MIS Quarterly

Call for Papers
MISQ Special Issue on

Managing AI

Special Issue Editors:

Nicholas Berente, *University of Notre Dame* {nberente@nd.edu}
Bin Gu, *Boston University* {bgu@bu.edu}
Jan Recker, *University of Cologne* {jan.recker@wiso.uni-koeln.de}
Radhika Santhanam, *University of Oklahoma* {radhika@ou.edu}

Submission Deadline: Full papers due **November 15, 2019**

Motivation for the Special Issue:

Artificial intelligence (AI) refers to machines performing the cognitive functions typically associated with humans, including perceiving, reasoning, learning, interacting, etc. (Rai et al. 2019). AI is not confined to one or a few applications, but rather is a pervasive economic, societal, and organizational phenomenon. Examples of AI technologies include robotics and autonomous vehicles, facial recognition, natural language processing, virtual agents, and machine learning, which are being deployed in a variety of problem domains ranging from cybersecurity to fintech to education to healthcare. Technologies involving AI provide inestimable possibilities for enhancing people's lives in a variety of areas including their homes, healthcare, education, employment, entertainment, safety, and transportation (Stone et al. 2016). Similarly, AI provides businesses with unprecedented opportunities for designing intelligent products, devising novel service offerings, and inventing new business models and organizational forms. But AI is not a technological panacea. Accompanying the horizon of possibilities are a host of emerging and complex challenges around business strategies, human–AI interfaces, data, privacy, security, ethics, labor, human rights, and national security. Today's managers need to deal with both possibilities and challenges that accompany widespread AI. This special issue of *MIS Quarterly* focuses on understanding the management of AI.

MIS Quarterly, and the information systems field in general, has a rich tradition of work dealing with the human and technical elements in managing information systems (Lee 1999; Sarker et al. 2019). Information systems researchers have been contemplating the theoretical foundations of artificial intelligence for more than 30 years (e.g., Gregor and Benbasat 1999; Jacob et al. 1988). The initial focus has been on the technical evolution of AI. For example, *MISQ's* 2012 Special Issue on Business Intelligence identified three stages of AI-related technical evolution (Chen et al. 2012), from structured data to unstructured and sensor-based data. Although the concept of AI is not new, in recent years we have witnessed rapid-fire innovations in systems and components, including mechanics, parallelization of processors, sensors, algorithms, and software. These innovations are enabling the development of a wide range of AI applications, which, at least within specified domains, are capable of scanning environments, learning autonomously, sharing knowledge, monitoring adaptive goals, and making complex decisions like never before.

Whereas the transformative potential of AI is widely recognized, there is significant uncertainty for businesses on how to manage AI and its implications. The information systems field has developed substantial knowledge on managing information technologies and systems for different objectives, stakeholders, and levels of analysis. To what extent this knowledge translates to

AI and to what extent AI falsifies assumptions, raises new questions, and creates new opportunities remains an open question that requires careful empirical and theoretical work. AI presents a great opportunity to challenge how we think about managing information systems and how we need to recalibrate that knowledge to manage AI.

Information systems scholars have consistently found management to be a critical element in driving positive organizational results with IT and data (e.g., Mata et al. 1995; Mithas et al. 2011; Nambisan et al. 2017; Sharma and Yetton 2003). At the same time, organizational management has not always had a particularly strong record with IT and data management (Masli et al. 2016), with a spate of large-scale data breaches and privacy violations in recent years. AI now adds a level of novelty and complexity that goes beyond traditional IT and data applications (Rai et al. 2019). AI provides novel capabilities that go beyond informating and automating (Zuboff 1998) and inserts new forms of material agency into organizational processes, including design, production, manufacturing, sales, logistics, and consumption. AI can take a managerial role, either in itself or in conjunction with human managers. These new forms of agency can challenge long held notions about how work routines form, how outcomes from work are produced, or what the role of a manager entails (Barrett et al. 2012; Norman 2017; Pentland et al. 2020).

Moreover, just as the industrial age ushered in an era of unprecedented benefits to society, management continues to deal with unintended side effects of industrialization in areas ranging from sustainability and workforce implications (Brynjolfsson and Mitchell 2017) to human rights. With AI introducing a host of novel and thorny ethical issues (Bostrom and Yudkowsk 2014), it is imperative to proactively address them while recognizing that decisions about how AI applications are designed and used will be made by humans with goals imbued with often implicit ethical perspectives. Given the current pace of investment in AI worldwide, managers will not have decades or centuries to catch up and should understand effective, ethical, and responsible approaches to the development, implementation, management, and governance of AI soon—before it spirals out of their control. Managers cannot wait until the future unfolds to study this emerging, powerful phenomenon. Today's managers need to be actively engaged in shaping the trajectory of artificial intelligence and its impacts. It is imperative that managers lead the development, application, and governance of artificial intelligence in ways that preserve and generate value.

What We Seek for the Special Issue:

The goal of this *MISQ* special issue is to assess how we need to adapt and reinvent our knowledge of information systems management to deal effectively with the challenges and opportunities of AI. The special issue provides an opportunity to assess what we know about managing other forms of information systems and to reexamine this knowledge in situations involving AI. What a great opportunity now with AI to challenge how we think about managing information systems and managing AI. We are looking for contributions that draw upon and contribute to the stock of knowledge on the management of information systems, but to do so with full appreciation of the disruptive potential of AI-based innovations. We encourage work that will challenge existing theories and question the received wisdom about managing information systems in the context of AI. Do our assumptions about managing information systems still hold? What is different about AI resources and contexts? How do we manage intra- and interorganizational processes interspersed with AI-based agency and control? What is different in technology, product, and process design and innovation through AI?

Consistent with *MISQ's* trifecta vision of impact, range, and speed (Rai 2016), the special issue welcomes submissions from diverse perspectives and methods to address both opportunities and challenges of AI that confront individuals, businesses, organizations, institutions, government agencies, platforms, ecosystems, and society in general. We do not want labels and scripts associated with traditional IS paradigms of behavioral, design, economic, and organizational perspectives to constrain how this important and complex phenomenon is investigated, and welcome cross-paradigmatic approaches that can generate novel insights to advance scientific understanding and practical utility (Rai 2018). We also welcome interdisciplinary work, but require substantive attention to the existing body of knowledge in information systems in the formulation of the research objectives and contribution (Rai 2017).

We seek papers that study the management of AI in its many forms across all levels of stakeholders. On a theoretical front, AI is a domain rife with opportunities for generating novel perspectives for managing information systems together with novel theorizing about the AI artifact. From a methodological perspective, AI can enable us to analyze unprecedented reams of digital data in new and interesting ways—potentially opening up new avenues to theory generation (Lazer et al. 2009)—while at the same time addressing challenges associated with such novel approaches (Abbasi et al. 2018; Berente et al. 2019; Howison et al. 2011).

Potential topics include, but are not limited to:

- Management, control, and governance of AI-related resources and capabilities.
- Changes in strategy, structure, functions, workforce, alignment, processes, and control that flow from management of AI.
- Managing intended and unintended AI-related outcomes across levels of analysis.
- AI-enabled changes to business strategy, business models, and value creation processes.
- Management of AI-fostered innovations, including digital product development and software development.
- Managing policy, legislative, ethical, moral, and societal implications of AI, including intellectual property rights ownership.
- Data guardianship, security, and privacy in AI contexts.
- AI as management, in conjunction with humans or otherwise.
- Evaluation and monitoring of AI and associated organizational activity.
- Managing design issues associated with AI in infrastructure, artefacts, products, platforms, ecosystems and markets.

Summing up, the special issue is looking for papers that meet four specific criteria:

1. ***Papers must distinguish fundamentally between AI and other forms of digital technologies, and theorize on the specific differences.*** Direct applications of existing theory on IT and organization (without differentiating AI from generic IT) are not suitable for the special issue.

2. ***Papers must focus on management practices of AI to enhance value or mitigate harm in the development, implementation, management, use and/or governance of AI.*** We particularly encourage research on new forms of management on the interactions between human resources, AI, and other material resources. As boundaries between human and machine become increasingly blurry, we call for new thinking on management forms and structures.

3. ***Papers must provide novel contributions to knowledge about the management of AI.*** Any form of rigorous theoretical contribution (conceptual or empirical) using any scholarly method is welcome. While we welcome papers across diverse theoretical perspectives and research methods, descriptive studies that summarize state of practice of AI applications without a corresponding contribution to theory are not suitable for the special issue.

4. ***Papers must consider both the social and technical aspect of AI.*** Studies that focus only on the technical aspect of AI without placing salience on management of AI do not correspond to the focus of the special issue. We encourage studies on management of AI at and across a variety of levels of analysis, including organizations, institutions, platforms, ecosystems, and societies.

Process and Timeline:

Papers will undergo no more than two stages of full peer review. After the second round of review, papers will either be rejected or conditionally accepted, potentially with a third round of revisions involving only editorial review.

Full Paper submission: Due November 15, 2019
Full papers are due November 15, 2019, via the MIS Quarterly ScholarOne submission system. All papers must be submitted in the Special Issue category following MISQ's manuscript submission requirements (see **https://misq.org/instructions/**). The system will be open for submissions to the Special Issue from October 1, 2019, to November 15, 2019. Papers must be submitted following the MISQ standard submission process through Manuscript Central (see **http://misq.org/manuscripts/**).

Paper Development Workshop: Location to be determined, March 20, 2020
Papers that pass the first round of review will be invited to a Paper Development Workshop. The workshop will aim to develop the papers further to highlight the fundamental differences between AI and other forms of digital technologies and their theoretical implications for managerial practices.

Key Dates:

- First round submissions: November 15, 2019
- Round 1 decisions: February 15, 2020
- Workshop (location TBD): March 20, 2020
- Second round submissions: June 15, 2020
- Second round decisions to authors: August 31, 2020
- Third and final round submissions: November 15, 2020
- Third and final round decisions to authors: December 31, 2020

Special Issue Editorial Board

The senior editors will choose an anonymous associate editor for each paper from the Special Issue Editorial Board (listed below, alphabetically) or *MIS Quarterly's* current associate editors. Reviewers may also be chosen from the Special Issue Editorial Board or from the broader IS community.

Michael Barrett, Cambridge University
Roger Chiang, University of Cincinnati
Kevin Crowston, Syracuse University
Hailiang Chen, University of Hong Kong
Pei-Yu Chen, Arizona State
Brad Greenwood, University of Minnesota
Robert Gregory, University of Virginia
JJ Hsieh, Georgia State University
Peng Huang, University of Maryland
Ke-wei Huang, National University of Singapore
Zhengrui Jiang, Nanjing University
De Liu, University of Minnesota
Karthik Kannan, Purdue University
Deepa Mani, Indian School of Business
Jeff Nickerson, Stevens Institute of Technology
Brian Pentland, Michigan State University
Yuqing Ren, University of Minnesota
Lionel Robert, University of Michigan
Rajiv Sabherwal, University of Arkansas
Nachiketa Sahoo, Boston University
Stefan Seidel, University of Liechtenstein
Mari-Klara Stein, Copenhagen Business School
Jingjing Zhang, Indiana University
Rong Zheng, HKUST

References

Abbasi, A., Zhou, Y., Deng, S., and Zhang, P. 2018. "Text Analytics to Support Sense-Making in Social Media: A Language-Action Perspective," *MIS Quarterly* (42:2), pp. 427-464.

Barrett, M., Oborn, E., Orlikowski, W. J., and Yates, J. 2012. "Reconfiguring Boundary Relations: Robotic Innovations in Pharmacy Work," *Organization Science* (23:5), pp. 1448-1466.

Berente, N., Seidel, S., and Safadi, H. 2019. "Data-Driven Computationally-Intensive Theory Development," *Information Systems Research* (30:1), pp. 50-64.

Bostrom, N., and Yudkowsk, E. 2014. "The Ethics of Artificial Intelligence," in *Cambridge Handbook of Artificial Intelligence,* W. M. Ramsey and K. Frankish (eds.), Cambridge, England: Cambridge University Press, pp. 316-334.

Brynjolfsson, E., and Mitchell, T. 2017. "What Can Machine Learning Do? Workforce Implications," *Science* (358:6370), pp. 1530-1534.

Chen, H., Chiang, R., and Storey, V. C. 2012. "Business Intelligence and Analytics: From Big Data to Big Impacts," *MIS Quarterly* (36:4), pp. 1165-1188.

Gregor, S., and Benbasat, I. 1999. "Explanations from Intelligent Systems: Theoretical Foundations and Implications for Practice," *MIS Quarterly* (23:4), pp. 497-530.

Howison, J., Wiggins, A., and Crowston, K. 2011. "Validity Issues in the Use of Social Network Analysis with Digital Trace Data," *Journal of the Association for Information Systems* (12:12), pp. 767-797.

Jacob, V. S., Moore, J. C., and Whinston, A. B. 1988. "Artificial Intelligence and the Management Science Practitioner: Rational Choice and Artificial Intelligence," *Interfaces* (18:4), pp. 24-35.

Lazer, D., Pentland, A. P., Adamic, L. A., Aral, S., Barabási, A.-L., Brewer, D., Christakis, N., Contractor, N., Fowler, J., Gutmann, M., Jebara, T., King, G., Macy, M., Roy, D., and Van Alstyne, M. 2009. "Computational Social Science," *Science* (323:5915), pp. 721-723.

Lee, A. S. 1999. "Inaugural Editor's Comments," *MIS Quarterly* (23:1), pp. v-xi.

Masli, A., Richardson, V. J., Weidenmier Watson, M., and Zmud, R. W. 2016. "Senior Executives' IT Management Responsibilities: Serious IT-Related Deficiencies and CEO/CFO Turnover," *MIS Quarterly* (40:3), pp. 687-708.

Mata, F. J., Fuerst, W. L., and Barney, J. B. 1995. "Information Technology and Sustained Competitive Advantage: A Resource-Based Analysis," *MIS Quarterly* (19:4), pp. 487-505.

Mithas, S., Ramasubbu, N., and Sambamurthy, V. 2011. "How Information Management Capability Influences Firm Performance," *MIS Quarterly* (35:1), pp. 237-256.

Nambisan, S., Lyytinen, K., Majchrzak, A., and Song, M. 2017. "Digital Innovation Management: Reinventing Innovation Management Research in a Digital World," *MIS Quarterly* (41:1), pp. 223-238.

Norman, D. A. 2017. "Design, Business Models, and Human–Technology Teamwork," *Research-Technology Management* (60:1), pp. 26-30.

Pentland, B. T., Liu, P., Kremser, W., and Hærem, T. 2020. "The Dynamics of Drift in Digitized Processes," *MIS Quarterly* (forthcoming).

Rai, A. 2016. "Editor's Comments: The *MIS Quarterly* Trifecta: Impact, Range, Speed," *MIS Quarterly* (40:1), pp. iii-x.

Rai, A. 2017. "Editor's Comments: Avoiding Type III Errors: Formulating IS Research Problems That Matter," *MIS Quarterly* (41:2), pp. iii-vii.

Rai, A. 2018. "Editor's Comments: Beyond Outdated Labels: The Blending of IS Research Traditions," *MIS Quarterly* (42:1), pp. iii-vi.

Rai, A., Constantinides, P., and Sarker, S. 2019. "Editor's Comments: Next-Generation Digital Platforms: Toward Human–AI Hybrids," *MIS Quarterly* (43:1), pp. iii-ix.

Sarker, S., Chatterjee, S., Xiao, X., and Elbanna, A. R. 2019. "The Sociotechnical Axis of Cohesion for the IS Discipline: Its Historical Legacy and Its Continued Relevance," *MIS Quarterly* (43:3), pp. 695-719.

Sharma, R., and Yetton, P. 2003. "The Contingent Effects of Management Support and Task Interdependence on Successful Information Systems Implementation " *MIS Quarterly* (27:4), pp. 533-555.

Stone, P., Brooks, R., Brynjolfsson, E., Calo, R., Etzioni, O., Hager, G., Hirschberg, J., Kalyanakrishnan, S., Kamar, E., Kraus, S., Leyton-Brown, K., Parkes, D., Press, W., Saxenian, A. L., Shah, J., Tambe, M., and Teller, A. 2016. "Artificial Intelligence and Life in 2030. One Hundred Year Study on Artificial Intelligence: Report of the 2015-2016 Study Panel," Stanford University, Stanford, CA.

Zuboff, S. 1998. *In the Age of the Smart Machine: The Future of Work and Power*, New York: Basic Books.