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### Social values dilemmas of the 'digital first' paradigm of societal digitalization

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# ***Societal digitalization, value dilemmas, and the 'digital first' paradigm: The broader questions of contract tracing apps in the post pandemic period.***

Panel Proposal  
ICIS 2023

## **Introduction:**

The recent announcements of ChatGPT and the World Health Organization commissioning Deutsche Telekom to build a smart vaccine passport based on QR Code technology have once again brought digital risks to the forefront of IS discourse. Both these announcements seem to follow the '*digital first*' or '*digital by default*' paradigm (Baskerville et al., 2020; Schou, & Pors, 2019), and its '*ontological reversal and technically feasible design philosophy*' to challenge the core assumptions of the socio-technical approach which is a defining characteristic of the IS discipline. Moreover, there are many examples of the digital first approach including: technologies for crime prediction (Bowyer et al., 2020; Fussey, et al., 2021; Gill, 2020; Jaume-Palasi, 2019; Miró Llinares, 2020); health risk prediction (Obermeyer et al., 2019; Vyas et al., 2020); and debt collection from citizens (Rinta-Kahila et al., 2021). The premise in all of these examples is the automated prediction of parameters of societal consequence, namely, committing a crime; risk to health and debt payment, to then classify citizens as, respectively, criminals, unhealthy and delinquent (not dissimilar from the dystopian logics of Orwellian 'thought crime' and the 'pre-crime' in Spielberg's *Minority Report*, Schlagwein & Willcocks, 2023).

In this panel debate we use COVID-19 contact tracing apps as an exemplar of the digital first paradigm and its challenges, issues and dilemmas. Early in 2020, the emerging international public health management crisis of the COVID-19 pandemic motivated governments and technology companies to quickly deploy various forms of digital surveillance and contact tracing applications around the world. Many governments and technology companies in Europe, Asia and North America rapidly developed and deployed COVID-19 contact tracing apps and encouraged citizens to use them. Most of these apps followed the '*digital first*' paradigm. In other words, designers went for what was technically feasible for mass surveillance and tracking of individuals, while ignoring the complex realities of the SARS-CoV-2 virus transmission paths and the social geography of the problem space (Rowe, et. al., 2020; Rowe et al., 2022). The basic argument posited for such massive societal digitalization projects was that surveillance of the movement of individuals and contact tracing would help public health authorities control person to person transmission of the SARS-CoV-2 virus. But shortly after launch, most of the digital contact tracing apps failed in western countries (e.g. Canada, France, Germany, UK), and there were few cases of success such as South Korea and China (Cebrian, 2021; White & Van Basshuysen, 2021). Notably, the instances of success happened in concert with overall societal digitalization strategies already adopted in these countries, that involve complete tracking of personal data available through closed-circuit television (CCTV), geofencing electronic tracker wristbands for those in quarantine and right to collect and publish public data including travel histories of confirmed patients (Boeing & Wang, 2021; Weiß, Esdar & Hübner, 2021). For instance, in South Korea, authorities used credit card transaction records, CCTV footage, and medical records (Lee & Kim, 2021). More recently, epidemiologists have argued that contact tracing apps are ineffective and fraught with ethical challenges (Anglemyer, et. al., 2020; Braithwaite, et. al., 2020; Lucivero, et. al., 2020).

## **Issues and dilemmas:**

These recent experiences with contact tracing apps raise several philosophical issues about digital design and human freedoms (ethical design, mass surveillance, and information privacy) in the digital society, which require critical scientific debate within the IS discipline. While it may be argued that these issues result from and are limited to the public health management crisis of the COVID-19 pandemic, they are constitutive of the complex and intractable emerging sociotechnical problems of pervasive digitalization and the '*digital first*' (or digital by default) approach of technology companies and government, that free and open societies are now facing. The stakes are high: the pervasive digitalization of everyday life is

fundamentally transforming the social and institutional foundations, the constitutive conditions of our freedom and humanity. As IS scientists, our core intellectual challenge of the moment is the development of knowledge for managing the emerging risks from the digital first approach. The purpose of this panel is to advance and expand critical debate on these important issues. The proposed panelists have recently published several articles on different aspects of the complex problem of digital contact tracing and the social values dilemma of societal digitalization. Each is a proponent of different philosophical perspectives and research traditions of the IS discipline. We believe that these fundamental differences among the panelists will stimulate a vigorous debate that could help illuminate some of the emerging challenges of pervasive societal digitalization. Such a debate could help us to forge a better understanding the emerging research problems, and how we might mobilize the scientific capabilities across the different paradigms of the IS discipline to develop solutions.

The issues and dilemmas that the panel will debate are:

1. When we design and deploy digital apps for public management, what choices are we willing to make concerning risks and benefits to individuals and society?
2. Why has digital contract tracing not succeeded in large parts of the world but has succeeded in others? Poor and inappropriate design is one issue, but is it the only issue? Were the challenges because of digital technology limitations or due to inefficiencies in the supporting institutional structures? Is digital contact tracing superior to manual contact tracing?
3. In times of panic and stress how do governments collaborate with scientific communities to screen potentially beneficial technologies in terms of possible negative side effects? When a crisis is past, how can harms from the digital solution be addressed and how can use of the technology be rolled back?
4. When and under what conditions might the '*digital first, digital by default*' approach work? What are potential social implications of this new '*digital first, digital by default*' philosophy?
5. Do we need digital design philosophies that are sensitive to social values dilemmas? How might we develop IS research programs that are attentive to the expanding digital risks exposure and social values dilemmas of the emerging digital society?

### **Panelists:**

**Ojelanki Ngwenyama** (chair/moderator), Professor Ted Rogers School of Management, Toronto Metropolitan University, Canada; Emeritus Professor, Faculty of Commerce, University of Cape Town, South Africa.

**Saeed Akhlaghpour**, Senior Lecturer in Information Systems at the University of Queensland Business School, Queensland, Australia.

**Karin Hedström**, Professor, Örebro University, Sweden.

**Daniel Schlagwein**, Associate Professor of Business Information Systems, The University of Sydney, Australia.

**Frantz Rowe**, Professor, Institut d'Economie et de Management de Nantes, Université de Nantes and Institut Universitaire de France, France.

### **Panel Structure**

**Ojelanki Ngwenyama** (chair/moderator) will kick off the panel with a brief discussion of the social values dilemmas of the emerging digital risk society. He will also stress the emerging challenges of balancing digital risks of mass surveillance, infringements on freedoms and liberty and the common good for society (e.g. maintaining and sustaining health staff in hospitals, minimizing losses and impairment). Each panelist will then be asked to give a 5-minute position statement. Following these opening statements, the chair will pose the four questions in *issues and dilemmas* to the panelists and there will be four 10-minute rounds of open discussion. During each round, the chair will pose a question to the panelists. After each panelist has

responded, the chair will open the floor for comments and questions. At the end of each round, Ojelanki will ask the audience to “vote” (indicate support for or against) on the question: Is *Digital First* and *Digital by Default* good even with good intentions? At the end of the three rounds, Ojelanki will summarize the sentiments of the audience on the debaters’ positions.

**Duration:** 90 minutes

time	Agenda	Facilitator
5 minutes	Introduction to the topic and panelists	Chair/Moderator
3 minutes each (12)	Presenting position on the topic, addressing the issues raised	Each panelist
40 minutes	Open discussion	Panelists & audience
20 minutes	Audience Voting on specific questions	Audience and panelists
5 minutes	Conclusions and take-aways for further research	Chair/Moderator

**Participation Position Statements:**

**Saeed Akhlaghpour**

**Position statement:** We need a better understanding of how digital actors engage with digital-first artifacts. Digital Contact Tracing is good, but needs a "privacy by design philosophy" and data governance standards to ensure compliance with individual data privacy protections.

**Saeed** will argue there could be a silver lining in the widespread failure stories of Covid-19 contact tracing apps. Governments, international agencies, and tech companies devised data protection measures to ensure mass adoption of Covid-19 contact tracing systems, but achieved varying, more often low, levels of success. In a rare joint effort, Apple and Google developed the Exposure Notifications API “with user privacy and security central to the design.” The Australian parliament enacted Covid-19 contact tracing app law, with strict penalties of up to 5-years jail for violations of encryption protocols and data usage for any purpose other than contact tracing. A public controversy happened when the UK COVID-19 contact tracing system went live without a data protection impact assessment (DPIA) – an alleged violation of the General Data Protection Regulation (GDPR). These high-profile stories sparked intense public debate over issues of privacy and surveillance. Saeed and colleagues conducted two large-scale surveys of privacy concerns and adoption of mobile contact tracing apps (in the US, Hassandoust et al. 2021; in Australia, Lockey et al. 2021). They found that people refused to use these apps largely due to surveillance and privacy concerns. Their subsequent studies of user reviews of these apps further confirmed these findings (Namvar et al. 2022). The overall failure of the contact tracing apps reaffirms the need for robust protections and well-justified data governance standards, as a way to enable public trust and acceptance of digital systems. He proposes that analyzing the trajectories of contact tracing systems provides a promising foundation for IS scholars to depart from simple dichotomies of privacy vs. efficiency, or individual freedom vs. public good. He discusses potential theoretical lenses for studying the complex picture of how institutional actors engage with a digital-first artifact in their attempt to influence the future reality that technology and human interactions will co-create (Sharifi et al. 2022).

**Karin Hedström**

**Position statement:** Digital first artefacts for e-government should meet expectations of public values. Therefore, as government technology, Contact Tracing Apps can be good when they reflect the public values.

**Karin** will argue digital contact-tracing apps raise questions about what public values such a technology embeds and reproduces, and about the citizen-government relation where a state-sanction technology risks stigmatizing other citizens. In a “digital first” era, the citizen-government relation is the technological interface. Karin argues that digital contact-tracing apps and other e-government technologies which are the interface between governments and citizens have bearing on the legitimacy of governments. Development,

use and introduction of such technologies in government, have to be in line with core public values, as they are reproduced, articulated and used as the basis of public e-government. This is however not always the case, since technology is often dis-embedded from social aims and changes in e-government, resulting in a disconnection between the organization of government and the production of public values (Meijer, 2015).

One of the core values of just institutions and a legitimate democratic governance is the possibility to hold public administration accountable for decision made on behalf of the political system and how these are affecting its citizens, i.e. public accountability (Bovens et al., 2014). Governmental technology used by citizens creates new arrangements and re-locates power relations (Wihlborg et al. 2016). Public values such as impartiality and accountability as well as laws and other practices are embedded into the technology. Karin and co-authors found that citizens with awareness of governmental automatic decision making are more positive about automatic decision making in governments than citizens who lack awareness (Denk et al. 2022). Also, citizens with awareness expect that decisions taken by computers are more reliable and impartial. This finding has bearing on the idea of the 'digital first' paradigm, showing how transparency and openness are pivotal for a legitimate society.

### **Daniel Schlagwein**

**Position statement:** Digital first is problematic. Concretely, digital contact tracing of the type offered by Apple/Google and others will work (only) if embedded into a comprehensive sociotechnical public health approach and social consensus. In a broader view, we must ask how digital amplifies or redistributes societal power been nation-state, global corporations and the individual – which is not primarily a functional question of 'what works' in the short term but of the fundamental values f a embedded in the landscape of a digitalised society and the alternative (digital) future(s) we could chose to create.

**Daniel** will argue that digital contact tracing presents a fascinating case study for studying differences in how countries and their societies prioritise various aspects at the individual and collective level in implementing population-wide information systems. Much can be gained from studying the differences in success in making digital contact tracing work as part of more comprehensive public health responses. He will argue that the technology-driven, digital first approach, applied in many countries is bound to fail as it places the technological solution outside of and against established public health responses. Digital first suggests a dichotomy that often manifests in comparisons of 'digital versus manual', pitching apps against manual contact tracing, and discussions of which ones are better – grounded in a dualistic humans vs machines rhetoric. Practically, this manifest when technology companies such as Apple and Google roll out solutions that sit outside of established public health responses, of which manual contact tracing was just one approach. Such developments are highly problematic and result in fractured data collection, uncoordinated health responses, missed opportunities and in the end a lack of support for and adoption of digital contract tracing. Digital contact tracing is likely a powerful arrow in the public health quiver, but not a solution per se, as 'digital first' would suggest. From an IS research point of view it is interesting to note that we still have to argue for the advantages of a comprehensive socio-technical approaches to pernicious problems, such as the public health response to COVID-19, as technological 'solutions' take precedent. Daniel will show with comparisons between different countries that solutions born out of the traditional health system can often trump in their effectiveness, the technology-driven 'digital first' approaches. For example, Australia, in particular the state of New South Wales, has implemented a highly effective digital contact tracing solution in the form of QR-code based venue check-in, which has helped in keeping any outbreaks under control and the country largely COVID-free. This solution relied on low-tech digital solutions and integrated from the start with the manual contact tracing system; it proved highly effective for months in keeping the country COVID-free and the economy open, while buying time to get the population vaccinated, before more contagious variants emerged. Daniel will conclude that the IS community would do itself a disservice if it dismissed digital contact tracing as a technology failure, just because 'digital first' has proven ineffective. Instead, it exemplifies a far more fundamental and yet-to-be-resolved issue in terms of as tension between a digitalised, globalised world, nation states and individual freedom (a question of values more than of effectiveness).

### **Frantz Rowe**

**Position Statement:** Digital first is dangerous when it creates the illusion that we understand nature and social phenomenon for which we design solutions. Whatever their design and the good prosocial intentions,

Contact Tracing Apps are bad because of the long-term risks involved and their irrelevance to the problems of public health.

**Frantz** will argue that Smartphone Contact Tracing Apps (SCTA) are at best only marginally effective in fighting the pandemic and can constitute a dangerous trap for individuals and society. This position is informed by the French case and will be argued as valid in western societies. Whatever its architectural *design*, SCTA can be breached, thus creating an infringement on data privacy. While some designs are more or less vulnerable to data breaches and attacks, the history of security at State level shows that nothing is totally secure. The security of SCTA depends on their technology (e.g. Bluetooth, or GPS) and their architecture (e.g. centralized or decentralized). Even if SCTA exchange only meta data, the exchanges are encrypted, and the data are periodically erased and pseudoneumized, all conditions respected in the French case, data leaks can still happen via triangulation in the centralized case (Rowe, 2020), while decentralized cases are not necessarily more secure (White & Van Basshuysen, 2021).

For SCTA to be part of an effective strategy to fight the pandemics, at least three conditions need to be met (Rowe, 2020): 1) Correct information qualifying individuals as infected and contagious requires that population be tested and that tests are not error-prone. 2) When a contagious person meets or crosses another person, both parties must have a smartphone with the app in use. 3) A very high proportion of smartphone users must download and activate the app. It is very unlikely that all these conditions will be met. Furthermore, these conditions are not sufficient for digital contact beyond the country level, which would make such apps irrelevant for international travel (Rowe et al., 2020). More importantly, at individual and societal levels, the adoption of such apps creates various dangers. Individuals can be discriminated against, a risk that is now even higher with the vaccine passport that maybe related directly to SCTA (Thenoz et al., 2023). Moreover, individuals can increase their individual risk of developing health problems due to wifi (Pall, 2018) or get robbed when carrying it on the body with Bluetooth on. At societal levels, there is the risk of moving towards a surveillance society where distrust reigns (Rowe et al., 2020). Finally, such surveillance and distrust based on contact tracing makes the other a danger and Big Brother our protector while it appears that the main covid transmission path does not occur through direct contact (Rowe et al., 2022). A major implication of this is that even if digital may be a solution, our obsession with digital by default diverts us from thinking about the problem space correctly. Currently SCTA adoption requires interpretation beyond good pro-social intentions and behaviors (Trang et al., 2021). It constitutes or reveals a disruptive change in the values of western societies. While IS research is well positioned to study these contexts, promoting some success of SCTA may mean promoting neo-liberal governmentality where the State is not responsible for anything and where tensions and guilt put individuals under high stress in times that are difficult such as a pandemic. Following a value sensitive design orientation, we should not only ask ourselves whether the local context requires SCTA, but whether our societal values have really changed (Rowe, 2018) or whether we are being manipulated by governments using pandemics as an opportunity to increase their control through quantitative management and big tech who take the opportunity to sell their technology for their self-interest. Theoretically such case of digital solutionism can be interpreted as a case of false consciousness (Ngwenyama et al., 2023) possibly related to a lack of interdisciplinary dialogue (Rowe et al., 2020).

## Participation Statement

All panelists listed below have agreed to attend the conference and to serve on the panel.

### Biographies:

**Saeed Akhlaghpour** is Senior Lecturer in Information Systems at the University of Queensland Business School, Queensland, Australia, and the Fellow of Higher Education Academy. He is a PhD in Management from McGill University, Canada. Saeed's research interest are data privacy and cybersecurity, and diffusion and adoption of digital innovations. He has published in journals including *American Journal of Sociology*, *Journal of the Association for Information Systems*, *Journal of Information Technology*, *Information and Organization*, and *Journal of the American Medical Informatics Association*. He is an Associate Editor of *Asia Pacific Journal of Information Systems*, and *International Conference on Information Systems* and an Editorial Board member of *Information and Organization* and *Journal of Electronic Commerce in*

*Organizations.* As a cyber security and data privacy expert, he has appeared in national news outlets including The Courier Mail and ABC News.

**Karin Hedström** is professor of Informatics at the School of Business Örebro University, Sweden and Dean of the Faculty of Business, Science and Engineering at Örebro University. She received her PhD in 2004 from Linköping University, Sweden and was appointed Professor in 2016. She is interested in the role of values for development and use of information systems. Hedström's research is mainly carried out within the areas of information security and eGovernment. Her research has been published in journals such as Government Information Quarterly, Information Polity, Journal of Strategic Information Systems, Information Management and Computers & Security. She is currently the Chair of IFIP TC 11 Working Group 1 - Information Security Management.

**Daniel Schlagwein** is Associate Professor of Business Information Systems at The University of Sydney, Editor-in-Chief of the Journal of Information Technology and Leader of the Digital Disruption Future(s) Group. His research focuses on digital work, digital nomadism, crowdsourcing and IT-enabled openness. He is the Lead Chief Investigator on the ARC (Australian Government) Discovery Project on Digital Nomadism 2019-23, and frequently advises governments and organizations on nomadic and remote work. He has published over 70 peer-reviewed papers including in journals such as the European Journal of Information Systems, the Information Systems Journal, the Journal of Information Technology, the Journal of the Association for Information Systems and The Journal of Strategic Information Systems. He received best paper of the year awards from the AIS, the ASIS&T, Emerald/Information Technology & People and Elsevier/The Journal of Strategic Information Systems. Daniel was awarded the AIS Early Career Award in 2016; the \Best Information Systems Publication Award in 2017 and has been an Senior Scholar since 2020.

**Frantz Rowe** is Professor, Institut d'Economie et de Management de Nantes, University of Nantes, France. He received his PhD from the Université de Paris. He began doing research studying the use of the telephone in the 1980's at ENTPE a civil engineering school before passing an MS at UC Berkeley. In the 90's he became a professor at Telecom Paris, before joining the Université de Nantes in 1995 where he exerted the Chief Information Officer responsibility for 4 years. He is notably interested in philosophy (epistemology, ethics, metaphysics and political philosophy). He was the corresponding editor of the special issue of *European Journal of Information Systems (EJIS)* on philosophy in which he published an epilogue on "Digital transformation and values". Emeritus Editor-in-Chief of *EJIS* and *Systèmes d'Information et Management*, he is an AIS Fellow and holds a fundamental chair at Institut Universitaire de France.

### **Panel Moderator:**

**Ojelanki Ngwenyama** is Professor and Director, Institute Innovation and Technology Management, Ted Rogers School of Management, Toronto Metropolitan University, Canada; Emeritus Professor, Faculty of Commerce, University of Cape Town, South Africa, Member of the South African Academy of Science and Fellow of AIS. Ojelanki has a PhD (Computer Science) from Thomas J. Watson College of Engineering, State University of New York, Binghamton, USA; and D.Phil (hc) from the Faculty of Engineering, University of Pretoria, South Africa. Ojelanki's research focuses on a critical social theory analysis of societal digitalization. He is a Senior Editor of *European Journal of Information Systems*.

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