

HICSS-30

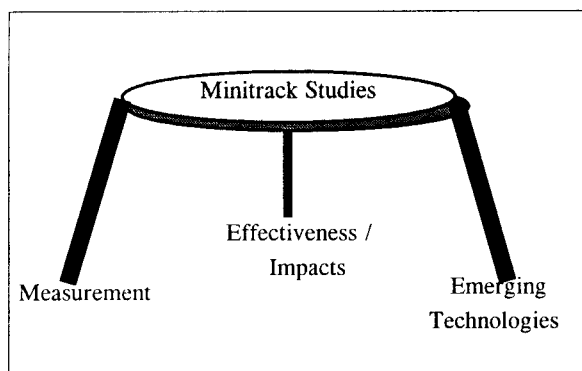
Measuring the Effectiveness of Emerging Technologies

Chair's Introduction to the Minitrack

Chair: Donald L. Amoroso
University of Colorado, Colorado Springs
College of Business; Campus Box 7150; Colorado Springs, Colorado, 80933-7150
(719) 593-3335; fax: (719) 593-3494; email: AMOROSO@UCCS.EDU

This minitrack is organized into four sessions. All of the sessions deal with the measurement of effectiveness of emerging technologies. In the six years of this minitrack, 165 papers have been submitted indicating a strong interest in research in advancing new measures. The purpose of this minitrack is to generate a stream of research oriented toward the study of measuring effectiveness and impacts of information technology in areas where theoretical models may need to be borrowed from referent disciplines, precise variable definitions may not exist, or where models and associated operationalizations have been proposed but not yet tested.

Papers that were accepted into the minitrack address all three issues of the effectiveness triad:



Each new emerging technology creates a unique measurement problem for researchers. A new set of constructs must be developed, validated, tested, and modified in order that the impact of each emerging technology can be measured and assessed. Only this rigor can lead to standardized instruments. But before this can happen, we need to build a strong theoretical base. Information systems research has

been criticized for its poor operationalization of the theoretical constructs and insufficient attention to measurement error. This, then is the purpose of this minitrack.

The remainder of this introduction consists of executive summaries of the articles which have been accepted and presented at the HICSS-30 conference.

Session 1: Organizational Impacts

1. "Does Feedback Improve the Accuracy of Judgemental Forecasts?" William Remus, University of Hawaii, Marcus O'Connor, University of New South Wales, Australia, and Kenneth Griggs, University of Hawaii, USA

This paper shows that feedback is a useful tool improving decision making and may also be a useful tool in improving the accuracy of judgemental forecasts. The results of this study found that cognitive information feedback and task information feedback gave significantly better forecasting performance than performance outcome feedback. This paper has been accepted in the journal of Organizational Behavior and Human Decision Processes since acceptance at HICSS-30 and therefore the abstract is shown in the proceedings.

2. "The Impact of Emerging Information Technologies on the Empowered Organization" Steve Smithson and Anna Psinos, London School of Economics, UK

This paper deals with the potential impact of emerging information technologies on empowerment.

The degree of support that IT plays in this area is the subject of this paper. Models depicting relationships between culture, people, structure, tasks and procedures and empowerment are discussed in this paper.

3. *"External Variables, Beliefs, Attitudes, and Information Technology Usage Behavior"* Geoffrey Hubona, Virginia Commonwealth University and Sarah Geitz, Purdue University, USA

This study examines usage by predicting user acceptance of end-user applications. The Technology Acceptance Model (TAM) is used to specify causal relationships among belief and attitudinal constructs that subsequently influence usage behavior. The results indicate that the impact of the external variables on usage behavior is not fully mediated by the belief constructs.

Session 2: Managing Object Oriented Technologies

4. *"Will a Dominant Standard for Object-Oriented System Development Emerge?"* Jos Van Hillegersberg and Kuldeep Kumar, Erasmus University, The Netherlands

The objective of this paper is to assess the benefits of a dominant OO standard and to investigate the strengths and weaknesses of the current approaches toward standardization. The authors present a meta-modeling approach with argumentation and ontology when necessary.

5. *"User Object Databases for SGML Document Management"* Michael Olson and Byung Lee, West Publishing Company and University of St. Thomas

The authors investigated the use of an object database as a platform for storing and retrieving SGML documents. Qualitative studies have shown that object databases are a good fit for supporting SGML documents. This paper describes how the benchmarking experiment was performed and lists the results in terms of a list of features for those interested in developing or using an ODBMS in support for SGML document management.

Session 3: Measuring and Model Building

6. *"Statistically Comparing User Satisfaction Instruments in Information Systems"* Jon Woodroof, Middle Tennessee State University, USA

This paper presents nonparametric techniques which do not require assumptions for testing. The specific application of one technique called bootstrapping is used where the distributions of the R-squared statistic from two user satisfaction instruments were simulated and then statistically compared.

7. *"Measurement and Operationalization of Outcome Measures at a National Accounting Firm: Integrating Survey, Interview, and Archival Data."* Ingrid Spletstoesser, Ingrid York University, Canada

The study in this paper looks at the measurement process to examine both the organizational effects and the effects upon the people using the technology in a large accounting firm. Difficulties encountered when combining multiple measures are discussed.

8. *"Delimiting the Dimensions: A Replication and Extension"* Jon Hartwick and Henri Barki, McGill University, Ecole des HEC, Montreal, Canada

The authors developed an instrument was developed to assess user participation, defined as the extent to which users or their representatives carry out assignments and perform various activities and behaviors during the system. This study was designed to replicate and extend this work.

Session 4: Understanding Constructs

9. *"Technology Flexibility: Conceptualization, Validation, and Measurement"* Kay Nelson and James Nelson, University of Kansas, and Mehdi Ghods, The Boeing Company, USA
Nominated for Best Paper

The research investigates technology flexibility, which is the technology characteristic that allows or enables adjustments and other changes to the business process. This paper asks the question, "what makes

technology flexible?" The question is addressed by developing and validating a measurement model of technology flexibility. Constructs and definitions of technology flexibility are developed by examining the concept of flexibility to build a measurement model showing the validity for the constructs.

10. "Client/Server Processing Architectures and Task Fit: A Service Organization Perspective"
Murugan Anandarajan, St. Joseph's University
and Bay Arinze, Drexel University, USA
Nominated for Best Paper

This study examines the information requirements of a service organization in terms of the customer contact dimension. These two environments differ in terms of task uncertainty. The results indicate that an appropriate fit between task uncertainty and client/server processing architectures is an important determinant of client/server effectiveness.