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Data Quality: A Critical Research Issue for the 1990s and Beyond

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PANEL 20

DATA QUALITY: A CRITICAL RESEARCH ISSUE FOR THE 1990s AND BEYOND

Panel Chair: Diane M. Strong, Boston University

Panelists: Stuart Madnick, Massachusetts Institute of Technology
Thomas C. Redman, Bell Labs
Arie Segev, University of California, Berkeley
Richard Y. Wang, Massachusetts Institute of Technology

Data quality has been an active area of information systems research, particularly in the 1990s. For example, the Workshop on Information Technologies and Systems (WITS) has had data quality panel and paper sessions each year since 1991. Improving the quality of organizational data requires interdisciplinary research from both the managerial and technical researchers. The purpose of this panel, therefore, is to assess the state-of-the-art of research on data quality and to discuss emerging research issues.

Database technology makes it possible to store large amounts of data and EDI makes it possible to transmit poor quality data to many places. Organizations now depend on the data in their computer systems for daily operational decisions as well as for longer term planning and capacity decisions. Unfortunately, the quality of data stored in organizational databases is often unacceptably poor, which has resulted in some serious social and economic consequences. The *Wall Street Journal*, for example, reported that many commercial databases "are plagued by a reign of error."

While both researchers and practitioners are making some progress in studying and improving data quality, three basic issues need to be resolved before significant progress can be made: 1) *defining and measuring* data quality; 2) *analyzing* the business impact of data quality, and 3) *improving* data quality. The panel will discuss these issues from both practical and research viewpoints. Through this discussion, with audience participation, we expect to provide some direction for future data quality research and practice that will lead to improved quality of organizational data.

The panel comprises the following presentations.

Introduction and Data Quality Research at Boston University. Diane Strong will provide an overview of the data quality area, including the key aspects of data quality research and some of the active researchers in this area. She will then present the current research at Boston University on data quality improvement projects in organizations.

Total Data Quality Management Research at MIT. Rich Wang will discuss research issues related to the development of models, tools and methods that can be used to measure, analyze and improve data quality in the context of the Total Data Quality Management (TDQM) research program at MIT and then present problem areas and promising solutions from the ongoing TDQM research.

Data Management Technologies at Berkeley. Arie Segev will discuss the impact of data management technologies on data quality. The initial research agenda at the Center for Information Technology and Management (CITM) at Berkeley is connectivity and the management of technology-driven changes with a focus on strategic data management issues related to quality, accessibility, security, enterprise and inter-enterprise integration in a global environment.

Data Quality Practice at AT&T. Tom Redman will discuss the practices at AT&T for tracking and improving data quality, including techniques for managing the processes that produce data. He will then discuss areas in which researchers can provide the most benefit to those in organizations attempting to improve the quality of their data.