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## Special Issue Editorial: Digital transformation in times of crisis – An introduction to the special issue and a framework for future research

Paul M. Di Gangi

Vess L. Johnson

Hope Koch

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## EDITORS' COMMENTS

### Special Issue Editorial: Digital transformation in times of crisis — An introduction to the special issue and a framework for future research

#### Introduction

A 2019 industry report noted that 40% of information technology (IT) spending focused on digital transformation initiatives.<sup>1</sup> Digital transformation is a process that focuses on creating disruptions through digital technologies that lead to change across an organization.<sup>2</sup> The goal of this change is for an organization to develop the digital capacity to become more sensitive to environmental changes and flexible to adjust its business strategy to respond effectively to market conditions. Digital transformation has remained one of the most pressing concerns of IT managers since its emergence in the Society for Information Management (SIM) IT Issues and Trends study in 2017.<sup>3</sup> However, few managers would have stated at the beginning of 2020 how important managing disruptions would be and how digital technologies would play a central role in their survival during a global crisis that challenged both business and society.

In late 2019, a contagious disease spread quietly across the globe, causing respiratory distress and potentially severe and deadly outcomes. COVID-19 would emerge on our collective global doorstep as an unprecedented social and economic crisis. In response to the threats COVID-19 posed, businesses found themselves navigating a series of radical disruptions, ranging from the most extensive test of the work-from-home model to supply

chain and coordination challenges for medical supplies and consumer products across the globe. While COVID-19 forced managers to question the assumptions they relied on to run their business and respond to the crisis, digital transformation weathered the global storm and served as a critical component for how organizations responded during a crisis. In fact, industry reports suggested that 52% of organizations expect to cut or defer IT investments because of COVID-19, but only 9% planned to reduce spending on digital transformation projects.<sup>4</sup>

Of course, many managers believed businesses were already facing a crisis-level threat before COVID-19. Digital technologies have proven adept at challenging traditional thinking about business processes and our understanding of the firm's boundaries and its resources. Digital transformation shifted managerial thinking about how technology in the workplace could serve as a tool to support business operations to one where technology is a strategic resource that can aid an organization in outmaneuvering competitors to compete in a global market. However, digital transformation in times of crisis, such as the events that have unfolded over the past three years, requires a deeper exploration of what a crisis is and how it introduces or exacerbates the challenges a business must manage to succeed.

The term crisis is generally known to possess objective and subjective aspects to its interpretation. Crises threaten an organization's priorities, restrict the time available to respond to the events unfolding, and emerge unexpectedly, resulting in greater stress on managers and their employees.<sup>5</sup> Consequently, crisis calls into

1 <https://www.idc.com/getdoc.jsp?containerId=US45569118>, courtesy of Appio, Francesco Paolo; Frattini, Federico; Petruzzelli, Antonio Messeni; and Neirotti, Paolo (2021) Digital Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies. *Journal of Product Innovation Management*, 38(1), 4-20.

2 Vial, Gregory. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144.

3 Kappelman, Leon; Torres, Russell; McLean, Ephraim R.; Maurer, Chris; Johnson, Vess L.; Snyder, Mark; and Guerra, Katia (2022) The 2021 SIM IT Issues and Trends Study. *MIS Quarterly Executive*, 21(1), Article 8.

4 <https://www.pwc.com/us/en/library/digital-iq.html>, courtesy of Appio, Francesco Paolo; Frattini, Federico; Petruzzelli, Antonio Messeni; and Neirotti, Paolo (2021) Digital Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies. *Journal of Product Innovation Management*, 38(1), 4-20.

5 For a detailed exploration of the definition of crisis, and more specifically organizational crisis, we refer readers to:

Milburn, Thomas W.; Schuler, Randall S.; and Watman, Kenneth H. (1983). Organizational crisis. Part I: Definition and conceptualization. *Human Relations*, 36(12), 1141-1160.

Milburn, Thomas W.; Schuler, Randall S.; and Watman, Kenneth H.

question the utility of the managed disruption approach that much of the digital transformation literature advocates. Rather, crisis-driven digital transformation forces managers to make decisions quickly using their digital resources rather than dealing with lengthy development cycles. In doing so, crisis-driven digital transformation represents an opportunity for organizations to accelerate existing digital transformation efforts and rethink previously held assumptions about how to bring about a digital transformation and the limits of digital technologies. Crisis-driven transformation may foster new areas of disruption and change in an organization. While many of these opportunities will result in positive change, crises may also result in organizations making mistakes that need to be quickly identified and corrected to sustain themselves.

### Special issue introduction

We are pleased to introduce our special issue on "Crisis-driven Digital Transformation." This special issue includes an excellent set of papers exploring how organizations manage digital transformation during times of crisis. We first outline the process followed by the special issue, then summarize these papers, and follow with insights drawn from our editorial process. COVID-19 dramatically altered the business landscape and caused many organizations to rethink their strategic priorities and operational processes. When combined with the capabilities of digital technologies, the past several years presented a unique opportunity to examine the transformative nature of technology and the implications from the lessons learned during a crisis.

Our initial call was announced to SIM and the Association for Information Systems (AIS) community inviting submissions to the special issue and *MIS Quarterly Executive* workshops held in conjunction with ICIS 2021 and virtually in January 2022. In our initial call, we solicited practice-oriented research papers that "explored how digital transformation efforts help organizations navigate crises and the grand

challenges increasingly facing them," building on earlier calls for crisis-driven transformations.<sup>6</sup> We were particularly interested in how crises drove workforce transformations, led to the adoption or refinement of digital technology use in the workplace, and how environmental forces affected organizational strategies to meet their value creation objectives. In doing so, we focused on the COVID-19 pandemic as a timely example. However, we encouraged prospective authors to think broadly about what constitutes a crisis and the implications that crises have on business strategy and operations. Submissions viewed most favorably were those that provided novel frameworks, detailed narratives of the challenges organizations faced, and offered sound guidance on the best practices that can lead to effective crisis-driven digital transformation. Papers that took a temporal perspective from initial crisis response, ongoing response, and post-crisis reflection on digital transformation were considered to offer the greatest potential to provide guidance to CIOs and business managers.

The workshops called for extended abstracts based on the call for papers for initial review and screening. Our call yielded 28 submissions, each of which were reviewed by the one of the special issue editors. Feedback on initial submissions was provided to all authors. In total, 15 abstracts were accepted for presentation at either the pre-ICIS or virtual workshop. Participants were asked to present their papers or engage in a roundtable discussion. All participants received written feedback from a special issue editor, including comments from an *MIS Quarterly Executive* senior editor and workshop participants. In addition to the presentations, the pre-ICIS workshop included a discussion of the importance of building trust in times of crisis by Brian Rock, Sr. Software Development Manager for Amazon Last-Mile Delivery. The virtual workshop included a panel discussion with past *MIS Quarterly Executive* best paper authors to offer tips and advice on writing for *MIS Quarterly Executive*.<sup>7</sup> We extend our deep appreciation to

(1983). Organizational crisis. Part II: Strategies and responses. *Human Relations*, 36(12), 1161-1179.

Hermann, Charles F. (1972) "Threat, Time and Surprise: A Simulation of International Crisis," in Charles F. Hermann (ed.) *International Crises: Insights from Behavior Research*. New York: Free Press.

6 Watson, Richard; Ives, Blake; and Piccoli, Gabriele (2020) Guest Editorial: Practice-Oriented Research Contributions in the Covid-19 Forged New Normal. *MIS Quarterly Executive*, 19(2), Article 2.

7 Piccoli, Gabriele; Eden, Rebekah; Junglas, Iris; Lacity, Mary; Di Gangi, Paul; Koch, Hope; and Johnson, Vess (2022) MISQE Panel Discussion "Tips & Advice for Writing an MIS Quarterly Executive Paper - A Panel Discussion with Best Paper Authors." AIS Webinars. 2. [https://aisel.aisnet.org/ais\\_webinars/2](https://aisel.aisnet.org/ais_webinars/2)

Drs. Rebekah Eden, Mary Lacity, and Iris Junglas for sharing their thoughts and guidance with our virtual workshop attendees. Three papers were ultimately accepted (with one additional paper being revised for consideration in a future issue).

### Special issue papers

*Janina Sundermeier* explores the digitalization of the workplace and how organizations navigated the difficult decisions surrounding how we translate our business workplace environment into new settings. Using three exemplar organizations from Europe and the United States, Janina outlines four phases of digital workplace transformation, identifying the managerial obstacles that must be overcome. Janina provides actionable insights for organizations seeking to remain prepared for the future now that employers and employees have experienced dramatic shifts in co-location mindsets.

*Sultana Lubna Alam, Kristijan Mirkoviski, Rens Scheepers, and Dilal Saundage* explored the importance of Digital Technology Managers and how organizations' digital capabilities helped them navigate the COVID-19 pandemic. Their paper outlines the role of exploitation and exploration capabilities as foundational for organizational response in times of crisis. The results of a series of interviews with 18 Australian organizations reveal three overarching archetypes of organizational response – Survive, Survive and Thrive, and Thrive and Drive – based on the level of preparedness each organization had in facing the challenges of the COVID-19 pandemic. To provide guidance, they offer a novel traffic light system to identify challenges that hinder, prepare, or accelerate digital capability development. In doing so, they provide operational guidance to managers on how to navigate complex decisions best when competing in times of crisis.

*Heiko Gewalt and Heinz-Theo Wagner* conducted interviews with nine CIOs of large, international companies in regulated industries to explore the concept of governance in times of crisis. Governance has historically focused on ensuring alignment between business and IT strategy, with particular attention on the need to protect an organization's assets. In their study, they developed a novel adaptive IT governance model that helped IT departments emerge as

heroes during the COVID-19 crisis. The research offers implications for managing IT governance in the aftermath of COVID-19. Heiko and Heinz-Theo focused on the strategic level of crisis-driven digital transformation to demonstrate how change can occur at all levels during a crisis.

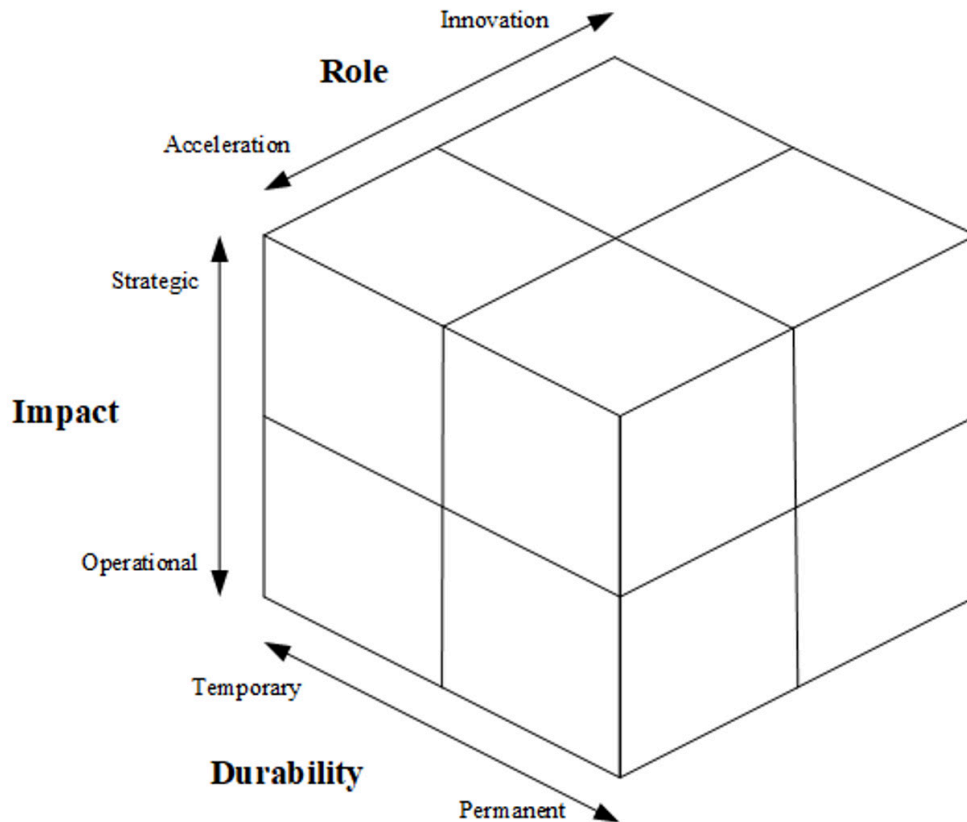
### A framework for crisis-driven digital transformation

During the editorial process, three dimensions emerged from the special issue papers that add structure to understanding crisis-driven digital transformation: 1) the role of crisis within the digital transformation process, 2) its level of impact on an organization, and 3) its durability.

The first dimension focuses on the role of the crisis within the digital transformation process, either serving as an accelerator to existing projects or as an instigator of new projects (i.e., innovations). Resource efficiency was typically a decision-making factor when the crisis served as an accelerator of an existing project. Organizations were required to shift to new forms of communication among employees and sort out new processes for acquiring resources to facilitate their projects. Efficiency by limiting the complexity of digital transformation enabled projects to rely on the pre-crisis shared understanding and planning to accelerate projects that would improve digital capabilities aligned with the new realities of working within a crisis environment. Lubna and colleagues, for example, highlight the role of the crisis in how organizations engage in exploitation behaviors by leveraging pre-existing capabilities to survive and thrive during COVID-19.

In contrast, the crisis served as an initiator of new projects when the environmental conditions shifted and forced organizations to rethink fundamental aspects of their business. Coordination and adaptation were critical to the ability for new projects to succeed, where organizations needed to communicate with key stakeholders and adapt to the changing conditions at the present moment that may challenge prior assumptions. For example, Heiko and Heinz-Theo demonstrate how the challenges of COVID-19 forced organizations to rethink the concept of governance in a period where sudden shocks to the environment were not only possible but emerging on a day-to-day basis. They found that an adaptive governance

Figure 1. Framework for Crisis-driven Digital Transformation



model provided more flexibility and agility for an organization to respond than the traditionally more rigid governance procedures.

The second dimension focused on the impact of crisis-driven digital transformation projects, ranging from the operational to strategic level of the organization. On the operational level, digital transformation projects affect employees' daily activities. Organizations learned early on that managing expectations and maintaining awareness of employee satisfaction with the new digital capabilities were critical to the success of the digital transformation process. Janina highlights this point when organizations listen directly to employee needs and criticisms when making decisions about the workplace environment during the pandemic, as employees return to the office, and as the workplace continues to evolve. At the strategic level, projects emerged that shifted the underlying business objectives of the organization because

the crisis resulted in primary objectives either becoming obsolete or new objectives better aligned with future opportunities for success.

The final dimension recognized the durability of crisis-driven digital transformation projects, ranging from temporary projects to address short-term needs versus permanent solutions that remained beyond the crisis to have a lasting impact on the organization. Similar to accelerating existing projects due to resource efficiency, many organizations faced sudden challenges that directly disrupted their normal business operations. Within the cybersecurity field, business continuity planning has consistently recognized the importance of backup facilities to temporarily maintain operations while an organization manages the disruption to its normal operations. Crises such as COVID-19 created a similar need for temporary solutions, but with limited ability to prepare in advance for the disruption. Many



organizations relied on a patchwork of existing solutions available in the market and then shifted out of these solutions once conditions changed.

In other cases, projects that firms initially implemented as temporary fixes went through subsequent iterations that emerged as more permanent solutions. The papers presented in this special issue highlight instances where projects have undergone iteration into their present form and pose questions about the future. For example, Heiko and Heinz-Theo suggest a post-crisis balance in governance. Janina also notes a balance between experimentation and long-term impact on the future digital workplace. Across these studies, a moderating influence is at play for whether a project will remain permanently within an organization. However, such conclusions can only be predictions at this point. The original intention of digital transformation was to disrupt. Thus, future disruptions may alter the future of projects that emerge from a crisis as they mature and become disruption targets.

### Concluding thoughts

COVID-19 will unfortunately not be the last crisis the world faces. Even before COVID-19, there have been many instances of crises that have disrupted business operations and required reconfiguration and adaptation to environmental conditions. Several of our esteemed colleagues have written on the implications of digital transformation and the importance of reflection to draw out guidance from our research to facilitate best practices and recommendations to our practitioner colleagues.<sup>8</sup> We expand on these thoughts below with suggestions for further practitioner-oriented research that builds upon

our special issue, observations from industry, and calls from fellow scholars.

#### **Managing the aftershocks of a crisis.**

Prior colleagues have written about how COVID-19 will likely create new medical and financial challenges in the coming years. For example, economists have highlighted some of the financial consequences of pandemic responses made by governments around the world. Whether it was the rapid rise of inflation, supply chain disruptions caused by differing pandemic mitigation efforts at the national level, or shifts in broader monetary policy that may lead to recession, a series of crises appear on the horizon related to COVID-19.

What comes next becomes a complex question for digital transformation practitioners. On the one hand, new digital transformation projects may emerge, focusing on cost efficiencies to weather the economic storm ahead. On the other hand, focusing on cost savings may also push digital transformation projects, once considered temporary solutions borne out of a crisis, into institutional mainstays as organizations seek to refocus on existing capabilities once again under a new crisis. Guidance on how organizations can best evaluate and prioritize existing and potentially new digital transformation projects will be needed. This research may draw insights from how one crisis results in others and how the underlying characteristics of a crisis may shape future business thinking toward the selection and retention of digital capabilities.

**Creating a digital nomad.** The rapid shift to digital capabilities has many unknown long-term cultural impacts that have yet to materialize fully and will change some foundational assumptions about employment in the coming decade. For example, the “great relocation” enabled knowledge workers to relocate to preferred geographic locations due to the work-from-home model. As travel restrictions and medical requirements for travel lift, will some of these workers embark on a more global interpretation of work-from-home? Will organizations also embrace such a global interpretation by seeing knowledge workers in countries geographically distant from corporate headquarters as viable prospective employees? Such questions contain implications for the future of work in a digitally-enabled society. Guidance will be needed to

<sup>8</sup> We encourage readers to explore these editorials and commentaries for further insights into crisis-driven digital transformation research:

Appio, Francesco Paolo; Frattini, Federico; Petruzzelli, Antonio Messeni; and Neirotti, Paolo (2021) Digital Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies. *Journal of Product Innovation Management*, 38(1), 4-20.

Hanelt, André; Bohnsack, René; Marz, David; and Marante, Cláudia Antunes (2021) A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. *Journal of Management Studies*, 58(5), 1159-1197.

Watson, Richard; Ives, Blake; and Piccoli, Gabriele (2020) Guest Editorial: Practice-Oriented Research Contributions in the Covid-19 Forged New Normal. *MIS Quarterly Executive*, 19(2), Article 2.

understand these shifts' opportunities and challenges on a business and societal level.

**Creating a new digital toolbox of employee skills.** Changes in the tools and strategic resources available to organizations will likely have a corresponding shift in employee skill sets needed to navigate the future successfully. For example, prior work on digital transformation has pointed to the need for employees to acquire digital transformation acceleration and harmonizing skills.<sup>9</sup> Acceleration skills build on the intellectual capacity to engage in episodic bursts of innovation when internal and external resources align to create purposeful disruptions. Identifying innovation opportunities requires an acute awareness of trends and environmental triggers for change that may rely heavily on data-driven decision-making.

In contrast, harmonizing skills focus on managing the change process by integrating these changes within an organization's existing processes and procedures. Harmonization may require a more systems-thinking approach that understands dependencies among processes and how changes reverberate throughout an organization. How will organizations need to reconfigure their workplace to nurture these new critical digital skill sets? How will human resources departments need to adapt their employee screening and training programs? This guidance should also help universities revise curriculum and skill development objectives to prepare students for a rapidly evolving global workplace.

**Expanding roles of emerging technologies.** Prior to COVID-19, artificial intelligence (AI) was emerging as a disruptive technology that could streamline business operations and re-orient activities completed by employees towards a more information and knowledge-centric workplace. A recent industry report suggests that by 2023, an estimated 90% of new enterprise applications will incorporate AI into their processes and products.<sup>10</sup> COVID-19

9 Hanelt, André; Bohnsack, René; Marz, David; and Marante, Cláudia Antunes (2021) A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. *Journal of Management Studies*, 58(5), 1159-1197.

10 <https://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/dti-executive-summary-20180510.pdf>, courtesy of Appio, Francesco Paolo; Frattini, Federico; Petruzzelli, Antonio Messeni; and Neirotti, Paolo (2021) Digital

accelerated the adoption of many emerging technologies. In doing so, organizations must digest the implications these new technologies have had on their businesses and explore the next steps expected to occur over the next five to ten years.

**Reintroduce the call for papers suggested questions.** Special issues always begin with a series of suggested questions to further practice-oriented research on a topic of particular importance. In the present special issue, our focus was on crisis-driven digital transformation, and our call for papers provided a series of additional questions that may also serve as potential further research. We reproduce the suggested questions section below to foster further thinking about research efforts.

#### Digital Workforce

- How do organizations manage their increasingly digitalized workforce?
- What lasting lessons have emerged from the dramatic adjustment the COVID-19 crisis forced in this regard?
- What is the unintended consequence of a massive work-from-home shift?
- How have the skillsets required to be effective in a digital workspace shifted from traditional work settings?
- What socio-ecological factors impact the effectiveness of an organization's response to sudden shifts in its business practices?

#### Emerging Technologies

- What does the future of work look like for digital workers within existing organizations and as independent contractors?
- What role does Artificial Intelligence play in more efficiently or effectively managing the challenges associated with business operations in a crisis?

#### External Forces on Business Operations

- How does responding to a crisis change traditional information systems development processes?
- How have pandemics and other environmental shocks to organizations influenced business operations?

Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies. *Journal of Product Innovation Management*, 38(1), 4-20.

### Facilitating Digital Transformation & its Impact

- How are grand challenges such as a pandemic or climate change impacting a company's efforts to innovate new digital products, services, and business models?
- What factors facilitate or inhibit digital transformation initiatives?
- What is the impact of technology leadership/ governance on digital transformation initiatives in times of crisis?
- What structures do organizations have to put in place to facilitate digital transformation?

### Outcomes of Crisis-driven Digital Transformation

- Comparing and contrasting how grand challenges boost some digital efforts and threaten others?
- What are the security implications of sudden shifts in business operations due to external forces?
- How do organizations measure the impact of digital transformation in times of high uncertainty and time constraints?
- What is the impact of crisis-driven digital transformation on organizational decision-making efficiency or effectiveness?

These questions are certainly not an exhaustive list of the needs for guidance organizations will have over the coming decade as they reflect on the implications of a global crisis. We offer them as areas to foster further inquiries on crisis-driven digital transformation and its post-crisis impact. Fortunately, the digital capabilities fostered by digital transformation have created an opportunity to document and analyze the next crisis in even greater detail than the last.

## About the Special Issue Guest Editors (listed in alphabetical order)

### Paul M. Di Gangi

Paul M. Di Gangi is a Professor of Information Systems and steward of the Dora and Sanjay Singh Endowed Fund for Information Systems

Research in the Collat School of Business at the University of Alabama at Birmingham. His research interests include online communities, user-driven innovation, and cybersecurity behaviors. His work appears in the *Journal of the Association for Information Systems*, *Decision Support Systems*, *Information & Organization*, and *MIS Quarterly Executive*, among others. Dr. Di Gangi is also a Certified Information Systems Security Professional (CISSP) based on his policy and risk analysis work.

### Vess L. Johnson

Vess L. Johnson is an Assistant Professor of Information Technology and Decision Sciences at the University of North Texas. Before returning to academia, he worked for various public and private companies in the Semiconductor, Software, and Energy industries. He served as the President and CEO of multiple companies during his professional career. His work has appeared in *MIS Quarterly Executive*, the *European Journal of Information Systems*, *Information and Management*, *Computers in Human Behavior*, *Communications of the ACM*, and the *Journal of Computer Information Systems*. He is a Research Fellow for the Society of Information Management (SIM) and is the principal investigator of the annual SIM IT Trends Study.

### Hope Koch

The first in her family to attend college, Hope Koch is an Associate Professor in Baylor University's Information Systems and Business Analytics program. She holds the Godfrey Sullivan Chair and sponsors the student organization, which focuses on attracting students into technical fields and helping them find jobs. Dr. Koch pursues research that makes a difference, including many digital transformation initiatives. Dr. Koch has won best paper awards at the *Journal of Strategic Information Systems* and the *European Journal of Information Systems*. Since 2002, Hope has chaired the Callaway Foundation, which grants \$500,000 in college scholarships annually in 2022, Hope co-chaired efforts to successfully pass a \$164 million dollar bond to improve public schools in Temple, Texas.



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