Information Management in Times of Crisis: The Role of Mindfulness and Digital Resilience for Individuals and Organisations

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1   Introduction

The crisis following the recent COVID-19 outbreak can be considered unmanageable in multiple respects. In terms of work environment and patterns, everyone has struggled to adapt to new work routines, ensure business continuity, and respond to continuous change. The reactions and attitudes of individuals and organisations have shifted from the normative patterns of the past to ever-changing templates. One of the major challenges has been, and continues to be, the widespread dissemination of unreliable information, which affects decision-making (Gachter et al., 2010).

Compared to other types of information (e.g., genuine news), prior research in the Information Management field has shown that the diffusion of misinformation, specifically that of fake news, is equivalent to a 'wildfire' (Dwivedi et al. 2018; Vishwanath 2015). Multiple implications may emerge due to the spread of false information, as shown during the COVID-19 pandemic, as for example, the disruption of business continuity planning and preventable loss of life (Dwivedi et al., 2020). Circulating misleading information concerning tourism, supply chain alertness, innovation processes, and other business activities has further deepened the humanitarian crisis (Blyth & Mallett, 2020). At the same time, policies put together by the World Health Organisation (WHO) and governments around the world have been directly impacted by fake news and false information. As a result, a new requirement for the Information Management discipline entailed relying on mindfulness, digital resilience practices and reliable technologies for effective information handling (Endsley 2018).

For this reason, for this Special Issue, we invited authors to consider whether and how mindfulness and digital resilience may tackle the diffusion and the implications of misinformation.

On the one hand, digital resilience is typically understood as building mechanisms that instil systems with trust and integrity (Rai, 2020), which can, in turn, support recovery from or adjusting to major disruptions (Boh, Constantinides, Padmanabhan and Viswanathan, 2020). Indeed, the theme of digital resilience has been at the forefront of Information Management research and is often associated inter alia with studies on the management of crises, disasters, and disruptions. Recent crises have proved that there is a wide range of misinformation and fake news streamed through social media feeds and disrupting resilience planning for organisations, society as well as vulnerable communities of people, e.g., fake news spread for the Ebola outbreak in 2014 (Hellmann et al., 2016), or the Covid-19 pandemic (Fathi & Hugenbusch, 2021).

Mindfulness, on the other hand, denotes individual and organisational alertness and awareness, which allows "resist[ing] bandwagon pressure" and thus supports identifying more reliable solutions (Dernbecher & Beck, 2017, p.121). Over the last two decades, the theme of mindfulness has been attracting the attention of scholars (Dernbecher & Beck., 2017), and research on this topic has been thriving across diverse fields: from medicine and clinical psychology to business and education. Across these fields, existing studies suggest that mindfulness practices offer benefits to individuals and concurrently significant strategic implications within and around organisational settings (Dernbecher & Beck., 2017). The concept of mindfulness originates from the Eastern philosophies of mindfulness and, more recently, the theories that relate to mindfulness-based stress reduction (MBSR) by Kabat-Zinn (Kabat-Zinn, 2003, 1982). We note that such theorisations are beyond this Editorial's scope, as they primarily focus on emotions, compassion, and one's attitude towards the environment and their surroundings (people and nature). Instead, in this Editorial, when we refer to mindfulness, we draw primarily from the principles espoused by Langer (1989), who focuses on external factors related to information processing and individual cognitive abilities, and which have been traditionally adopted in the Information Systems and Information Management disciplines (Dernbecher and Beck, 2017).

Based on the above discussion, it follows that digital resilience and mindfulness can work together in a complementary fashion towards handling and mitigating the impacts of fake news, misinformation, and disinformation and eventually overcoming and recovering from critical events and shocks. Digital resilience provides the mechanisms within systems and organisations for assessing disruptions and the quality and integrity of information and thus recovering from information-related crises. Mindfulness highlights the importance of the external factors that might influence the quality of information processing and one's abilities to make sense of the provided information. Indeed, most of the submissions we received as part of the special issue confirm that digital resilience and mindfulness are vital for recovering from and adapting to shocks in times of crisis.

2 Major concerns during fake news, misinformation, and disinformation periods

Before proceeding with the presentation of the papers that form part of this Special Issue, we would like first to revisit some of the key areas that were of concern in terms of IT mindfulness and digital resilience in relation to misinformation at the time we were preparing the call for papers. While the Special Issue was motivated by real-time observations as the Covid-19 pandemic was unfolding, at the same time, we noted that the core concepts of digital resilience and IT mindfulness were largely underexplored and under-theorised in terms of how these might work together for combatting misinformation at the various stages of the information systems lifecycle. In addition, while the call for papers was published during the pandemic, we were interested in seeing how these concepts could be more relevant to periods of crisis, such as humanitarian crises and other events. Based on our experience with the Information Management literature, we noted that misinformation has several implications, spanning the individual, organisational, societal, and environmental domains. Depending on the origin and the level of analysis, these implications can then influence how IT applications and information systems are designed, developed, implemented, and eventually used, but also how the origins of misinformation can be understood and addressed.

Broadly, we observed that there are three types of challenges when it comes to fake news, misinformation, and disinformation: challenges relating to data, challenges in terms of management and reducing the diffusion of fake news, misinformation and disinformation, and challenges relating to identifying and addressing the implications of these (Table 1). The way these challenges might be understood and considered will naturally change depending on the desired level of analysis and the nature of the crisis itself. For example, adopting an organisational perspective, researchers might wish to focus more on the quality of data (thematic area 1), and the implications of biases in the data in terms of organisational decision-making, whereas adopting a societal perspective, others might wish to explore more the mechanisms and the implications of the diffusion of fake news, misinformation and disinformation. Nevertheless, the common denominator across all three identified thematic areas is that technology plays a core part. Advanced technologies such as Artificial Intelligence (AI), Big Data and Data Analytics can be leveraged to disrupt the devastating effects of misleading information and possibly prevent it altogether. In addition, they can be used to support decision-making by anchoring the process on accurate data (Jayawickrama et al. 2019; Roozenbeek and van der Linden 2019), thereby reducing the potential for fake news to influence decisions negatively. Similarly, such technologies can be used to enable and support IT mindfulness, whereby data analytics, for example, can help individuals focus on the details that can have considerable influence over their decision-making and the potential societal and organisational implications of such decisions (Thatcher et al., 2018).

Over the last few years, we have witnessed an explosion of research that focuses on digital resilience as well as mindfulness (e.g., Belhadi et al., 2021; Frederico et al., 2021; Zamani et al., 2022; Dernbecher and Beck, 2017). However, the technological advances mentioned above, and

others such as distributed systems, cloud computing, the Internet of Things and Blockchain technologies, to name a few, pose several open questions in terms of whether and how they can be leveraged for digital resilience, how they might enable IT mindfulness as well to what extent they can be used to combat fake news, misinformation and disinformation, as well as their effects.

The papers submitted to this special issue can be mapped against one or more thematic areas. In addition, many of these papers have a distinct focus on distinct technologies and systems, such as decision support systems and social media. We note that many papers focus specifically on the latter, i.e., social media. We consider that this is easily explained if one considers that social media, because of their affordances, have played a central role in spreading unscrutinised information before, during and after the recent pandemic, as well as during other periods of crisis.

In the next section, we present the accepted papers in more detail by clustering them around the three thematic areas: data, diffusion, and implications.

Table 1: Challenges observed during the diffusion of fake news, misinformation, and disinformation and indicative research questions.

Thematic Area	Challenge	Possible research questions
Data during misinformation periods	Data and information are at the core of crisis management. We need accurate and valid information to handle crises, but such information can only be as good as the data we draw from the wider environment. Data is often incomplete and fragmented, and how it is analysed is often distorted purposefully or not, mainly due to resource and time constraints.	- What is the relationship between data bias and fake news, misinformation, and disinformation? - What theories can be used to explain such relationships? - What implications does a crisis bring about regarding data and its management? - What are the challenges of adopting a digital resilience strategy in terms of data management during periods of crisis? - What are the ethical implications and risks in terms of data sharing during periods of crisis?

Diffusion of misinformation (e.g., fake news)	Web 2.0 and other information systems have made the diffusion of information more accessible than ever; with that, however, come significant implications whereby the ease of spreading information and the time pressure exerted during a crisis may not allow for scrutinising the validity of the information shared and diffused.	- How do/can users of online media detect fake news, misinformation, and disinformation? Can misleading information be detected, and if yes, how? - What factors facilitate/inhibit the diffusion of fake news, misinformation, and disinformation? - How can individuals and organisations build digital resilience towards the diffusion of fake news, misinformation, and disinformation? - What are the impacts of fake news on communities (online or offline)? -
Implications of misinformation	Misinformation has implications across several areas. When focusing on crises, misinformation inhibits its management and recovery from such crises because individuals and organisations do not base their decision-making on truthful and accurate information. As such, decision-making may lead to less-than-ideal situations.	- What might be the implications of fake news, misinformation, and disinformation in terms of decision-making during a crisis? - How can mindfulness support decision-making during fake news, misinformation, and disinformation? - How can digital resilience be enhanced to reduce the implications of fake news, misinformation, and disinformation?

3   The papers in this special issue

This Special Issue presents contributions from researchers and practitioners at the crossroads of IT mindfulness and digital resilience during periods of crisis for Information Management. We focused on advancing scholarly knowledge and understanding of the effects of fake news and misinformation on Information Management practices. Through our call for papers, we invited the research community to investigate various topics and discuss the role of mindfulness and digital resilience for individuals and organisations in times of crisis and from multiple perspectives. Through a rigorous and intensive review process, we identified ten papers, all of which relate to the broad area of digital resilience and mindfulness, as understood and applied during times of crisis. While we received several articles of high quality, we chose to select those with the strongest fit with the Information Management discipline, which at the same time offer novel theoretical perspectives and advance our understanding in the particular area. We also sought to include papers that leverage different methodologies for the Information Management challenges in times of crisis. Papers in this special issue include the following:

One of the thematic clusters in the selection of papers comes with discussions on **data management during a crisis**. The paper by Flynn et al. (2022) builds on a case study and provides awareness of the complexities of data management. The authors propose the concept of 'mindful data' as an outcome of understanding key characteristics of resilient data supply chains. The paper by Paulus et al. (2022) focuses on biases in the data and the cognitive processes of analysts and decision-makers during periods of crisis. Through a three-stage experiment, Paulus et al. (2022) demonstrate the increased risk of inadequate response and propose mitigation approaches to the interplay of data and cognitive biases. The confirmation bias challenge is also presented in the paper by Modgil et al. (2022) in the context of social media polarisation. The study contributes with a conceptual model developed through the thematic analysis of the interplay between two key components of this phenomenon: confirmation bias (reinforcing one's attitudes and beliefs) and echo chambers (i.e., hearing one's own voice).

Social media is at the core of attention for the diffusion of "fake news". Olan et al. (2022) propose a conceptual framework based on the literature on fake news, social media and societal acceptance theory and develop this into a meta-framework for analysing survey data. The area of social media is also analysed in the study by Soetekouw and Angelopoulos (2022), who conducted an online experiment focusing on the effects of a training protocol and the relationship between said protocol and social media users' ability to detect fake news. Schmid et al. (2022), too, consider social media users' digital resilience and propose a web app based on a Social Network Analysis (SNA) approach for recognising misleading versus. Non-misleading social media content can enable learning and prevent the adverse effects of "fake news".

Mindfulness and digital resilience form the core part of the papers by Ioannou et al. (2002) and Rodrigo et al. (2022), whereby the authors focus on the **adverse effects of "fake news" and misinformation**. Ioannou et al. (2022) propose mindfulness to mitigate the consequences of technostress caused by misinformation. Rodrigo et al. (2022) provide mindfulness-driven interventions for enhancing digital resilience to fake news during crises. Similarly, achieving

digital resilience is the core aim of Ye et al.'s (2022) study. The authors focus on digital innovation-enabled mindfulness within an organisational context (ventures) and how digital resources can be mindfully organised to support an improved decision-making process. The last paper in this cluster is that by Pessoa et al. (2022), where the authors explore resilience through mindful practices and apply a FITradeoff Decision Support system to enhance organisational compliance and sustainability during turbulent times.

4   Conclusion

While the papers in this special issue engage with several important and timely topics regarding fake news and misinformation from an Information Management perspective, we believe that there are additional areas that can benefit from further research. It is beyond the scope of our Editorial to develop a future research agenda. However, We observe that fake news can have negative consequences for businesses, organisations, and supply chains more broadly, and it would be important to explore how such implications might be affected within the context of interorganisational collaborations, whereby local contexts may influence different national and international supply chains. It would also be interesting to investigate the extent to which emerging and disruptive technologies, such as Artificial Intelligence, big data, and distributed ledger technologies, to name only a few, could smooth out the effects of such misinformation (Zamani et al., 2022).

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