

## Organizational Systems and Technology: Technological, Educational, and Organizational Impacts of Pandemics Mini track

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### Abstract

*This is the second time that the mini track on “Technological, Educational, and Organizational Impacts of Pandemics” is featured in the Organizational Systems and Technology track. This year, the mini track includes six papers, covering a range of challenges caused by the pandemic, from how working from home affects different working populations, to software development team challenges, to how mobile data can help to track movement due to the pandemic.*

### 1. Introduction

The world continues to face the unprecedented catastrophe of the COVID-19 pandemic. Unusual circumstances created by COVID-19's rapid spread provides a unique opportunity to study the role of Information Systems and Technology in supporting people through this pandemic and beyond. This mini track considers topics related to the pandemic's impacts on jobs and work (for both employers and employees), education and educational institutions (including learners and educators), family and home life (including life-changes for adults and children), and global society.

The mini track welcomed submissions of full research papers or research in progress, including theory articles, literature reviews, teaching cases, or studies employing qualitative, quantitative, mixed methods, and design science research methods. Topics of interest included, but were not limited to, technology's role in addressing:

- Opportunities and challenges in the era of COVID-19

- Consequences of COVID-19 on work, education, and society
- Working from home during lockdowns
- Adjusting to the “new normal”
- Best practices in education and work contexts
- Digital transformation and the future of work and education
- Using ICT to foster learning, working, and social activities
- Social isolation and well-being
- Work-life boundaries and conflicts
- Implications for policy and practice
- Nontraditional virtual teams
- Social and business norms
- Disaster plans and business continuity planning
- Resource sharing challenges
- COVID-19-related financial implications for businesses and software vendors

### 3. Mini Track Papers

Six papers comprise this mini track. The first paper, **What Do We Know? A Bibliometric Analysis of Current Literature on COVID-19 and its Implications**, provides a foundation on which to conduct research on the pandemic. Its authors, R. Anju, Nargis Pervin and Pratyush Yadav, begin by noting how the COVID-19 pandemic has plunged the world into chaos by affecting people's lifestyles and imposing immense pressures on healthcare professionals. Since its outbreak in Wuhan, China, back in December 2019, researchers across the globe have been working to provide reliable insights to understand and combat the virus. As a result, the number of publications related to the novel coronavirus has been increasing rapidly. This study aims to quantify and summarize the progress of COVID-19-related research from November 2019 through January 2021 by employing bibliometric analysis and topic modelling approaches. A total of 33,159 research publications, downloaded from the

Web of Science (WoS) core collection database, were analyzed. The key aspects of this study include identifying important publications, their distribution across countries and organizations, important journals and central authors who have made a significant contribution to the current literature. The authors also delineated the major themes addressed in the academic community.

The second paper, entitled **Transitioning from University to Working Life: A Comparison of Business Graduates' Perceptions of Skills before and during the COVID-19 Pandemic**, was written by Elise Gagnon. She focuses on how the COVID-19 pandemic has disrupted business schools and students. The unusual circumstances created by the pandemic situation provided a unique occasion to look at challenges and opportunities facing business graduate students when transitioning from university to working life. Using a survey from business students who graduated before and during the COVID-19 pandemic, this study explores the role of skills (IT and non-IT skills) in the transition from university to working life as well as the impact of the COVID-19 pandemic on business students' skills and career decisions. She found that non-IT skills were perceived as more essential than IT skills, and having IT skills such as data analytics and business applications of Artificial Intelligence (AI) were more essential skills for students who graduated during the pandemic. Finally, business students who have been impacted by the COVID-19 pandemic are considering acquiring new digital/technological skills.

The third paper, written by Keith Gutfreund and Peter Schmidt, is titled **Agile Software Development during the COVID-19 Pandemic: A Technology Company Survey**. The paper begins by noting that agile-based software development is conducted by co-located teams working in well-equipped office workspaces, and discusses how the COVID-19 pandemic and subsequent lockdowns have cast new light on this baseline. Suddenly, developers were no longer co-located with their teams and their well-equipped workspaces were vacant. How did the lockdowns, and the speed in which they were implemented, affect developers and development efforts? Did the lockdowns lead to diminished product quality? How was employee productivity impacted? A survey questionnaire was created to answer these questions.

In the fourth paper, Ahmad Ghazawneh, Miranda Kajtazi and Osama Mansour describe **Using Mobile Data for Understanding Population Movement and Disease Transmission during COVID-19 Outbreak in the Nordics**. Their study investigates the use of mobile data to understand patterns of population

movements and disease transmission during the COVID-19 outbreak. It also focuses on understanding the implications of using this data for individual privacy. Using a mixed methods approach, they present 10 rich qualitative interviews and 412 survey responses from participants across the Nordics. Their novel results show that the use of mobile data can be characterized by two main categories: validation data and complementary data. They also identify five implications for practice: sharing resources and expertise between health agencies and telecom companies; extended collaboration with multiple network operators; cross-disciplinary collaboration among multiple parties; developing data and privacy guidelines; and developing novel methods and tools to address the trade-off between maintaining individual privacy and obtaining detailed information from mobile data. These implications may inform immediate and future actions to prepare for, mitigate, and control the spread of infectious diseases using mobile data. They also show privacy-driven limitations of mobile data in terms of data accuracy, richness, and scope.

The paper on **Augmented Spaces: Introducing a Technology-Supported Home Environment to Improve our Mental Health during "Work from Home" Isolation** is the fifth contribution in the mini track. The authors, Katja Thoring and Laura Revelo note that many restrictions were implemented to prevent the spread of disease during the COVID-19 pandemic. These restrictions included working from home (WFH) and self-isolating as much as possible. However, this situation had a negative impact on workers' mental health, causing depression and anxiety in many employees around the world. In this context, these authors hypothesized that home spaces could become a catalyst of positive emotions through the use of technology-supported home environments, which use cyber-physical systems to reduce mental health symptoms during the lockdown. They used a qualitative approach, through interviews and cultural probes, to understand the experience of people who were forced to work from home during the lockdown. Additionally, they employed a design science approach to explore technology-supported solutions that could enhance home spaces. The result is a system that mixes analog and digital elements to create interactive rooms, which have a positive impact on people's well-being.

Finally, paper six examines **Communicating with the masses from isolation: What happened when local television journalists worked from home**. The authors, Keren Henderson, Kevin Crowston and Raghav Raheja observe that many local TV newsrooms decided to have employees work from

home (WFH) or the field rather than from the newsroom, in response to the COVID-19 crisis. Starting with a review of research on telework, they identified possible impacts of WFH on worker effectiveness, conceptualized as including output, individual satisfaction and growth, and group well-being. From a case study of a local TV newsroom and interviews with news directors, they found that WFH was successful in creating a newscast, albeit with some concerns about story quality. However, WFH did not seem to satisfy workers individually or as a group. The recent lifting of restrictions on gatherings might mitigate some of the experienced problems, although they expect to see ongoing challenges to news workers as they continue to learn how to effectively WFH.

### **3. Future Research Contributions**

There are many facets to the COVID-19 pandemic that provide a unique research context to a wide range of information technology investigations. This mini track illustrates some of that range. Given the span of technological, social, medical, organizational and individual impacts of the pandemic, there remains much to be studied. In particular, the pandemic has emphasized the focal contribution of advanced information technologies to reduce the financial and personal impacts of COVID-19 upon students, workers, families and businesses around the world. The mini track chairs expect that the pandemic will continue to affect the lives of everyone globally, and that our learnings from these and other studies will aid in the recovery and revitalization of home life, business and society in response to this catastrophic period.