

EDITORIAL

Peripheral Visions: STS and Digitalisation in the Non-West

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The idea for this special issue emerged from a conversation between the editors (there were three when we began) at one of the most elite institutions in the world, discussing what it felt like to be from a part of the world that looked and felt incredibly different from these hallowed halls. We were all there on generous fellowships that allowed us to be visiting scholars; and we all spent our time there learning not just how academics was *done* but also how much else needed to be done. We spoke about the need for more ‘South-South collaborations’ and how we might begin such collaborations, given how difficult it was for us from such faraway places to meet, except where we were—at the heart of elite Western academia. At the outset, we would acknowledge that our time there was truly an enriching and intellectually rewarding experience. It allowed us to come together, to learn from each other, and to think through collaborations, associations, partnerships and indeed friendships that at many of us could never have otherwise dreamed of. We are grateful to our hosts and our funders for making it possible for us to be there, and for giving us the opportunity to bring together this Special Issue. The encouragement and support of Professor VV Krishna, who believed this would be a useful enterprise (and believed in us to actually get it done, even when it looked like we might give up—we missed every single deadline that was set) has been the prime mover in bringing us over the finish line.

Interrogating Power and Epistemology

The study of Science, Technology and Society (STS) from the perspective of the Global South or peripheries is critical for several reasons. This endeavour is not merely academic; it is a necessary exploration that unveils alternative paradigms

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of knowledge production, addresses global challenges and highlights the ethical implications of digital technologies. In this Special Issue, we have tried to focus on several areas within what is variously known as the non-West, the Global South, the third world, the developing world, the postcolonial and so on. Calling a large majority of the world ‘the periphery’ is as much an ironic formulation as it is a reflection of how small and unipolar the so-called ‘centre’ is. The authors in this issue are from Africa, South America and Asia (unfortunately, and we acknowledge this is a weakness, only India is represented); and they reflect on a range of issues dealing with digitalisation in many forms across these continents. There is, of course, no way to cover all countries or problems in one journal issue, but we have attempted to put together many ways of thinking through the rapid digitalisation being seen across all these geographical spaces. We would also like to acknowledge that the ‘peripheries’ can be of various kinds—not just geographical. But in this issue, we focus on those spaces that are, broadly, the ‘non-West’.

Scholars from the Global South bring invaluable perspectives that are shaped by the specific historical, cultural and political contexts of their regions. They offer critical insights into how global technologies are localised, how they intersect with indigenous knowledge systems, and how they impact governance and democracy in ways that differ significantly from the experiences of the Global North (Harding, 2008). This is particularly important as we grapple with the ethical implications of technologies that are increasingly pervasive yet unevenly distributed. The hope that scholars from these spaces offer to the world lies in their ability to articulate alternative futures and to propose models of technology and society that are more inclusive, equitable and responsive.

Understanding STS from the Global South—or the ‘peripheries’—transcends intellectual inquiry; it is a recognition of diverse knowledge systems and perspectives that challenge dominant Western paradigms. It acknowledges that alternate ways of knowing and understanding exist, shaped by unique socio-political and cultural contexts (Medina et al., 2014). This past year, as more than half of the world’s population has participated in elections and many countries have been embroiled in debilitating conflicts—such as those in Palestine, Ukraine, Sudan and Bangladesh—questions of democracy, governance, surveillance technologies and the politics surrounding them take on new and deeper meanings. In this context, two central questions are of import: Why is it crucial to study the digital? And why should we focus on the peripheries?

Digital technologies have not only transformed communication, commerce and education but also significantly impacted governance, surveillance and identity management systems. These technologies, however, have different implications depending on the region in which they are used. The Global South often experiences these impacts in unique and complex ways that are not always immediately visible in the Global North, from where they are designed and deployed.

In the current global landscape, characterised by widespread conflicts, the intersection of democracy, governance and technology becomes critically significant. Technologies have the potential both to aid democracy and to subvert it.

They can empower marginalised voices, enable civic engagement and foster transparency; yet they can also be tools of surveillance, control and manipulation. STS scholars from the peripheries are uniquely positioned to study these interactions because they bring a nuanced understanding of local contexts, histories and power dynamics. They can critically examine how technologies are adopted, adapted and resisted and can be reimagined in non-Western societies. Scholars from the Global South offer perspectives that challenge Western-centric narratives and highlight the global diversity in technological practices and impacts.

Focusing on the peripheries, or the Majority World, is essential for understanding the full impact of digital technologies. The Majority World has often been the testing ground for new technologies, particularly in the areas of surveillance, biometric systems and data-driven governance. These technologies, largely developed and exported from the West, are deployed in the peripheries in ways that reveal critical insights into the power dynamics and ethical challenges inherent in digital innovation. Scholars from postcolonial contexts have often critiqued Western models of science as being inappropriate for other contexts, arguing for alternative forms of knowledge that are more inclusive of local traditions and practices; and the need for context-sensitive approaches to scientific and technological development (Chaka, 2022; Chambers & Gillespie, 2000; Chan, 2014; Connell, 2007; Cruikshank, 2006; Hassan, 2023; Jasanoff, 2004; Mignolo, 2011; Santos, 2014; Visvanathan, 1997; Wood, 2020).

By focusing on the peripheries, we recognise that alternative paradigms of knowledge production exist. The Global South offers unique perspectives on the implementation and impact of digital technologies—perspectives that are often overlooked in mainstream academic discourse. These perspectives are crucial for understanding how digital technologies interact with local cultures, histories and power structures in ways that are fundamentally different from their interactions in the Global North.

Leaning on their unique positions and intimate knowledge of the local environments in which these technologies are deployed and operate, scholars from the Majority World are able to show how the peripheries are engaged in creative articulations of alternative modernities through different technological paradigms. Their work helps to illuminate the often-overlooked ways in which technology interacts with the social, political and economic structures in regions in the South. Moreover, this focus on the peripheries also challenges the notion of the ‘mainstream’—often synonymous with Europe and the United States—and highlights the diversity of experiences and perspectives that exist in the world.

Furthermore, the Global South plays a critical role in the global data economy. Much of the data that powers digital technologies is collected from the peripheries, often without the knowledge or consent of the individuals from whom it is harvested. This data is then used to develop technologies that are primarily produced and exported from the West, raising important ethical questions about privacy, consent and the distribution of power in the digital age (Couldry & Mejias, 2018). The exploitation of data from the Global South underscores the need to

focus on these regions when studying the digital, as they are often at the forefront of the ethical and social challenges posed by digital technologies.

Many Faces of the Digital

One of the key areas where the digital intersects with daily life is in the development and implementation of smart cities. The advent of smart cities has ushered in an era of unprecedented digital surveillance, particularly in the Global South, where such technologies are increasingly deployed under the guise of modernisation and security enhancement. The idea of smart cities in the Global South operates within complex socio-political landscapes marked by historical inequalities and authoritarian governance structures. In such a context, it becomes imperative to understand how digital surveillance exacerbates existing power asymmetries, often reinforcing social control and marginalisation rather than promoting equitable urban development. These cities, which rely on data-driven technologies to optimise urban living, raise several critical issues.

Uttara Purandare's paper *Digital Infrastructure: Public Good or Private Commodity? Rethinking the Right to Internet Access in the Context of Urban Digitisation* in this issue deals with some of these issues in light of the Smart Cities Mission in India. She asks an essential question: Should access to the internet be considered a basic right? In a country such as India, where internet penetration rates are relatively low, and the digital divide is an everyday reality, the question of access takes on new meanings. Purandare questions the legitimacy of large technology firms and venture capitalists being gatekeepers of innovation in the present system where digital infrastructure is not treated as an essential public good. What are the principles on which an inclusive and innovation-friendly grid of digital infrastructure can be built? How can democracy benefit from such a pivot where digital technologies and infrastructure work for the people instead of for the large multinational corporations? Purandare argues that such a system where Smart Cities work for the people can only be built by making important and urgent policy changes in the way that private technology firms are being integrated into governance systems within local governing bodies, especially within cities aspiring to become 'smart'.

Smart cities, however, are not the only or even primary cities in which surveillance technologies are deployed in the Global South. Several kinds of technologies of surveillance are becoming increasingly pervasive in developing countries, driven by both local and global imperatives for security and development. However, the introduction of these technologies into regions with diverse socio-political contexts raises significant concerns about their impact on civil liberties and social justice. The rapid adoption of surveillance tools, often without comprehensive regulatory oversight, risks entrenching existing inequalities and enhancing state power in ways that disproportionately affect marginalised communities. This dynamic necessitates a critical examination of how surveillance is practiced and resisted across the Global South.

Surveillance technologies, while promoted as tools for enhancing security and efficiency, can also reinforce existing power structures and exacerbate inequalities. **Alcides Eduardo dos Reis Peron and Rafael Evangelista** in their contribution titled *Beyond Instrumentarianism: Automated Facial Recognition Systems in Brazil and Digital Colonialism's Violence* explore the application of Automated Facial Recognition (AFR) systems in Brazil from a Global South perspective, linking it to the broader concept of 'surveillance capitalism' (Zuboff, 2019) and critiquing the idea that such technologies are non-violent. Peron and Evangelista introduce the concept of 'digital colonialism' to emphasise how surveillance technologies like AFR in Brazil are not just tools of economic exploitation but also reinforce systemic violence, racial discrimination and social control. They argue that these systems reinforce a disciplinary logic of social subordination, and diversify forms of symbolic violence, especially in the context of digital colonialism. They highlight that AFR in Brazil, particularly in public security and education, perpetuates a colonial legacy by exacerbating racial discrimination and inequality. Peron and Evangelista critique the concept of 'instrumentarian power' and argue that it overlooks the violent dimensions of these technologies in less developed countries.

One of the ways in which digitalisation of everyday life in the developing world makes itself known is through the rise of biometrics. **Vidya Subramanian**, in her paper *Citizenship in India: Parsing the complexity of digital identity systems* examines how this new type of identification system reorganises the notion of citizenship. India set up a system known as Aadhaar—a biometric identity project—which was established to provide each resident with a unique ID, aiming to enhance the effectiveness of social security and welfare programmes. However, it has faced issues including duplication, implementation failures, security breaches and privacy concerns. Subramanian explores the digitalisation of identity in India and identifies resistance to reducing citizenship to mere data subjects. She examines two people's movements in India to illustrate ongoing debates about citizenship, challenging the view of individuals as passive data subjects and advocating for a more nuanced understanding of political and rights-bearing citizenship.

Another important aspect is how digital technologies are entangled with development issues in low-and-middle income countries. Obviously, this conversation is not new to the Global South or the Majority World. Earlier initiatives of information and communication technology for development (ICT4D) such as the One Laptop-per-Child (OLPC) programme have proven to not produce the desired development outcomes envisioned by development agencies and local advocates of ICT4D (Fouché, 2011; Philip et al., 2012). With the emergent of new digital technologies, there is a renewed interest and desire to resurrect this agenda under new rubric such as the more recent agenda of AI for development (AI4D). So far, most of these programmes have tried to take a different development approach such as development ownership (Harper-Shipman, 2019) and to give local development partners more agency in charting the implementation path of new digital technologies. However, most of these efforts have remained largely within the

realm of technology transfer, focused on industrialisation and modernisation development paradigms designed by international donors. Many local advocates voice concerns over the disconnect between these programmes and the local context or the lack of opportunity for them to reshape the development agenda and reimagine different approaches informed by local experiences.

Gussai H. Sheikheldin and Helen Hambly in their paper titled *Technological change and technosocial systems: Re-examining sustainable development and digitalisation in Africa* take a critical look at dominant technological change models, discussing their shortcomings in addressing sustainable development in low-and-middle-income countries due to their lack of adequate understanding of the peculiarities of digitalisation processes in the South. Pointing out that digitalisation indicators are a head of industrialisation indicators in most countries in Africa, they suggest that correlation between digitalisation and development is not necessarily positive as many would assume. For example, when they examined the digitalisation of the agri-food ecosystem, they found that the traditional push-pull model results in fewer opportunities for farmers due to the disparate global investments flows and monetisation of farm-raised data off-farm. They also argue that the model does not properly protect farmers' local agriculture knowledge, highlighting the need for strong governance. Sheikheldin and Hambly propose the incorporation of systems thinking to identify possible leverage points that can improve sustainable development outcomes. They argue that systems thinking is not foreign to the African development tradition, having been championed by Pan-African figures such as J. K. Nyerere, the first president of Tanzania and Du Bois long before its debut in mainstream development thinking. Some of the potential policy recommendations they highlight are supporting more employment in productive sectors, establishing well-resourced local R&D and prioritising investments in rural and human development to align digitalisation and development indicators as well as focusing on effective engagement with youth entrepreneurs.

Many countries in the South have larger youth populations that are more actively engaged in the digital. Almost 90% of the world youth population of 1.8 billion lives in the Global South, with 67% of them in low-and-middle income countries, according to Chatham House and Cambridge Global Challenge (Mahbubani, 2024; Sahai, 2022). The role that youth in the South can play in the digital cannot be understated. However, the literature has largely focused on the youth at the intersection of digital technologies and political participation, social movements, culture or population research (Lestari et al., 2024; Oinas et al., 2017; Ruiz & Olvera, 2020; Viola, 2020). The youth participation in digital innovation remains understudied in STS, despite the growing ecosystem of regional innovation hubs in the South that are mostly influenced by youth-led tech start-ups.

Mariano Zukerfeld, Mariano Fressoli, Celeste De Marco and Verónica Xhardez in their paper *Towards the Concept of Digital Grassroots Youth Innovation* examine how youth are engaged in innovation practices in Argentina. They focus on grassroots innovation approaches and offer a counter narrative

to the one presented by dominant innovation cultures of Silicon Valley and MIT innovation models. They argue that innovation practices can be found in everyday compilation of experiences led by young people in different informal digital spaces in Argentina. These young innovators are not necessarily from affluent backgrounds or have formal education in digital technology. Zukerfeld et al. develop the concept of Digital Grassroots Youth Innovation (DGYI) to capture how digital innovation practices by youth from working-class backgrounds play-out in non-traditional and non-formal learning spaces in the margins of digital capitalism. They argue that these are active social actors firmly embedded in the digital and not passive participants incapable of creating economic and cultural value. From a policy perspective, they point out the need to have tailored initiatives and programmes that can recognise their potential and amplify their contributions.

Whether the conversation around the digital is about economic development or privacy, data protection has become a crucial issue for the digital South. The gaps in regulatory frameworks and legislation have been highlighted by many researchers, practitioners and policymakers (Coleman, 2019; Daigle, 2021; Hassan, 2023). The majority of data governance frameworks and approaches are developed in the West, taking a universalist approach, which is highly criticised in STS (Chan, 2014; Haraway, 1988; Harding, 2008, 2011), based on Euro-American centric norms and values that underpin Western legislative paradigms (Hagerty & Rubinov, 2019; Jobin et al., 2019). According to Tech Policy Press, there are thirty-seven African countries, which represents almost 70% of African nation states, with various degrees of data protection and regulations (Mureithi, 2024). Some of these regulations go back to 2008; however, several national governments including Kenya and Uganda as well as regional organisations such as the African Union (AU) have made recent strides in responding to the data protection challenges presented by emerging digital technologies such as AI and big data and have enacted laws and regulations that focus on data collection and privacy. Indeed, this is an effort that they should be applauded for, although most of these efforts largely remain influenced by European frameworks such as the GDPR with little to no attention to the specificities of the local political and social context.

Kebene Wodajo, in their contribution *Societal and Structural Risks of Biometric ID: Towards People's Right to Privacy*, looks at how African governments can respond to emerging digital ID programmes, taking an approach that is inspired by the African Charter on Human Rights and People's Rights (the Banjul Charter), mobilising African philosophical approaches that are rooted in communalism and relational ethics. She argues that data protection and privacy laws take an individualistic approach to the right to privacy based on Eurocentric ideas of liberty and rights, which results in misalignment between the understandings of the nature of societal and structural risks and legislative responses to them. For example, digital surveillance, algorithmic biases and prejudices, and state violence and oppression are often treated as homogeneous experiences in both

Western and non-Western contexts. While these unjust digital practices indeed take place in Africa and other places in the South, the understanding of the experiences of these practices are not the same in different locales and contexts.

While the right to exist is something that is taken for granted in many Western societies, large numbers of the populations across Africa are not accounted for in government's records because they lack any form of state official identifications. This situation has many socioeconomic implications for individuals and hinder their access to government social services and programmes. To avoid some of the pitfalls, seen elsewhere, that are associated with the implementation of digital ID programmes, Wodajo suggests that African regulators need to take a balanced approach based on people-centric ideas of privacy as a complementary layer of protection when looking at digital ID programmes in the continent. Some examples she discusses are ideas around collective rights and collective remedies for harm from data privacy violations for groups that collectively share some form of attribute or identity and become victims of data-driven technological encounters such as digital ID programmes due to their attributes as a social group.

Many scholars from the South are increasingly turning to decolonial scholarship to address some of the emerging challenges surrounding digital initiatives in the South (Ali, 2014; Couldry & Mejias, 2023; Mohamed et al., 2020; Schoon et al., 2020). A major focus of this literature has been on inequalities and injustices, with the aim of informing more equitable digital programmes and attempting to reimagine digital technologies in and from the peripheries. However, decolonisation approaches differ between geographies in terms of their historical origins and epistemological underpinnings. The lack of attention to the differences and nuances of decolonial approaches may result in a metaphorical mobilisation of decoloniality and superficial interventions (Moosavi, 2020; Tuck & Yang, 2012) that do not sufficiently address serious concerns of power asymmetries, economic exploitation and knowledge appropriation, and that exacerbate practices of digital extractivism and alienation.

Yousif Hassan, in his paper *The Politics of Memory: NLP Models as Liberating Artifacts*, points out that decolonisation in Africa has always been a political project about political sovereignty and economic autonomy in the continent and has a long history of entanglement with technological innovation and development trajectories that are based on African norms and values. He argues that efforts for developing Natural Language Processing (NLP) models of African Indigenous languages cannot be delinked from these histories. Many postcolonial African states embarked on efforts of Africanisation of different public sectors and pursued policies that push for the return to African Indigenous languages in education and public service. Drawing on Ngũgĩ wa Thiong'o (2009) and Ndlovu-Gatsheni (2018) decolonial approaches and ideas of linguistic dis-membering and re-membering, he argues that NLP models for African Indigenous languages can be seen as a technological practice by which the Africa's dis-membered being is re-membered. Ngũgĩ wa Thiong'o (2009)

argues that colonisation is an attempt to replace the memory of the colonised with the memory of the coloniser through language.

In this sense, NLP models for African Indigenous languages can be understood as liberating artifacts aimed at preserving Africa's memory in the digital. Hassan argues that this understanding has many implications for African governments, policymakers, activists, practitioners and the wider local AI community in the continent. There is an urgent need to ensure that these kinds of projects are not driven by only economic rationales but also consider the political and social environment when looking at what kind of investments needs to be prioritised in the digital. On the practical side, the potential of NLP applications in the continent is clear as the digital turn in Africa must not overlook the impact of digital technologies on the rural population and economy, which currently makes up the majority in most African countries.

Conclusion

In summary, the articles in this special issue are meant to provoke different conversations, challenge deep-seated assumptions and invoke new ways of thinking from and about the peripheries of the digital world. As we collectively grapple with issues of justice, equality, democracy and development in the South and elsewhere, we need to remain open to different theoretical and methodological approaches as we look for new answers. There is growing interest in the social impact of digital technologies on the Global South by Western institutions. This enthusiasm, particularly for low-and-middle-income countries, is welcomed and extremely important and valuable. However, it needs to be followed by a serious engagement with epistemologies of the South (Connell, 2007; Santos, 2014) to avoid the previous pitfalls of erroneous generalisations and interpretations that historically characterised these kinds of initiatives.

While extremely important, our aim is not just to show how digital technologies are specially being appropriated in different social settings and political contexts, or only point out the monopolistic and hegemonic nature of Western digital innovation practices and tendencies, which long defined technology transfer. What we are also hoping to do is to open up a South-South dialogue that can look beyond limited notions of the South-North digital divide and can identify areas of convergence and divergence, and map out points of intersection with the Global North. This agenda is increasingly becoming crucial, as we think about solidarity and shared digital futures in an ever increasingly globalised world.

Evidently, we are not the first ones to point out the need for a collective effort in the face of the many global challenges and opportunities presented by digital technologies. At times, critical inquiries into digital technologies might not appear surprising at all, asserting a general view of the same longstanding practices of marginalisation, oppression and alienation in the guise of new technological

innovations. Nevertheless, it is important that scholars of critical technology studies continue their work in showing the new practices and ways in which emerging technologies exacerbate existing inequalities.

Admittedly, our hope with this Special Issue is that unabating contributions from the South to theoretical and methodological formulations of the digital and more serious empirical examinations of its various local manifestations not only elevate the South as an important epistemic site of knowledge production but also nudges the conversation a little beyond critique and more towards hopeful places of positive interventions. A very important question that gets asked all the time during these conversations is where do we go from here? While we do not hold the key to answer this question, our hope is that the ideas and cases presented in this issue can contribute to this ongoing conversation about the future in a more productive way.

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