# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsors</td>
<td>iii</td>
</tr>
<tr>
<td>Program Chair's Statement</td>
<td>xiii</td>
</tr>
<tr>
<td>Program Executive Committee</td>
<td>xix</td>
</tr>
<tr>
<td>Program Committee</td>
<td>xix</td>
</tr>
<tr>
<td>Reviewers</td>
<td>xx</td>
</tr>
<tr>
<td>Welcome from the Conference Chair</td>
<td>xxvii</td>
</tr>
<tr>
<td>ICIS'99 Conference Committee</td>
<td>xxix</td>
</tr>
<tr>
<td>Ernst &amp; Young Foundation/ICIS Doctoral Consortium</td>
<td>xxxi</td>
</tr>
<tr>
<td>Doctoral Consortium Students</td>
<td>xxxii</td>
</tr>
<tr>
<td>Doctoral Dissertation Paper Award</td>
<td>xxxiii</td>
</tr>
</tbody>
</table>

# COMPLETED RESEARCH PAPERS

**Support Concept-based Multimedia Information Retrieval: A Knowledge Management Approach**  
Bin Zhu, Marshall Ramsey, Hsinchun Chen, Rosie V. Hauck, Tobun D. Ng, University of Arizona; and Bruce Schatz, University of Illinois  
1

**Coplink: A Case of Intelligent Analysis and Knowledge Management**  
Roslin V. Hauk and Hsinchun Chen, University of Arizona  
15

Wm. David Salisbury and Matthew J. Stollak, Mississippi State University  
29

**Is the East Really Different from the West: A Cross-cultural Study on Information Technology and Decision Making**  
James T. C. Teng, University of South Carolina; Kenneth J. Calhoun, Slippery Rock University; Myun Joong Cheon, University of Ulsan; Scott Raeburn, Napier University; and Willy Wong, Singapore Polytechnic  
40

**A Qualitative Model for Barriers to Software Reuse Adoption**  
Karma Sherif, Temple University, and Ajay Vinze, Arizona State University  
47

**Identifying Software Components from Process Requirements Using Domain Model and Object Libraries**  
Vijayan Sugumaran and Mohan Tanniru, Oakland University; and Veda C. Storey, Georgia State University  
65
# Table of Contents

- **Analysis of an Intermediary’s Strategies in Electronic Markets for Decision Technologies**  
  Hemant K. Bhargava, Viyanand Choudhary, Ramayya Krishnan, and Kang Bae Lee,  
  Carnegie Mellon University ................................................. 82

- **One-to-one Marketing on the Internet**  
  Rajiv Dewan, Bing Jing, and Abraham Seidmann, University of Rochester ................................................. 93

- **Practical and Value Compatibility: Their Roles in the Adoption, Diffusion, and Success of Telecommuting**  
  Susan J. Harrington, Georgia College and State University, and Cynthia P. Ruppel,  
  University of Toledo .......................................................... 103

- **Social Influence and Individual IT Use: Unraveling the Pathways of Appropriation Moves**  
  Jon (Sean) Jasperson, University of Oklahoma; V. Sambamurthy, University of Maryland; and  
  Robert W. Zmud, University of Oklahoma .................................. 113

- **Software Pricing and Copyright Enforcement: Private Profit vis-a-vis Social Welfare**  
  Yehning Chen, National Taiwan University, and I. P. L. Png, Republic of Singapore ........................................ 119

- **Factors Motivating Software Piracy: A Longitudinal Study**  
  Moez Limayem, Université Laval and City University of Hong Kong; Mohamed Khalifa,  
  City University of Hong Kong; and Wynne W. Chin, University of Houston ................................................. 124

- **Can Online Auctions Beat Online Catalogs?**  
  Yaniv Vakrat and Abraham Seidmann, University of Rochester .......................................................... 132

- **Evolution of Internet Infrastructure in the Twenty-first Century: The Role of Private Interconnection Agreements**  
  Rajiv Dewan, Marshall Friemer, and Pavan Gundepudi, University of Rochester ........................................ 144

- **An Empirical Study of Non-binary Genetic Algorithm-based Neural Approaches for Classification**  
  Parag C. Pendharkar, Penn State University at Harrisburg, and James A. Rodger, Indiana  
  University of Pennsylvania .................................................. 155

- **Visualizing Modeling Heuristics: An Exploratory Study**  
  Laurie B. Waisel, Carnegie Mellon University; William A. Wallace and Thomas R. Willemain,  
  Rensselaer Polytechnic Institute ............................................ 166

- **The Process Recombinator: A Tool for Generating New Business Process Ideas**  
  Abraham Bernstein, Mark Klein, and Thomas W. Malone, Massachusetts Institute of Technology ................................................. 178

- **The Dot Com Effect: The Impact of E-commerce Announcements on the Market Value of Firms**  
  Mani Subramani and Eric Walden, University of Minnesota .......................................................... 193

- **Building Trust in the Electronic Market Through an Economic Incentive Mechanism**  
  Sulin Ba, University of Southern California; Andrew B. Whinston and Hang Zhang, University  
  of Texas at Austin ............................................................... 208

- **Understanding Relationships with Attributes in Entity-Relationship Diagrams**  
  Andrew Burton-Jones, PriceWaterhouseCoopers, and Ron Weber, University of Queensland ................................................. 214

- **An Empirical Investigation of Entity-based and Object-oriented Data Modeling: A Development Life Cycle Approach**  
  Atish P. Sinha, University of Dayton, and Iris Vessey, Indiana University ................................................. 229
# Table of Contents

## Why are Some Representations (Sometimes) More Effective?
Jungpil Hahn, University of Minnesota, and Jinwoo Kim, Yonsei University ........................................ 245

## The Use of Object-oriented Models in Requirements Engineering: A Field Study
Linda Dawson and Paul Swatman, Deakin University .......................................................... 260

## Filtering Objectionable Internet Content
Varghese Jacob, University of Texas at Dallas; Ramayya Krishnan, Carnegie Mellon University; Young U. Ryu, R. Chandrasekaran, and Sungchul Hong, University of Texas at Dallas ........................................ 274

## Measuring Information Quality of Web Sites: Development of an Instrument
Pairin Katerattanakul and Keng Siau, University of Nebraska, Lincoln ........................................ 279

## Information Systems, Power, and Organizational Relations: A Case Study
Bill Doolin, University of Waikato .................................................. 286

## Organizational Transition to Enterprise Resource Planning Systems: Theoretical Choices for Process Research
Marie-Claude Boudreau and Daniel Robey, Georgia State University ........................................ 291

## From Static Supply Chains to Dynamic Supply Webs: Principles for Radical Redesign in the Age of Information
Kuldeep Kumar, Erasmus University, and Ellen Christiaanse, University of Amsterdam .................. 300

## Electronically-mediated Partnerships: The Use of CAD Technologies in Supplier Relations
M. Bensaou, INSEAD ................................................................. 307

## Vendor Screening in IT Contracting with a Pilot Project
Eli M. Snir and Lorin M. Hitt, University of Pennsylvania ...................................................... 324

## A Proposal for Valuing Information and Instrumental Goods
Marshall W. Van Alstyne, University of Michigan .......................................................... 328

## Interorganizational Systems and Trust in Strategic Alliances
Marios V. Karahannas and Matthew Jones, University of Cambridge ........................................ 346

## Linking IT Use to Benefits in Interorganizational Networks: The Mediating Role of Relationship-specific Intangible Investments
Mani R. Subramani, University of Minnesota .................................................. 358

## Shaping Information and Communication Technologies Infrastructures in the Newspaper Industry: Cases on the Role of IT Competencies
Thomas Butler and Ciaran Murphy, University College Cork ................................................ 364

## IT Capabilities: Theoretical Perspectives and Empirical Operationalization
Anandhi S. Bharadwaj, Emory University; V. Sambamurthy, University of Maryland; and Robert W. Zmud, University of Oklahoma .................................................. 378

## The Role of Media Use and Active Learning in Higher Education: The Development of an Instrument to Determine the Dimensions of Teaching
Mark A. Serva, University of Delaware, and Mark A. Fuller, Baylor University ............................... 386

## Probe: A Formal Specification-based Testing System
Ahmed Al-Amayreh, Salalah College of Education, and Abdullah Mohd Zin, National University of Malaysia .................................................. 400
## Table of Contents

**RESEARCH IN PROGRESS**

### Implementing Enterprise Resource Planning Systems: Implications for Management Accounting
Ariela Caglio, SDA Bocconi – Milan, and Michael Newman, Free University of Amsterdam ........................................... 405

### ERP Implementation Approaches: Toward a Contingency Framework
Carol Brown and Iris Vessey, Indiana University .................................................. 411

### Information Sharing and Regulation Effect in Experimental Insurance Markets
Taeha Kim, University of Arizona ................................................................. 417

### Retriever: An Agent for Intelligent Information Recovery
D. Fragoudis, University of Patras and ZEUS Consulting, and S. D. Likothanassis, University of Patras and Computer Technology Institute ............................................. 422

### Assessing Data Quality for Information Products
Amir Parsian, Sumit Sarkar and Varghese S. Jacob, University of Texas at Dallas ................................................................. 428

### Complexity in Embedded Intelligent Real Time Systems
Erman Coskun, Rensselaer Polytechnic Institute, and Martha Grabowski, Rensselaer Polytechnic Institute and LeMoyne College ............................................. 434

### Enterprise-level Project Management Capabilities: A Comparison of the Construction and IT Services Industries
Chris Sauer, Templeton College, Oxford University; Li Liu, The University of New South Wales; and Kim Johnston, The University of Western Sydney ................................................. 440

### Information Technology and Information Goods Producing Firms: Vertical and Horizontal Boundary Change
Virginia Franke Kleist, West Virginia University; Irene Hanson Frieze and William R. King, University of Pittsburgh ................................................................. 446

### An Empirical Analysis of Software Evolution Profiles and Outcomes
Evelyn Barry and Sandra Slaughter, Carnegie Mellon University; and Chris F. Kemerer, University of Pittsburgh ................................................................. 453

### Transference as a Means of Building Trust in World Wide Web Sites
Katherine J. Stewart, University of Texas at Austin .................................................. 459

### An Empirical Evidence of Winner’s Curse in Electronic Auctions
Kumar Mehta and Byungtae Lee, University of Illinois at Chicago ................................................................. 465

### The Role of Trust and Assurance Services in Electronic Channels: An Exploratory Study
Anna Nöteberg, Ellen Christiaanse, and Philip Wallage, University of Amsterdam ................................................................. 472

### Virtual Teams: An Exploratory Study of Key Challenges and Strategies
Guy Paré and Line Dubé, École des Hautes Études Commerciales de Montréal ................................................................. 479

### Understanding Colocation Requirements and Refining Expectations about Computer Network Use: A Field Study of Engineering Design Environments
Paul Hart, Florida Atlantic University and University of Melbourne ................................................................. 484

### A Cognitive Network Model of Creativity: A Renewed Focus on Brainstorming Methodology
Eric L. Santanen and Robert O. Briggs, University of Arizona; and Gert-Jan de Vreede, Delft University of Technology ................................................................. 489
# Table of Contents

## Designing Robust, Open Electronic Marketplaces of Contract Net Agents
Chrysanthos Dellarocas and Mark Klein, Massachusetts Institute of Technology 495

## A Cross-Cultural Investigation of the Use of Knowledge Management Systems
Youngjin Yoo and Michael J. Ginzberg, Case Western Reserve University; and Joong Ho Ahn, Seoul National University 501

## The Contents of Resource Decisions in the Diffusion of Internet Strategies in Less-developed Countries: Lessons from Bolsa de Valores de Guayaquil
Ramiro Montealegre, University of Colorado at Boulder 506

## Managing Vendor-Client Expectations in IT Outsourcing: A Psychological Contract Perspective
Christine Koh, Cheryl Tay, and Soon Ang, Nanyang Business School 512

## Client Satisfaction with Outsourced IT Services: A Transaction-Cost Approach
Amit Das, Christina Soh and Patrick Lee, Nanyang Technological University 518

## Evaluation of Intranet-based End-user Training
Radha K. Mahapatra, University of Texas at Arlington, and Vincent S. Lai, Chinese University of Hong Kong 524

## Applying the Hypercube Model of Electronic Commerce Strategies to the Case of MP3
Paul S. Wang and Chee-Leong Chong, National University of Singapore 528

## Exploratory Analysis and Evaluation of Commercial Web Information Systems
Arno Scharl, Vienna University of Economics, and Christian Bauer, Curtin University of Technology 534

## A Natural Language Interface for Information Retrieval from Forms on the World Wide Web
Frank Meng, University of California, Los Angeles 540

## An Empirical Investigation of Electronic Integration in a Supply Chain Relationship
Kyung Kyu Kim, Inha University and University of Cincinnati, and Narayan S. Umanath, University of Cincinnati 546

## Understanding Trustworthiness Beliefs in Electronic Brokerage Usage
Nirup M. Menon, Texas Tech University; Prabhudev Konana, University of Texas at Austin; Glenn J. Browne, Texas Tech University; and Sridhar Balasubramanian, University of Texas at Austin 552

## Factors Affecting the Extent of Electronic Cooperation between Firms: Economic and Sociological Perspectives
Jai-Yeol Son, Sridhar Narasimhan, and Frederick J. Riggins, Georgia Institute of Technology 556

## PANELS

### Panel 1
Aligning Knowledge Management Research and Practice
Chair: Michael H. Zack, Northeastern University
Panelists: Maryam Alavi, University of Maryland; Tom Davenport, Boston University and Andersen Consulting; David Smith, IBM Institute for Knowledge Management; Karen Ughetta, IBM Software Group 561
Table of Contents

Panel 2  Research Opportunities in Knowledge Networking  
Chair: Ramesh Sharda, Oklahoma State University  
Panelists: H. C. Chen, University of Arizona  
          John King, University of California, Irvine  
          Rob Kling, Indiana University  

Panel 3  A Research Agenda for Virtual Work: Are We Asking the Right Questions?  
Chair: Robert E. Kraut, Carnegie Mellon University  
Panelists: France Belanger, Virginia Polytechnic Institute and State University  
          Dianne H. Jordan, Booz-Allen & Hamilton  
          Larry Shumpert, BellSouth  
          Mary Beth Watson-Manheim, University of Illinois at Chicago  

Panel 4  Visions of the IT Enterprise in the 21st Century: Managerial Issues and Research Opportunities  
Chair: V. Sambamurthy, University of Maryland  
Panelists: Robert W. Zmud, University of Oklahoma  
          Gerry Jacobs, Helix Group  
          John Cross, AppNet  
          Edward Levine, State of Florida  

Panel 5  Getting Grant$  
Chair: Cynthia M. Beath, University of Texas at Austin  
Panelists: Ritu Agarwal, University of Maryland, College Park  
          Suzi Iacono, National Science Foundation  
          Ann Majchrzak, University of Southern California  
          Charles Reiger, IBM Global Services  
          Madeline Weiss, Consultant  

Panel 6  Making Information Systems Research More Relevant: Academic and Industry Perspectives  
Chair: Kalle Lyytinen, University of Jyväskylä  
Panelists: Varun Grover, University of South Carolina  
          Jane Linder, Andersen Consulting  
          Haim Mendelson, Stanford University  
          James Senn, Georgia State University  
          John Sviokla, Diamond Technology Partners  

Panel 7  Community Informatics: International Experiences and Case Studies  
Chair: Michael Gurstein, Technical University of British Columbia  
Panelists: Peter Day, University of Brighton  
          Gert-Jan de Vreede, Delft University of Technology  
          Michael Miller, BlazeNet  
          Celia T. Romm, University of Central Queensland  
          Vanessa Whitehead, AT&T Labs  

Panel 8  IS Action Research: Can We Serve Two Masters?  
Chair: Ned Kock, Temple University  
Panelists: David Avison, University of Southampton  
          Richard Baskerville, Georgia State University  
          Michael Myers, University of Auckland  
          Trevor Wood-Harper, University of Salford
Panel 9  The Efficacy of Information Systems Journals  
Chair: Raymond Papp, Central Connecticut State University  
Panelists: Izak Benbasat, University of British Columbia  
Bob Galliers, University of Warwick  
Hans Oppelland, Erasmus University Rotterdam  
Joseph Williams, Sun Microsystems  

TEACHING CASES

International Multifoods  
Robert M. Price and Gerardine DeSanctis, Duke University  

OFFICETECH®: A New Paradigm in Office Services?  
Susan J. Winter, University of North Carolina at Charlotte, and  
T. Grandon Gill, Florida Atlantic University  

First Virtual Holdings Incorporated  
Sid L. Huff, Victoria University, and Michael Wade, University of Western Ontario  

Implementing SAP R/3 at the University of Nebraska  
Tim Sieber, Keng Siau, Fiona Nah, and Michelle Sieber, University of Nebraska–Lincoln  

SAP Implementation at Metalica: An Organizational Drama  
Michel Avital and Betty Vandenbosch, Case Western Reserve University  

Laurier Enterprise System Upgrade  
Ron Craig, Wilfrid Laurier University  

Bethesda Healthcare Systems: Physician Information System  
Susan L. Carter and T. Grandon Gill, Florida Atlantic University  

Index of Contributors  

Call for Papers—ICIS 2000  