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# Digital Public Goods and vulnerable populations

## *Panel*

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## Abstract

*The world faces wicked inequalities in global digital access, with nearly half of the world population (3,6 billion people) outside the connected world. The digital public goods (DPG) agenda envisions the rapid scaling and reach of information systems which can be easily implemented in a range of new contexts, to solve problems facing the most vulnerable in society. However, there is limited empirical data and theoretical knowledge to support how DPGs may facilitate or inhibit development outcomes. This panel will challenge ECIS attendees by bringing practitioners and academics together to address urgent questions about DPGs for sustainable development and showcase potential solutions toward sustainable digital futures for all.*

**Keywords:** *Digital Public Goods, Sustainable Development, Vulnerable Population, Digital Platforms*

## 1  Introduction

Recent global multilateral initiatives have raised the profile of the agenda for "digital public goods" (DPGs), defined by one such initiative as a range of open-source software, products, and standards that can help attain Sustainable Development Goals (Digital Public Goods Alliance, 2023a). These efforts include a range of existing digital infrastructures re-framed as DPGs as well as novel interventions that address key governance challenges including financial inclusion, health, and climate change adaptation (Digital Public Goods Alliance, 2023b). The concept of "digital public goods" derives from the economic term 'public good' centered on non-rivalry and non-exclusion (Ostrom & Ostrom 1977). Examples of DPGs include OpenMRS (the open-source electronic medical record system), MOSIP (the modular open-source foundational identity system), and DHIS2 (the free and open-source health information system)[1].

Scholars have noted that "DPGs for development" is a relatively new discourse in the IS field (Nicholson et al., 2022). DPGs are portrayed by international organizations and donors as key enablers towards the accomplishment of the Sustainable Development Goals (SDGs), aligning with discourse within information

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[1] Numerous other examples of DPGs are available in the online registry of the Digital Public Goods Alliance (Digital Public Goods Alliance, 2023c).

systems research in developing countries that frame IS innovations as transformative interventions that can support socio-economic development (Avgerou, 2008).

**Within this context, this panel seeks to reflect on how DPGs can contribute to sustainable development by focusing on how DPGs engage vulnerable populations to truly co-create sustainable digital futures.**

## 2    Issues and problematization

The DPG agenda envisions the rapid scaling and reach of information systems which can be easily implemented in a range of new contexts, to solve problems facing the most vulnerable[2] in society. The world faces huge inequalities with 1.3 billion people living in multidimensional poverty[3], 1.6 billion people working in the informal economy[4] (60% of the world's employed population), and nearly 3 billion people lacking Internet access and therefore, unable to benefit from digital solutions. In a world with seven billion mobile phones, more than 5.5 billion are in low- and middle-income countries (ITU, 2020). Inequality is growing stronger among vulnerable groups affecting the entire population. Even so, the following question arises: "Why should we give priority to DPG applications for vulnerable people?" The first debate is moral - much of the innovation and technology developed so far have focused on the needs of the world's wealthier companies and people due to a large number of investments (Heeks, 2010). Nevertheless, the biggest problems such as violence, poverty, and climate change impact vulnerable people the most. The second debate is self-interested awareness - due to globalization, the problems of the poor have become the problems of the rich through terrorism, migration, and diseases. Finally, the development comprises economic, political, and social life improvements which are increasingly digital. Thus, people without digital access and skills are not benefited from these improvements (Walsham, 2012).

In such a context, as recent scholarship notes: "*there is limited empirical data and theoretical knowledge to support the relationship between DPGs and SDGs and how these technologies may facilitate or inhibit development outcomes*" (Nicholson et al., 2022). This framing also attracts legitimate concerns, now well-documented, of the risks of handling and processing data in such large information systems and the "digital vulnerabilities" they can produce (Ransbotham et al., 2016). Issues relating to privacy, data protection, and security also come to the foreground and are heightened, given that DPGs expressly seek to enfold vulnerable populations (Malgieri & Niklas, 2020). The control that government agencies can exert over DPGs systems raises new questions for the design and governance of information systems.

These issues are crystallized in the context of DPGs used in social protection[5], where governments seek to use data-intensive information systems to target the support of vulnerable people. They raise largely

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[2] Vulnerable population "refers to people or households who live in poverty, or who are confronted in life situations that increase the likelihood of extreme forms of poverty. These populations often face multiple risks and may require a range of services, from low-cost interventions such as food parcels to more costly interventions such as housing, or mental or physical health care" (OECD, 2015, p.19).

[3] The global Multidimensional Poverty Index (MPI) examines each person's deprivations across 10 indicators in three equally weighted dimensions —health, education and standard of living. It is the percentage of the population that is multidimensionally poor adjusted by the intensity of the deprivations. See more at http://hdr.undp.org/sites/default/files/mpi2020_technical_notes.pdf and OPHI MPI Methodological Note 50 at https://ophi.

[4] See more https://data.undp.org/covid-19/protect-people/vulnerable-populations/

[5] The World Bank has a vision for universal social protection to ensure that all people have the support they need and that no individuals or groups are left behind. It is the cornerstone of inclusive social policy. More than ever, countries need to build Universal Social Protection systems. Shocks are likely to become more prevalent as longer-term global trends like the evolving nature of work, demographic change, climate change, and conflict and fragility reshape economies and societies. Social protection systems help individuals and families, especially the poor and vulnerable, cope with crises and shocks, find jobs, improve productivity, invest in the health and education of their children, and

neglected questions from the perspective of beneficiaries, who experience these systems firsthand. Beneficiaries of social programs often have to choose between privacy and social security rights, as pointed out by the UN Rapporteur on extreme poverty and human rights (UN, 2019). This is because, not infrequently, these people have their data exposed and the lack of transparency about the use by the State can reinforce their vulnerabilities. In this context, how do we think about social protection from the datafication of life? (Oliveira, 2021).

These issues must engage with the perspective of those most affected (and least consulted) when information systems are deployed for sustainable development. Thus, the panel will challenge ECIS attendees by bringing practitioners and academics together to address urgent questions and showcase potential solutions toward sustainable digital futures for all.

## 3    Panelists

*Panel Chairs*: Dr Edgar Whitley, Associate Professor, Department of Management at the London School of Economics and Political Science, and Dr Silvia Masiero, Associate Professor, Department of Informatics at the University of Oslo.

- Liv Marte Kristiansen Nordhaug, Co-Lead of Digital Public Goods Alliance, Norwegian Agency for Development Cooperation (NORAD).

- Johan Sæbø, Associate Professor, Department of Informatics at the University of Oslo.

- Ana Paula Tavares, Ph.D. Candidate, Brazilian School of Public and Business Administration, Getulio Vargas Foundation.

- Malavika Raghavan, MPhil/Ph.D. Candidate, Department of Management at the London School of Economics and Political Science.

- PK Senyo, Associate Professor, Department of Decision Analytics and Risk at the University of Southampton.

Panelists represent a diversity of interests, areas of empirical study and perspectives. The presentations will emphasize on the contexts that panelists work in, rather than the location of their host institutions.

## 4    Panel Structure

The panel structure is set out below, with indicative timings (to a total of 90 minutes) marked in parenthesis.

**Panel Introduction** (5 mins)
- *Introduction and framing (5 min)*: Dr Whitley will introduce the panelists and the discussions. He will frame the debate by raising provocations for the panel and the audience asking: What are digital public goods, and how can we understand the efforts around them? What is their role within broader inter-organizational networks and infrastructures supporting public services? And given their express goal

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protect the aging population. Social protection programs are at the heart of boosting human capital and empowering people to be healthy, pursue their education, and seek opportunity to lift themselves and their families out of poverty. Read more https://www.worldbank.org/en/topic/socialprotection/overview

to support development objectives, how will they serve vulnerable and poorer populations whom they seek to enfold? More critically, how can we center the user perspective and experience of groups who are the focus of DPGs during their development (rather than after the fact)?

**Opening Comments** (15-25 mins)
- ***Donor (and DPGA) perspective*** *(3-5 min):* Ms Nordhaug will make her opening comments presenting the role of the Digital Public Goods Alliance, the multi-stakeholder initiative seeking to use DPGs to attain SDG outcomes. She will frame their vision for DPGs thereby providing a starting point from which to begin interrogation and problematization for the panel.
- ***Academic perspective - theory and practice of Health DPGs*** *(3-5 min):* Dr Sæbø will draw on his extensive research studying health information systems as digital public goods in several countries, to draw out the tensions that confront these efforts. This overarching framing will provide a canvas against which to consider the experience from the ground in contexts where vulnerable populations are already interfacing with large scale digital systems.
- ***Bottom-up perspectives - Experience from Brazil*** *(3-5 min):* Ms Tavares will present vignettes and insights from her extensive on-going doctoral research in the Brazilian context, to consider how vulnerable populations themselves may view or respond to digital systems akin to DPGs.
- ***Bottom-up perspectives - Experience from India*** *(3-5 min):* Ms Raghavan will reflect on past research examining vulnerable populations' experience of infrastructures in India designated as DPGs, using the case of India's Aadhaar digital identity system. She will review policy movements that have responded to the experience of these systems.
- ***Synthesizing the role of DPGs for development*** (3-5 min): Finally, Dr Senyo will use his expertise in studying new digital technologies as well as digital interventions for development, to consider how the tensions emerging may be tackled to enable socio-economic inclusion.

**Panel discussion and audience engagement** (25 minutes x 2)
- Dr Whitley will then lead in two rounds of provocations to the panelists and audience members, supported by Dr Masiero. They will build on that have opened up in the opening comments. Specifically, some questions to highlight dilemmas arising from DPGs include:
    - Their organizing vision: Which stakeholders build them? What lessons do we have for ensuring these visions are reflexive to the needs of the populations for whom DPGs are built?
    - The role of multistakeholder initiatives in creating large inter-organizational IT infrastructures like the DPGs: What are the lessons from the last decades of work on managing generative digital infrastructures?

- The second round will seek to build on solutions or impasses that may emerge, drawing on lessons from 50 years of systems development and globalization. Questions include:
    - How can we build on insights on the socio-technically embedded nature of IT and the need for context-aware computing?
    - How can we avoid re-creating tropes of diffusion of IS innovation from Global North to South (while being aware of this discussion taking place in Norway for systems implemented in developing countries)?

The panel will also seek to examine how the historical development of large-scale information systems has influenced their trajectories, and what lessons may emerge for DPGs.

**Close** (10 minutes)

The panel will close with panelists providing their initial reactions to the themes and insights that have emerged during the session.

# 5      Biographies

Ana Paula Tavares, Edgar Whitley, Malavika Raghavan, and Silvia Masiero will serve as the panel's organizers.

Ana Paula Tavares. Ana Paula is a 4th Year Ph.D. Candidate at Getulio Vargas Foundation in Rio de Janeiro, Brazil. Her research is centered on the use of ICTs for societal good. She is interested in how ICTs could address societal challenges, such as sustainable development, well-being, and human emancipation for vulnerable groups. Her main topics of interest are digital inclusion, ICT4D, digital transformation, digital social innovation, human-computer interaction, and responsible tech. With over 14 years of experience in digital innovation strategy as a business executive and entrepreneur, Ana Paula has developed several digital projects in Paris, Tokyo, Dubai, and Rio de Janeiro. She is currently conducting research in collaboration with the Information Systems Research Group at the University of Oslo as part of her Doctoral Program.

Edgar Whitley. Edgar is Associate Professor in the Department of Management at the London School of Economics. He is co-editor of Information Technology and People and a senior editor for the Journal of Information Technology. During the pandemic, he was an expert advisor for a series of Ada Lovelace Institute reports on technological responses to COVID-19. Edgar is co-chair of the Privacy and Consumer Advisory Group (PCAG) to the Government Digital Service and GOV.UK. Edgar is also an academic member of the College of Experts for the UK's Department of Digital, Culture, Media and Sport.

Johan Ivar Sæbø. Johan is Associate Profession of Digitalisation in the Department of Informatics at the University of Oslo. For over a decade, he has engaged with Health Information Systems Programme (HISP) (a global action research network to support DHIS2 implementation) with extensive field work in Cuba, Botswana, Sierra Leone as well as being involved in a range of implementation activities throughout Africa and Asia. He has also worked with the World Health Organization supporting the Health Metrics Network strengthening HIS globally. He holds broad research interest around information systems, with a socio-technical perspective on how technologies shape and are shaped by people, organizations, and society.

Liv Marte Kristiansen Nordhaug. Liv spearheaded the creation of the Digital Public Goods Alliance and has been one of its Co-Leads since 2020. In her role she leverages her 15 years of experience with the Norwegian Agency for Development Cooperation (Norad) where she has worked on country capacity building as well as leading a number of digital innovation projects involving open-source technologies. Liv studied political science at the University of Oslo and holds an Executive Master in Energy Management from the BI Norwegian Business School.

Malavika Raghavan. Malavika is a lawyer with a background in policy-focused research, currently pursuing her PhD in information systems at the London School of Economics and Political Science. Co-supervised at the LSE Law School, her doctoral research examines the interplay of law and technology in public sector information systems (specifically digital identity and welfare infrastructures). Malavika is Senior Fellow at the Future of Privacy Forum, the global think tank focussed on data privacy and responsible data practices. Prior to her PhD, she built and led a research initiative in India in partnership with the Gates Foundation, examining the impacts of digitalisation for low-income individuals and feeding insights back to policymakers and multilateral institutions. Malavika holds degrees in law from the National Academy of Legal Studies and Research (NALSAR), Hyderabad and public policy from the University of Cambridge.

PK Senyo. PK is Associate Professor in FinTech and Information Systems within the Department of Decision Analytics and Risk. His research focuses on how the use and adaptation of new digital technologies impact individuals, organisations, and society. PK's research has been published in leading journals such as Information Systems Journal, European Journal of Information Systems andInformation Technology & People and has been presented at conferences including the Academy of Management, International Conference on Information Systems, and the European Conference on Information Systems. PK also serves as Associate Editor for the European Journal of Information Systems, Senior Editor for Information Technology & People as well as Associate Editor and track co-chair for international conferences.

Silvia Masiero. Silvia is an Associate Professor of Information Systems at the University of Oslo. She has authored over 30 peer-reviewed works in the domain of Information and Communication Technology for Development (ICT4D) and has a long-standing interest in the role of digital platforms in socio-economic development processes. She is Secretary and Chair Elect of the IFIP Working Group 9.4 on the Implications of Information and Digital Technologies for Development, a Senior Editor at the Electronic Journal of Information Systems in Developing Countries, and an Associate Editor at Information Technology for Development.

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