

## Panel 55. Infrastructuring AI: A view from the Global South

### Convenors:

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**Keywords: Africa, Artificial Intelligence, Global South, digital infrastructures, technopolitics**

Unprecedented efforts are underway to harness Artificial Intelligence (AI) "for good". Unlike earlier initiatives using digital technologies to spur economic growth and improve service delivery, this new wave of digital innovation is fraught with ambivalence and complexity. While familiar narratives persist—portraying low-income countries as needing to "catch up"—new dynamics are surfacing. These include pushback against top-down innovation and fresh visions of the Global South's role in digital transformation. These tensions—rooted both in lived experiences and conceptual innovations—reflect the evolving stakes of digital progress.

Many individuals and groups have experienced first-hand the dramatic fading of the expectations digital tools will serve as "liberation technologies". They have also long questioned the promises of benevolent connectedness or entrepreneurship made by large tech corporations, whose hypocrisy has been dramatically exposed by a steady stream of leaks— from former Facebook employee Francis Haugen to Uber executive Mark MacGann.

Conceptually, innovative scholarship emerging at the intersection of Science and Technology Studies (STS), decolonial theory, and "computing in/from the South" is giving visibility both to legacies of colonial domination and to locally rooted forms of imagination and innovation. These reinvigorated efforts at decolonizing scholarship, as well as tech infrastructures and platforms, has begun offering new frameworks to interpret technological development. They challenge persistent stereotypes of low-income countries being condemned to uncritically replicate innovations from the Global North, while stressing new forms of agency in imagining distinct technological futures. With respect to AI, this means paying attention to "ground realities", centering the understanding of AI in the experiences and standpoints of particular geographies and communities, and in their histories.

To account for the complex interactions and the effects of these forces, this panel ask three orders of questions, accounting for infrastructure evolution, methods, and epistemological questions.

First, this panel seeks to analyse applications of AI as they interface with pre-existing infrastructures, and thus need to relate to long term trajectories of innovation, as well to localised visions and materialities. For example, how do AI-powered surveillance interact with existing forms of control and policing? How electricity- and water-hungry data centres emerge in countries struggling to provide these basic services to their citizens? Do legacy infrastructures deployed by specific external actors (e.g. US or Chinese companies) make it more likely to acquire AI-powered solutions from the same sources?

From a methodological standpoint, we welcome studies that are able to critically interrogate processes of innovation, follow the multiple cycles through which power and technology interact, disclosing opportunities for some, but silently excluding others.

Finally, from an epistemological perspective, we invite colleagues to explore how we can rethink the relation between AI and infrastructure from a Global South perspective. What theoretical building blocks can help to expand the rubric of STS for the Majority World? Here we seek to go beyond case studies to expand the theoretical toolbox of the discipline.



11 JUNE 2025 09.00 - 11.00

## ID 311 - Addressing Global Southern Data Scarcity: a review from African data policies

Beatrice Bonami, University of Edinburgh

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**Keywords: Southern data scarcity, Data justice and equity, Africa, Artificial Intelligence**

Data justice studies highlight how marginalised groups bear the consequences of humanity's technological development. Whereas Artificial Intelligence (AI) is often labelled as a solution for reducing carbon emissions, there is a deeper issue tied to data materialism: the infrastructure supporting digital industry – often hidden from view – comes with significant human and natural resource costs (Crawford, 2021). However, data itself presents a paradox: as the fuel of the digital industry, it must be gathered in ever-increasing volumes to train algorithms. Just as fuel powers vehicles, data powers algorithms – as the mining of data parallels the extraction of natural resources (Ricaurte, 2018, 2019; Hassan, 2022). Yet, data regulatory advances are uneven worldwide, whilst data extraction often targets underprivileged regions where data protection laws are still underdeveloped (Floridi, 2014; Zuboff, 2019).

This phenomenon is not new; tech developers consistently assert that for algorithms to achieve the necessary accuracy, they require vast amounts of diverse data. What is relatively new, nevertheless, is the growing awareness of what we can call "Southern Data Scarcity": while massive amounts of data are being collected from populations in the Global South, data access remains scarce for stakeholders in the region and, even when data is available, it reflects Global Northern parameters. The paradox is evident: populations subjected to large-scale extractions of personal and sensitive data while denied access to training datasets. This paper will address this tension while looking into African Data Regulations and understanding (i) if countries are aware of this phenomenon, (ii) how do they address it, and (iii) which solutions they can forecast. The goal is to leverage social research mixed methods (systematic review, data triangulation and discourse analysis) to understand African preparedness to address "Southern Data Scarcity."

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## ID 494 - AI powered urban surveillance: hyped narratives and long-term trajectories of governmentality and control

Iginio Gagliardone, University of the Witwatersrand

**Keywords: smart cities, Africa, China, US, AI, policing**

Smart cities incorporate some of the most critical tensions introduced by advancement in AI, in relation to their social and political consequences. As initiatives that leverage the proliferation of intelligent sensors (from smart electricity meters to surveillance cameras to users' own phones) and AI-powered analytic tools to monitor trends in urban life, smart cities enable a multiplicity of applications. They can inform and



improve the provision of services – e.g., through better traffic and transport management – but they can also be used as instruments of surveillance and control. Their duality has been a source of increasing concerns, not only in authoritarian states, accused to exploit them as ways to expand their gaze in return for better services (Hoffman, 2022), but also in more open societies. As a recently published study suggested, smart cities "as systems with authoritarian affordances may become a dangerous temptation for democracies and 'swing states' as well; although appearing in the guise of hyper-efficient 'solutions' to optimize good governance for a modern state, they can also be a means for illiberal actors to install new levers of social manipulation at the public's expense" (Kerley et al., 2022, p. 7).

To date, accounts of the implementation of Smart Cities in Africa have had sensational headlines, accusing China to seek to deploy a global Panopticon (Andersen, 2020) or to act as a digital coloniser (Gravett, 2020). This approach has assumed that the expansion of Smart Cities in Africa has been guided by aggressive strategies by Chinese corporations (Huawei and ZTE in particular), and that the nature of the collaboration with these companies would have led to increased surveillance, in the absence of adequate checks and balances (Hoffman, 2022). The reality in the majority of countries on the continent is of a plurality of companies (including from the US, Japan and Europe) competing to offer solutions in an increasing lucrative market (Feldstein, 2019).

This study compares two AI-powered law enforcements projects deployed in Johannesburg and Cape Town, in South Africa. The first, the Safe City project developed by China's Huawei in Johannesburg, links cameras to form wide area networks that use artificial intelligence (AI) to index, sort and interpret data pooled into centralised surveillance-based "nerve centres". The second, the Shot Spotter project implemented by US company SoundThinking in Cape Town, uses smart sensors and AI to help law enforcement agencies collecting evidence on gun shooting incidents and help detecting patterns of gun violence. The structured comparison of the two projects allows moving beyond simplistic dichotomies between supposedly democratic and authoritarian uses of AI in urban environments. It illustrates instead the complex interactions between the socio-technical imageries originating in the countries from which specific technological solutions originate (China and the US) and the longer histories of attempts by South Africa's city administrations to seize digital technologies to fight crime and improve service delivery.

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## ID 782 - Building strategic AI research at a country level: a case study of AI Applied Research Centres in Brazil

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**Keywords: Artificial Intelligence, Dependency, AI Governance, Science and Technology Policy, AI Research**

Governing artificial intelligence has become a key concern within STS over the last few years, with scholars providing critical outlooks on current legislation or national strategies (Bareis and Katzenbach, 2022), ethical issues (Phan et al., 2022), political economy (Burkhard and Rieder, 2024), and the reproduction of technocratic discourses in the AI hype (Kitchin et al., 2019). Part of the focus has been on the transnational circulation of AI regulation, infrastructure, and discourse, with topics such as the influence of the EU AI Act in the Global South and the US-China dispute over key AI infrastructure in Latin America and Africa (Bradford, 2023). Despite the relevance of renewed extractivist impulses in AI development within the global geopolitical order, these approaches tend to miss the internal dynamics of technology development in Global South countries, such as how they articulate development against the historical underpinnings of dependency (Silva, 2025), often offering pathological views of AI development in these areas (Hassan, 2022).

In this contribution, I want to address this gap by engaging empirically with Brazil's first AI policy initiative 'in action': the creation of six AI Applied Research Centres in the country through a partnership between the São Paulo Research Foundation (Fapesp), the country's Ministry of Science, Technology, and Innovation (MCTI), and the autarchy Internet Steering Committee (CGI.br). In a process that started in 2019 with the



publication of the call for proposals, six centers were approved in 2021 focusing on four different areas: health, agriculture, manufacturing, and smart cities. Fapesp, MCTI, and CGL.br invested up to BRL 1 million per year in each center as long as recipients were able to find partner companies to invest a similar amount. The centres, which are hosted in different Brazilian regions, have been in activity since 2022-2023. Since the release of the first call, four other AI Applied Research Centres have been approved.

Drawing on a series of elite interviews with executive members of the first six applied AI research centres in Brazil, I intend to showcase how the institutes articulate AI development, socioeconomic impact, and an AI future for Brazil with the country's historical technoscientific dependency as well as infrastructural gaps. The analysis paints a picture of a policy initiative that navigates between a push for sovereignty and renewed dependency, dealing with opportunities such as a thriving scientific community and limitations such as a funding crunch.

As the country moves forward with key AI-related legislation, such as the new National AI Plan (PBIA, released in 2024), a new version of the National AI Strategy (to be released in 2025), and an AI Bill, approved in the Senate and waiting for approval in the House of Representatives, I conclude that AI governance in Brazil needs to be more strategic with the partnerships for AI developments both at a firm level and internationally, paying less attention to "catching-up" Western nations and more to the country's (and region) institutional capabilities.

