About the Contributors

**Steve Clarke** received a BSc in Economics from The University of Kingston Upon Hull, an MBA from the Putteridge Bury Management Centre, The University of Luton, and a PhD in human centred approaches to information systems development from Brunel University – all in the United Kingdom. He is Professor of Information Systems in the University of Hull Business School. Steve has extensive experience in management systems and information systems consultancy and research, focusing primarily on the identification and satisfaction of user needs and issues connected with knowledge management. His research interests include: social theory and information systems practice; strategic planning; and the impact of user involvement in the development of management systems. Major current research is focused on approaches informed by critical social theory.

**Ashish Dwivedi** commenced his career in the financial services industry and then moved to academia where he is currently a Lecturer at the Hull University Business School. Ashish is also associated with the management of the high-tech Management Learning Laboratory (MLL) and is the programme leader for a newly-created Masters in Knowledge Management. Ashish has previously taught and researched at Coventry University and the University of Northampton.

***

**Manju Ahuja** is Professor of CIS at the University of Louisville. She has previously held faculty positions at the Kelley School of Business, Indiana University, Florida State University, and Pennsylvania State University. She is currently an Associate Editor at MIS Quarterly, and has recently served in this role at Information Systems Research. Her publications have appeared in journals such as MIS Quarterly, Management Science, Information Systems Research, Organization Science, Communications of the ACM, Journal of Management, European Journal of Information Systems, Journal of MIS, Journal of AIS, Small Group Research, and other outlets. She has been consistently ranked among top 100 IS researcher worldwide by a variety of sources (e.g., Gallivan and Benbunan-Fich, 2006; http://www.vvenkatesh.com/ISranking).

**Riza Ergun Arsal** is a PhD candidate in the Department of Management at Clemson University. His research interests include individual adoption and use of Information technologies, and behavioral issues in online settings. His work has been accepted into journals such as Information & Management, Decision Support Systems, IEEE Transactions on Engineering Management and Journal of Organizational and End User Computing.
About the Contributors

Ken Baker is a faculty member at Dartmouth College. He is currently Nathaniel Leverone Professor of Management at the Tuck School of Business and also adjunct professor at the Thayer School of Engineering. At Dartmouth, he has taught courses relating to decision science, manufacturing management, and environmental management. Over the years, much of his teaching and research has dealt with production planning and control, and he is widely known for his textbook Elements of Sequencing and Scheduling, in addition to a variety of technical articles. He has served as the Tuck School’s associate dean and directed the Tuck School’s management development programs in the manufacturing area. In 2001 he was named a Fellow of INFORMS’s Manufacturing and Service Operations Management (MSOM) Society, and in 2004 a Fellow of INFORMS. He is the co-author with Stephen Powell of The Art of Modeling with Spreadsheets (Wiley, 2004).

Linda Brennan is a professor of management at Mercer University in Macon. Her teaching portfolio includes graduate and undergraduate courses in operations management, leadership, international business and strategy. She conducts research and consults in the areas of technology impact assessment, process and project management, and instructional effectiveness. Brennan has been published in scholarly and practitioner-oriented journals such as International Journal of Quality and Reliability Management, Engineering Management Journal, The Journal of Management in Engineering, IEEE Technology and Society, and Corporate Governance. Two of her books, Computer-Mediated Relationships and Trust: Organizational and Managerial Implications and The Social, Ethical, and Policy Implications of Information Systems, were co-edited with Dr. Victoria Johnson and published by IGI Global. Her most recent book, Operations Management, was published by McGraw-Hill in 2010. Dr. Brennan’s prior work experience includes management positions at The Quaker Oats Company and marketing and systems engineering experience with the IBM Corporation. A licensed professional engineer, she received her Ph.D. in industrial engineering from Northwestern University, her MBA in policy studies from the University of Chicago, and her B.I.E. in industrial engineering from the Georgia Institute of Technology.

James R. Burns is a Professor of Information Technology and Operations Management in the Rawls College of Business Administration at Texas Tech University. He received a BS from the University of Colorado and an MS and a PhD from Purdue University, respectively. He teaches courses in project management, operations management, information technology and management science. His research is currently focused on new developments in project/process management, the use of system dynamics to redesign supply chains and energy/economic modeling based on system dynamics. He is the author/co-author of 100 journal papers and publications on subjects as diverse as knowledge management to design of decision support systems. He is also the author/coauthor of several textbooks on subjects ranging from information technology to management science.

Michelle Carter is a PhD candidate in the Department of Management at Clemson University, majoring in Information Systems. Her research focuses on how adoption and diffusion of information technologies changes organizational practices, as well as individuals’ social and work lives. Her research has appeared in the proceedings of the AMCIS, SAIS, DIGIT, SIGHCI and IFIP WG.8.2.

James P. Downey is an associate professor in the MIS Department in the College of Business at the University of Central Arkansas. He received his Ph.D. in Management Information Systems at Auburn
University. He spent 25 years as an active duty US Naval officer, including a tour in the Computer Science Department at the U.S. Naval Academy, before leaving the Navy in November 2004. His current research interests include project management, database management, individual differences in behavior in human-computer interactions, the elderly and IT, and IT curriculum issues. He has been published in several journals, including Journal or Organizational and End User Computing, Interacting with Computers, Journal of Information Technology Education, Journal of Quantitative Analysis in Sports, Journal of Information Systems Education, and International Journal of Training and Development.

**Bruce D. Green** is the COO and Director of Technology Programs for The GBS Group a business and technical services consultancy headquartered in Virginia Beach, VA. Mr. Green provides technology consulting to corporations in defense and transportation sectors as well as to the U.S. Navy. Prior to co-founding The GBS Group, he spent 18 years with the Naval Surface Warfare Center in various engineering and management positions that directly affected the design, development, installation, and maintenance of shipboard technologies. His responsibilities included acting as Principal Software Support Agent for major shore-side and shipboard systems and guiding a major software program to achieve Capability Maturity Model (CMM) Level 3 assessment. He received his Bachelor of Science in Mechanical Engineering and his Master of Science in Information Systems from Drexel University in Philadelphia. He has been published in proceeding for Information Resources Management Association (IRMA) International, American Society of Naval Engineers (ASNE), and Joint Technical Rail conferences. He is currently a doctoral student in Information Systems at Nova Southeastern University with research interests in technical project management and user acceptance of technology.

**Anil Gurung** is an Assistant Professor of Management Information Systems in Lewis College of Business at Marshall University. He received his Ph.D. from the University of Texas at Arlington. Current research interests are in the areas of IT adoption, information security and privacy, e-commerce, and cultural and social aspects of business computing. He has published in various journals and conference proceedings.

**Ranida B. Harris** is an Associate Professor of Management Information Systems at Indiana University Southeast. She received her Ph.D. in Management Information Systems from Florida State University. Her research interests include the effects of computer technologies on communication, performance, and decision making. Her publications appear in Journal of Applied Social Psychology, Journal of Social Psychology, Journal of Managerial Issues, Journal of Behavioral and Applied Management, Information Systems Education Journal, and other journals. Dr. Harris’s teaching interests include business computer applications, systems analysis and design, and database management systems.

**Charles M. “Chuck” Hermans** is an Associate Professor in Marketing at Missouri State University. His research interests include, Cross-cultural comparisons in consumer behavior, international diffusion models and segmentation, Internet marketing, and international e-commerce. Dr. Hermans teaches International Marketing, International Logistics, and Marketing Research at MSU. He has been published in Journal of Current Issues and Research in Advertising, International Journal of Bank Marketing, Journal of Fashion Marketing and Management, International Journal of Consumer Studies, Marketing
About the Contributors


James J. Hoffman is a full professor and a member of the area of Information Systems and Quantitative Sciences in the College of Business at Texas Tech University. Dr. Hoffman is Associate Dean for MBA Programs and Executive Education at the Rawls College of Business. Dr. Hoffman is also one of the founding co-editors of the Journal of Business Valuation and Economic Loss Analysis. He holds a Ph.D. from the College of Business Administration at the University of Nebraska-Lincoln. Dr. Hoffman’s research interests are in the areas of business valuation, operations management, business strategy, and the management of health care organizations. He has published in top academic journals such as the European Journal of Operational Research, International Journal of Operations and Production Management, Journal of Engineering and Technology Management, Journal of High Technology Management Research, Academy of Management Journal, Strategic Management Journal, Journal of Management, and Organization Studies. Dr. Hoffman has also won numerous teaching awards.

Robert Hooker, Ph.D. is a graduate of the College of Business at Florida State University. Rob’s research focuses on the convergence of MIS, marketing, and supply chain management. His work has been published or accepted for publication in various journals, books, and academic conferences including the Journal of Supply Chain Management, MIS Quarterly Executive, DSI, and the International Conference on Information Systems. Rob’s research has been highlighted by various media outlets around the world, and he has also spoken at executive forums. Prior to academia, Rob worked in corporate marketing, finance, and consulting.

Don G. Jung is a full professor in the Department of Information and Knowledge Management at MyongJi University in Seoul, Korea. He received his PhD in information systems from Texas Tech University. He teaches courses in information systems and knowledge management. He has had a continuing research interest in enterprise resource planning systems, business process redesign, and connectionist modeling. His dissertation focused on the use of dynamic connectionist models to understand economic systems. He has published many journal articles in both Korean and American journals. His dissertation was published in Decision Support Systems.

Young Hoon Kim is a doctoral student in the School of Communication and Information at Rutgers University. He earned his M.A. from the department of Telecommunication, Information, & Media Studies at Michigan State University. His research interests center on the relationship between people’s communicative behaviors and their use of information and communication technologies. Currently, his research interests focus on the interaction taking place among computer-mediated group participants in organizational settings. In addition, he is also interested in exploring the impact of anonymity/deindividuation on an individual’s communicative behaviors in computer-mediated communication. His work has been published in Journal of Organizational and End User Computing.

Dan J. Kim is an Associate Professor of Computer Information Systems at University of Houston-Clear Lake (UHCL). Before joining the UHCL, he was an Assistant Professor at Michigan State University. He earned his Ph.D. in MIS from SUNY at Buffalo. He also holds a MBA degree with management sci-
ence concentration and MS degree in computer science. His research interests are in multidisciplinary areas such as electronic commerce, mobile commerce, information security and assurance. Recently he has focused on trust in electronic commerce, wireless and mobile commerce, and information security and assurance. His research work has been published or in forthcoming more than 85 papers in refereed journals and conference proceedings including ISR, JMIS, CACM, CAIS, DSS, IJHCI, JOEUC, IEEE-TPC, Electronic Market, IEEE IT Professional, JGIM, IJMC, ICIS, HICSS, AMcis, INFORMS, ICEC, ICA, and so on. He received an Emerald Literati Network 2009 - Outstanding Paper Award, the best-paper runner-up award at the International Conference on Information Systems (ICIS) 2003 and the best research paper award at Americas Conference on Information Systems (AMCIS) 2005. He was ranked at top 22 worldwide in terms of research productivity in the area of information systems from year 2007 to 2009 based on top three leading IS journals: ISR, MISQ and JMIS.

Barry Lawson is a research associate at the Tuck School of Business at Dartmouth and is also a visiting scholar in the geography department of the college. He founded and has served as president of Barry Lawson Associates, a consulting firm, since 1978. As visiting scholar, he coordinates the development of an atlas of the upper Connecticut River Watershed in New Hampshire and Vermont. As research associate at Tuck he serves as the program manager for the Tuck Spreadsheet Engineering Research Project. Lawson has taught in graduate programs at Boston University and Wayne State University as well as in short courses at Bentley College. He has moderated a host of public hearings for local, state and federal governments on controversial environmental and energy- and waste-related projects, and has considerable experience in group facilitation, conflict resolution and simulation design.

Yair Levy is an associate professor of Information Systems (IS) at the Graduate School of Computer and Information Sciences at Nova Southeastern University. During the mid to late 1990s, Dr. Levy helped NASA develop e-learning platforms as well as managing Internet and Web infrastructures. He earned his Bachelor’s degree in Aerospace Engineering from the Technion, Israel Institute of Technology. He received his MBA with MIS concentration and Ph.D. in Management Information Systems from Florida International University. His current research interests include cognitive value of information systems, cognitive value of online learning systems, effectiveness of IS and online learning, as well as IS education. Dr. Levy is the author of the book titled Assessing the Value of e-Learning Systems. His research publications appear in the IS journals, conference proceedings, invited book chapters, and encyclopedias. Dr. Levy’s research publications have been acknowledged internationally for outstanding quality, with recognitions such as Editor’s Award of Excellence and Best Paper Awards. Additionally, he has chaired and co-chaired multiple sessions/tracks of his research area in recognized scientific conferences. Dr. Levy is the editor-in-chief for the journal of doctoral studies (IJDS). He is also serving as an associate editor for the International Journal of Web-based Learning and Teaching Technologies. He also serves as a member of the academic review board and a referee research reviewer for numerous national and international scientific journals, conference proceedings, and MIS and Information Security textbooks. In addition, he is a frequent speaker at national and international meetings on MIS and online learning topics. To find out more about Dr. Levy, please visit his site: http://scis.nova.edu/~levyy/.

Qinyu Liao is an Assistant Professor of Management Information Systems at the University of Texas at Brownsville. She holds a Ph.D. in Management Information Systems from Mississippi State University.
About the Contributors


Xin (Lucie) Li is an associate professor of Information Technology Management in the School of Business at the University of North Carolina at Pembroke. She received a PhD in Management Information Systems (MIS) and MBA concentrating in MIS from Washington State University. Her research interests include trust in Information Systems (IS), e-Commerce, IS in organization, IS security and privacy, IS personnel, E-learning and Collaborative IS, and cultural issues in IS. She has published her research in such outlets as the Data Base for Advances in Information Systems, Journal of Strategic Information Systems, and Journal of Organizational and End User Computing.

Xin Luo is an Assistant Professor of Management Information Systems in Anderson School of Management at The University of New Mexico. He received his Ph.D. in Information Systems from Mississippi State University. His research interests center around information security, E-commerce/M-commerce, and global IT adoption and management. His research articles have appeared in Journal of Association for Information Systems, European Journal of Information Systems, Decision Support Systems, Communications of the ACM, Communications of Association for Information Systems, Cross Cultural Management, Information Systems Security, Journal of Information Security and Privacy, International Journal of Information Security and Privacy, and Journal of Internet Banking and Commerce, etc.

Amit Malik is a doctoral candidate in Information Management at the Management Development Institute, India. He has done bachelors in Computer Engineering from National Institute of Technology, India. He has over 3 years of professional experience in software design and development, process designing and implementation. His research interests include virtual teams, software development off-shoring, and knowledge management.

Kent Marett is an Assistant Professor of Business Information Systems at Mississippi State University. He received his Ph.D. in Management Information Systems from Florida State University. His research is primarily focused on online deceptive communication, information security, the use of technology by work groups, and human-computer interaction. His research has been published in several leading journals, including Journal of Management Information Systems, Journal of the AIS, and Journal of Organizational and End User Computing.

D. Harrison McKnight is an Associate Professor in the Accounting and Information Systems department of The Eli Broad College of Business at Michigan State University. He received a Ph.D. in Management Information Systems from the University of Minnesota. Before obtaining a Ph.D., he pursued an 11-year corporate career, including ten years at American Airlines’ SABRE Computer Services division. His research interests include trust building within e-commerce and information systems settings and the retention and motivation of information systems professionals. His work has been published at such
journals as Information Systems Research, MIS Quarterly, IEEE-Transactions on Engineering Manage-
ment, and the Academy of Management Review.

Dhruv Nath is Professor and Chairman of the Doctoral Program at the Management Development Institute (MDI), Gurgaon, India. Earlier, he was Senior Vice President at NIIT Ltd, a leading software and education company. Prof. Nath holds a B Tech in Electrical Engineering and a PhD in the area of Computer Science, both from IIT Delhi. He has conducted Top Management Workshops in IT and has been a consultant in the area to several organizations such as Glaxo, Unilever, Gillette, Nestle, etc. He has published research papers in International Journals such as the IEEE transactions on Computers, and has written two books on Managing IT Technologies.

Darren B. Nicholson is an Associate Professor in MIS at Rowan University. He received his Ph.D. in Business Administration, with a specialization in Information Systems from Washington State University. His research interests include virtual teams, human-computer interaction, e-business, and distance education. His research has been published in outlets such as IEEE Transactions on Professional Communication (IEEE), Journal of Information Technology Theory and Application (JITTA), Journal of Information Technology Education (JITE), Journal of Organizational and End User Computing (JOEUC), and the proceedings of many national and international conferences.

Jennifer A. Nicholson is an Associate Professor in MIS at Rowan University. She received her Ph.D. in Business Administration, with a specialization in Information Systems from Washington State University. Her research interests include computer-mediated learning, human-computer interaction, and mobile technologies. She has published articles in Informing Science Journal (ISJ), Journal of Information Technology Education (JITE), Journal of Organizational and End User Computing (JOEUC), and the proceedings of many national and international conferences.

David Paradice is the Sprint Professor of MIS and Associate Dean for Undergraduate Programs in the College of Business at Florida State University. He has worked as a programmer analyst and consultant. Dr. Paradice has published numerous articles focusing on the use of information systems in business contexts. His publications appear in Journal of MIS, IEEE Transactions on Systems, Man & Cybernetics, Decision Sciences, Communications of the ACM, Decision Support Systems, Annals of Operations Research, Journal of Business Ethics, and other journals. His research also appears as chapters in several books.

D. Veena Parboteeah is an Assistant Professor of Information Systems at Eastern New Mexico University. She received her Ph.D. from Washington State University in 2005. Her research focuses on the design of human-computer interface and the effect of culture on IT adoption. Her research has appeared in journals, such as the Communications of the ACM, the Journal of Global Information Technology Management, Information Systems Research, and Journal of Organizational and End User Computing, as well as conferences, such as the Decision Sciences Institute Annual Meeting, the European Conference on Information Systems, the Global Information Technology Management World Conference, and the Hawaii International Conference on System Sciences.
Robert Pavur is a Professor of Information Technology and Decision Sciences at the University of North Texas. He received his PhD in Statistics from Texas Tech University. He has held several officer positions within the Decision Sciences Institute including the position of President of Southwest Region of Decision Sciences. He has published in such journals as the Annals of Operations Research, IEEE Transactions on Reliability, European Journal of Operational Research, Journal of the Operational Research Society, and International Journal of Operations and Quantitative Management. He is a co-author of the textbook Introduction to Business Statistics: A Computer Integrated, Data Analysis Approach published by Thomson Learning Company.

Steve Powell is a Professor at the Tuck School of Business at Dartmouth. His primary research interest lies in modeling production and services processes, but he has also been active in research in energy economics, marketing, and operations. At Tuck, he has developed a variety of courses in management science, including the core Decision Science course and electives in the Art of Modeling, Business Process Redesign, and Applications of Simulation. He originated the Teacher’s Forum column in Interfaces, and has written a number of articles on teaching modeling to practitioners. He is the academic director of the INFORMS Annual Teaching of Management Science Workshop. In 2001 he was awarded the INFORMS Prize for the Teaching of Operations Research/Management Science Practice. He is the co-author with Kenneth Baker of The Art of Modeling with Spreadsheets (Wiley, 2004).

Victor R. Prybutok is a Regents Professor of Decision Sciences in the Information Technology and Decision Sciences Department and Director of the Center for Quality and Productivity in the College of Business Administration at the University of North Texas. He received, from Drexel University, his B.S. with High Honors in 1974, a M.S. in Bio-Mathematics in 1976, a M.S. in Environmental Health in 1980, and a Ph.D. in Environmental Analysis and Applied Statistics in 1984. He is a senior member of the American Society for Quality (ASQ) and active in the American Statistical Association, Decision Sciences Institute, Institute of Electrical and Electronic Engineers, and Operations Research Society of America. Dr. Prybutok is an ASQ certified quality engineer, certified quality auditor, certified quality manager, and served as a Texas Quality Award Examiner in 1993. Journals where his published articles have appeared include The American Statistician, Communications of the ACM, Communications in Statistics, Data Base, Decision Sciences, European Journal of Operational Research, IEEE Transactions on Engineering Management, MIS Quarterly, OMEGA: The International Journal of Management Science, and Operations Research. In addition, he is in Who’s Who in American Education and Who’s Who in America, and Who’s Who in the South and Southwest.

R. Kelly Rainer, Jr. is the George Phillips Privett Professor in the Department of Management in the College of Business at Auburn University. He received his Ph.D. in MIS from the University of Georgia. Prior to his studies in MIS, he was a dentist in the US Army. He is the author of numerous articles and books, his current research interests are information security, psychometrics, and end user computing.

Guang Rong is a PhD candidate in the Department of Management at Clemson University, majoring in Information Systems. Her research focuses on knowledge management, project management, trust in online environment, and technology adoption. Her research has been published in Information and

**Sherry D. Ryan** is an Associate Professor of Information Technology and Decision Sciences at the University of North Texas. She received her Ph.D. in IS from the University of Texas at Arlington and an MBA from the University of Southern California. Prior to returning to academia she worked for IBM, teaching courses and speaking at national conferences. Her research interests include knowledge management, IT training and human resource issues, and IT investment decisions. Her work has appeared in journals including Journal of Management Information Systems, Decision Support Systems, Information and Management, and DATA BASE.

**Kevin J. Shanahan** (PhD, New Mexico State University) is an Assistant Professor of Marketing at Mississippi State University. Prior to joining Mississippi State, he was an Associate Professor of Marketing at The University of Texas at Tyler. Dr. Shanahan’s research interests include online consumer behavior, advertising strategy, non-profit marketing and ethics and social responsibility. His articles have been published in Journal of Advertising, the Journal of the Academy of Marketing Science, Journal of Business Research, Journal of Public Policy and Marketing, Journal of Business Ethics, Journal of Current Issues and Research in Advertising and numerous other academic journals.

**Varadharajan Sridhar** is Professor in Information Management at the Management Development Institute, India. He received his Ph.D. from the University of Iowa, U.S.A. Dr. Sridhar’s primary research interests are in the area of telecommunication management and policy and Global Software Development. He has published his research work in European Journal of Operational Research, Telecommunication Systems, International Journal of Business Data Communications and Networking, Applied Econometrics and International Development, Information Resource Management Journal, Journal of Global Information Management, Journal of Regional Analysis and Policy, and Journal of Information System Security. He was the recipient of the Nokia Visiting Fellowship awarded by the Nokia Research Foundation. He is Associate Editor of International Journal of Business Data Communications and Networking and is on the editorial board of the Journal of Global Information Management.

**Catharina Stoecklin-Serino** (deceased) received her PhD in Business Administration (MIS) from Florida State University.

**Jason Bennett Thatcher** is an Associate Professor in the College of Business and Behavioral Sciences at Clemson University. He received his Ph.D. in Management Information Systems from the College of Business at Florida State University. His work has appeared in MIS Quarterly, Journal of Management Information Systems, Journal of Applied Psychology, and Organizational Behavior and Human Decision Processes.

**Joseph S. Valacich** is the Hubman Distinguished Professor of MIS at Washington State University. His primary research interests include technology-mediated collaboration, human-computer interaction, mobile and emerging technologies, e-business, and distance education. He is a prolific researcher, with more than 70 journal publications in numerous prestigious journals including MIS Quarterly, Informa-
About the Contributors

Barbara Ross Wooldridge (PhD, Louisiana State University) is an Associate Professor of Marketing at the University of Texas at Tyler. She has been a marketing and sales manager for Universal Safari Tours in Nairobi, Kenya, and a director of marketing for Seychelles Hotels in Mahe, Seychelles. Her research interests are consumer behavior, acceptance of technology, and service quality. She has published in such journals as the Journal of Marketing Channels, The Journal of Consumer Marketing, Marketing Education Review, Corporate Communications, and The Cornell Quarterly.

Thomas J. Zagenczyk (PhD, University of Pittsburgh, 2006) is an Assistant Professor in the Department of Management at Clemson University. Tom’s research interests include the employer-employee relationship (psychological contracts and perceived organizational support), abusive supervision, and social influence/social networks in organizations. His work has appeared in or is forthcoming in journals including the Journal of Applied Psychology, Organizational Behavior and Human Decision Processes, Industrial Relations, Journal of Management Studies, Group and Organization Management, Journal of Research in Personality, Journal of Cross-Cultural Psychology, Journal of Applied Social Psychology, Journal of Business and Psychology, and Human Resource Management Journal, among others. Tom has also presented more than 20 papers at regional, national, and international conferences and is a member of the editorial board of the Journal of Business and Psychology.

Xiaoni Zhang is an Associate Professor of Business Informatics at the Northern Kentucky University. She received her Ph.D. in Business Computer Information Systems from the University of North Texas in 2001. Her research interests include business intelligence, Web usability, e-commerce systems, enterprise systems and mobile technology. She is a member of Decision Science Institute and Association for Information System. Her publications appear in IEEE Transactions on Engineering Management, Communications of the ACM, International Conference of Information Systems, and Information & Management.