles. This paper provides a theoretical model that can be used by researchers to investigate behavior of shared distribution mechanisms for customized multimedia content in an information economy characterized by various technological constraints. Practitioners will also find this paper useful as the conceptual model developed in the paper can be used by them to implement specific business models for distribution of customized multimedia over public networks.

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