Systemic Barriers, Gendered Consequences

An Afrofeminist Analysis of Digital Public Infrastructure in Uganda, South Africa and Kenya

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Contents

List of Abbreviations

AfCFTA	African Continental Free Trade Area
AI	Artificial Intelligence
AIRA	Africa Internet Rights Alliance
AU	African Union
AU-DTS	African Union Digital Transformation Strategy
CIDER	Data for Eligibility and Response Tool (Togo)
CVRS	Civil Registration and Vital Statistics
DFA	Digital Financial Access
DPG	Digital Public Good
DPI	Digital Public Infrastructure
G2P	Government to Person (payments)
G2P / P2G	Government to Person / Person to Government (payment flows)
GBDI	Gender-Based Digital Inclusion
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GHIPSS	Ghana Interbank Payment and Settlement Systems
ICT	Information and Communication Technology
ID4D	Identification for Development (World Bank initiative)
IT4C	IT for Change (organisation)
ITU	International Telecommunication Union
MOMO Pay	Mobile Money Payment System
MPESA	Mobile Payment Service (Kenya)
NITA	National Information Technology Authority (Uganda)
POPI Act	Protection of Personal Information Act (South Africa)
REC	Regional Economic Community
RECs	Regional Economic Communities
SADC	Southern African Development Community
SASSA	South African Social Security Agency
SDG	Sustainable Development Goal
SRHR / SRIH	Sexual and Reproductive Health and Rights / Information and Health
UGHub	Uganda Government Data Exchange Platform
UIDAI	Unique Identification Authority of India
UN	United Nations
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UPI	Unified Payments Interface (India)
USAID	United States Agency for International Development

Executive Summary

Digital Public Infrastructure (DPI), defined as the foundational digital systems essential for societal participation (including digital identification, payments, and data exchange systems), is increasingly positioned as a transformative tool for Africa's development goals. However, current implementation efforts are widely criticized for focusing primarily on state-centric objectives, such as revenue mobilization and technical efficiency, while systematically excluding to prioritize citizen-centric outcomes like rights, inclusion, and welfare.

The core findings of this study reveal that persistent blindness to citizen realities, digital authoritarian practices, entrenched patriarchal norms, and structural inequities erode the trust, accessibility, and benefits of DPI, particularly for women, ethnic minorities and other underrepresented groups. This risk manifests as digital marginalization by design and governance. To rectify this, policy must urgently transition from a technology-first approach to one that utilizes rights-respecting and "gender by design" frameworks that ensure digital systems work equitably for all users.

Introduction

Africa is experiencing rapid growth in the development of digital infrastructure with the digital economy growing from 1.1 percent of GDP (Gross Domestic Product) in 2012 to a projected 8.5 percent by 2050.[1] Across the continent, Digital Public Infrastructure (DPI), the foundational systems of digital identity, digital payments, and data exchange that enables institutions to share and verify information, is redefining governance and service delivery.[2] From civil registries to e-governance portals and social protection platforms, DPI promises efficiency, financial inclusion, and citizen empowerment. [3]In countries such as Uganda, Kenya, and South Africa, DPIs have been positioned as enablers of efficiency, financial inclusion, and governance reform. Theoretically, this digital transformation should expand access to services, enhance democratic participation, and close longstanding development gaps. However, for women and other underrepresented groups such as persons with disabilities and gender-diverse individuals, these systems often amplify exclusion rather than dismantle it.[4]

This study therefore explores how gendered barriers, rooted in patriarchy, moral policing, and economic inequality, intersect with digital authoritarian practices to shape women's and other underrepresented groups' access to and use of DPIs in Uganda, Kenya, and South Africa. It adopts an Afrofeminist perspective to the conversation on DPI highlighting how structural power, patriarchy, and moral policing combine with state surveillance and control to shape who gets connected, and who remains digitally disconnected. The study contributes new evidence to the growing field of digital governance by highlighting how technology can both empower and exclude when underlying inequalities are ignored.

The findings are intended to support the African Internet Rights Alliance (AIRA) and its partners in advancing policy advocacy for inclusive and rights-based DPI ecosystems. The evidence generated aims to inform policy debates, shape future research, and ensure that Africa's digital futures are genuinely inclusive and rights-respecting.

Research Objectives

To examine how digital authoritarian practices shape women's and other underrepresented groups' access to and use of digital public infrastructure.

To analyse the intersecting impacts of patriarchy, moral policing, and historical legacies of control on women's digital disconnection.

To identify specific barriers that prevent women from accessing critical services delivered through digital platforms (for example, social protection, digital identity, e-governance).

To generate evidence that deepens understanding of how digitisation can unintentionally reproduce gender inequalities.

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1 Malchow, N., and Antonia, S. (2025). Smart Africa – Acceleration of the Digital Transformation in Africa Contributing to a Single Digital Market in Africa. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

2 Byaruhanga, B. (2025) Digital Public Infrastructure in Africa: A Looming Crisis of Equitable Access, Digital Rights, and Sovereign Control. CIPESA. Retrieved on Oct 1, 2025 from https://cipesa.org/2025/07/digital-public-infrastructure-in-africa-a-looming-crisis-of-equitable-access-digital-rights-and-sovereign-control/

3 OECD (2024), "Digital public infrastructure for digital governments", OECD Public Governance Policy Papers, No. 68, OECD Publishing, Paris, https://doi.org/10.1787/ff525dc8-en

4 Djatmiko, G. H., Sinaga, O., & Pawirosumarto, S. (2025). Digital transformation and social inclusion in public services: A qualitative analysis of e-government adoption for marginalized communities in sustainable governance. Sustainability, 17(7), 2908.

Background

Digital Public Infrastructure is a relatively new term which has increasingly become a major focus of international development. At present, diverse definitions exist explaining DPI which key fora are looking to harmonise through greater consensus on what definitively constitutes DPI. Still, one of the ways it is widely understood is as 'society-wide, digital capabilities essential to participation in society and markets as a citizen, entrepreneur and consumer in the digital era'[5]. This definition speaks to DPI's scope as the set of foundational digital systems that form the backbone of modern societies.[6] Another interesting addition to these understandings is the perspective that frames DPI both as an approach addressing socioeconomic problems at population scale but also to describe real world examples of that approach.[7]

From that definition scope, DPI has then simply been framed as the 'rails' that enable the deployment of digital solutions at scale both by the public and private sector. Critical composition of DPI constitutes identification systems, digital payments and data exchange/ sharing systems. Firstly, anchored in the global commitment to 'legal identity for all' under SDG 16.9,[8] Digital Identification which encompasses both foundational identities, like civil registries, and functional ones, such as email or bank accounts has become a cornerstone of development, with obligations placed on countries to provide legal foundational ID to all people without mandating enrolment. The other core component of DPI which is digital payments broadly refers to systems designed to facilitate real-time, cross-domain transactions, primarily promoted to drive financial inclusion and economic growth in low developed contexts. Lastly, the data exchange component involves systems that enable public-private sector data sharing to improve service delivery through interoperable systems such as linking digital ID databases with mobile money platforms to authenticate transactions securely.

Notably, DPI is often conflated with concepts such as Digital Public Goods (DPGs); however, while they are interrelated, DPGs are part of the foundation upon which many DPIs operate ie DPGs are the building blocks which make DPI operational.[9] Similarly, and probably more crucially, digital or e-government or simply, digitisation, which involves the transformation of public administration through digital means is also often used in reference to DPI. However, while interconnected, the two ideas vary with DPI being the substructure which enables e-government. Additionally, in some countries, especially in the Global South where social media platforms function as the primary gateways for access to information, e-commerce and communication, these have been posited as DPI. However, for these private systems to qualify as DPIs, scholars argue that they must operate in the public interest, be regulated by the government, and ensure broad accessibility, interoperability, and accountability.[10]

5 *Eaves, D., & Sandman, J. (2023, October). What is digital public infrastructure? Co-Develop. Retrieved October, 28 2025 from, https://www.codevelop.fund/insights-1/what-is-digital-public-infrastructure*

6 *United Nations Development Programme (UNDP). (n.d.). Digital public infrastructure (DPI). Retrieved October 28, 2025, from https://www.undp.org/digital/digital-public-infrastructure*

7 *Centre for Digital Public Infrastructure. (2024, August). What is DPI? The DPI Wiki. Retrieved October 30 2025, https://docs.cdpi.dev/the-dpi-wiki/what-is-dpi*

8 *United Nations Development Programme. (n.d.). Legal identity. Retrieved November 1, 2025, from https://www.undp.org/governance/legal-identity*

9 *Centre for Digital Public Infrastructure. (2024, March). DPG and DPI. The DPI Wiki. Retrieved October 30, 2025 https://docs.cdpi.dev/the-dpi-wiki/dpg-and-dpi*

10 *Kiprono, D (2024, October) Digital Public Infrastructure: Address These Issues For Optimization. ICJ. Retrieved on November 12 2025 from https://icj-kenya.org/news/digital-public-infrastructure-address-these-issues-for-optimization/*

Beyond the core components of DPI, the broader discourse on these systems is centred around both its technical aspects but also crucially, on their governance particularly through the public interest governance perspective which centers respect of fundamental rights and ensuring inclusive benefits of these systems to all people and societies. To this end, various principles across the different DPI components have been identified with a focus on inclusion, safeguards and equity. Some of these include the Principles on Identification for Sustainable Development,[11] UN DPI Safeguards,[12] GovStack Principles[13] among others.

At present, the current global state of DPI indicates that DPI is far more prevalent than initially believed and that it has interestingly taken root over the last years especially as a Global South ('emerging markets') phenomenon.[14] This trend has been owed to this region's leadership in building and deploying DPI for various socio-economic imperatives as seen in countries like India's critical defining role of DPI. International development actors have also shaped this shift, especially after the COVID-19 crisis highlighted the value of population-scale systems. Countries that already had robust and trusted databases which could share and cross-reference information were able to deliver government-to-person support more effectively than those without such systems.[15]

However, in the broad understanding of DPI's purpose, key tensions have arisen especially with skewed market definitions which for instance position DPI's role as largely to facilitate the functioning of a modern state i.e. commoditisation of the state.[16] Such stances bear critique for the end result where social justice and welfare might be deprioritised for these illusions of tech-driven state efficiency particularly for economic gain where at the same time DPI is promoted for its envisioned purpose in maximising participation, agency and trust for all individuals.[17]

11 *World Bank. (2022, November 3). Principles on identification for sustainable development: Toward the digital age (Working Paper No. 112614). Retrieved October 28, 2025, from https://documents1.worldbank.org/curated/en/213581486378184357/pdf/Principles-on-Identification-for-Sustainable-Development-Toward-the-Digital-Age.pdf*

12 *United Nations Office for Digital & Emerging Technologies; United Nations Development Programme. (2025). The Universal DPI Safeguards Framework is live. Retrieved October 28, 2025, from https://www.dpi-safeguards.org/*

13 *GovStack Global Initiative. (n.d.). GovStack Principles. Retrieved November 11, 2025, from https://govstack.global/about/govstack-principles/*

14 *Eaves, D., & Rao, K. (2024, July 5). What do we know about the state of DPI in the world? Preliminary insights from the DPI Map. UCL Institute for Innovation and Public Purpose. Retrieved October 29, 2025, from https://medium.com/iipp-blog/what-do-we-know-about-the-state-of-dpi-in-the-world-preliminary-insights-from-the-dpi-map-51d5e49f299b*

15 *World Bank. (2022). The role of digital in the COVID-19 social assistance response. Retrieved October 30 2025, from https://documents1.worldbank.org/curated/en/099830009302217091/pdf/P173166-f8c52f97-0ee9-4a62-92ac-0d53c648bac7.pdf*

16 *Eaves, D., & Rao, K. (2024, July 5). What do we know about the state of DPI in the world? Preliminary insights from the DPI Map. UCL Institute for Innovation and Public Purpose. Retrieved October 29, 2025, from https://medium.com/iipp-blog/what-do-we-know-about-the-state-of-dpi-in-the-world-preliminary-insights-from-the-dpi-map-51d5e49f299b*

17 *Warso, Z. (2024, October 15). XII. Toward public digital infrastructure: From hype to public value. AI Now Institute. Retrieved October 28, 2025, from https://ainowinstitute.org/publications/xii-toward-public-digital-infrastructure-from-hype-to-public-value*

For Africa, DPI has specifically been touted as having great promises for its digital transformation in ways that are inclusive and cost-effective.[18] While DPI's mainstreaming trickled from India's comprehensive approach from its unique ID, Aadhar, to its UPI Payment system, it has quickly gained more prominence through Brazil's G20 leadership to now South Africa's tenure which has already highlighted DPI as one of its core agenda points. These developments are notwithstanding the nuances that shape Africa's current reality such as having the largest digital divide both in access and usage of digital systems.

Currently, the DPI implementation landscape across Africa is uneven with some countries being farther ahead than others. Particularly, one sees countries that have moved further along their DPI reform process through having rolled out at least two different types of DPI systems and these include Ethiopia, Rwanda, Mauritius, Nigeria, Ghana, South Africa, Uganda, Tanzania among others. With regard to digital ID, many African countries which claim to have digital identification systems are still in early implementation or pilot stages, although a number of other African countries have managed to roll out ID for several years now.

Still, over half a billion people remain without foundational ID globally.[19] Similarly, with regard to payment systems, non- central bank operators especially in Africa are playing a significant role in this landscape's operations especially with mobile money as the bulk of digitised payments. This pillar's activity is greatly visible as well through the heavy investments in fintech in Africa over the previous years. The data exchange landscape on the other hand has shaped up across different technical architectures that various systems have adopted for data sharing in different countries or regions with some of the most popular models including Estonia's X-Road.[20] In Africa, this pillar remains nascent with limited interoperability and data sharing among entities although interesting connections are happening where digital payment systems such as Ghana's GHIPPs are becoming a backbone of data exchange in the country. The harmonisation process under the AfCFTA is also greatly hinged on the data exchange component towards the envisioned Single Digital Market for the continent.[21]

Key players in the DPI ecosystem in Africa range from the African Union (AU) for its strategic vision and coordination in DPI governance, national governments in national planning and implementation of DPI, Regional Economic Communities (RECs) and other regional bodies who as well direct the governance of DPI. Additionally, Afreximbank is one of the core financiers of practical DPI solutions across the continent together with other private sector players especially in telecommunications and the finance sector who steer practical implementation of DPI as well as international development partners who are contributing to this ecosystem through funding of institutional and technical aspects to DPI[22].

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18 Long, C., & Lacroix, A. (2024, November 18). What do we know about digital public infrastructure (DPI) in Africa? ODI Expert Comment. Retrieved October 30, 2025, from https://odi.org/en/insights/what-do-we-know-about-digital-public-infrastructure-dpi-in-africa/

19 Mayega, R. W., Okello, D., Muhumuza, C., Tumuhamye, N., Ssentongo, J., Kwesiga, B., Nyabigambo, A., Ssebagereka, A., & Bazeyo, W. (2025). Understanding the benefits, costs, and challenges of the National Identification System in Uganda. Digital Society, 4, 28. https://doi.org/10.1007/s44206-025-00177-8.

20 Eaves, D. and Rao, K. (2025).2025 Q3 Country DPI Tracker Dataset. Retrieved November 3, 2025, from https://docs.google.com/spreadsheets/d/1YlaBSGV7oBnPZBBzm4BSF6MvlzN_ueozronnjHx5sx0/edit?gid=2001514806#gid=2001514806

21 Sang, D., Munga, J., & Sambuli, N. (2025, February 27). Digital public infrastructure: A practical approach for Africa. Carnegie Endowment for International Peace. Retrieved October 30, 2025, from https://carnegieendowment.org/research/2025/02/digital-public-infrastructure-a-practical-approach-for-africa?lang=en

22 DPI Africa. (2025, March). Report: Leadership in digital public infrastructure in Africa. Retrieved October 30, 2025, https://dpi.africa.com/report-leadership-in-digital-public-infrastructure-in-africa/

On the governance aspect, with which this study is mostly concerned, key policies and regulations relating to DPI are particularly data protection and digital and data governance policies from the AU and those adopted at national level. This is specifically the different data protection acts at national level together with other key continental frameworks such as the AU Data Policy Framework, the AU Digital Transformation Strategy, the AU Interoperability framework for digital IDs and increasingly, the AU Continental AI Strategy as AI becomes more commonplace in the broader context of DPI. While most countries have adopted data protection laws over the recent years, the majority remain vaguely drafted and poorly implemented.[23]

Basically, these policy and regulatory frameworks emphasise the need for digitisation processes and the use and exchange of data for service delivery in a way that is rights-respecting and promotes equitable and inclusive benefits for all in what is looked at as 'public interest governance.'[24] This is especially critical as highlighted by the broad literature on data and digital rights which centers a people-first approach to data and digital systems. A good example of governance's practicability here is the central challenge facing DPI in the operationalising of consent-based data sharing owing to inherent tensions between its key tenets, such as the promotion of open standards versus the imperative to protect individual privacy.

A gendered outlook on Digital Public Infrastructure in Africa

While every country shows a unique DPI narrative, generally, the broader DPI discourse in Africa is buttressed within the digital transformation agenda of the region and how that can accelerate the attainment of various development goals. Yet, this envisioned transformation is dependent on the broader environment within which DPI are situated across different countries' contexts. Therefore, beyond technical standards which tend to be the focus of the DPI discourse, understanding the intersectional implications of DPI across different categories in our societies is indispensable to ascertaining the success of DPI across the African continent.

Studies on media reporting on DPI in Africa indicate a primary focus on the functional benefits of DPI, such as service delivery and innovation, while giving limited attention to critical issues of governance, data privacy, equity, and citizen inclusion which is also true of most policy discussions on DPI.[25] This technocentric approach, while useful in foundationally establishing the DPI ecosystem, cannot address the deep social and structural inequalities that shape who benefits from these systems. The technology itself is not designed to redress such inequities, and without targeted corrective measures, it often reproduces them. Simply, governance of DPI which is blind to public interest and systemic realities is unlikely to meet the goal of inclusive development as has been witnessed in the rolling out of different DPI systems globally.

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23 Van der Spuy, A., Bhandari, V., Trikanad, S., & Paul, Y. T. (2021, November). Towards the evaluation of socio-digital ID ecosystems in Africa: Comparative analysis of findings from ten country case studies. Centre for Internet and Society (CIS),and Research ICT Africa (RIA)

24 DPI Safeguards Initiative. (n.d.). Universal DPI Safeguards Framework. Retrieved October 31, 2025, from https://www.dpi-safeguards.org/framework

25 Collaboration on International ICT Policy for East and Southern Africa (CIPESA). (2025, October). Media coverage of Digital Public Infrastructure and Digital Public Goods in Eastern Africa: Executive summary. Retrieved October 30, 2025, from https://cipesa.org/wp-content/files/documents/Executive_summary__DPI.pdf

For example, by 2024, approximately 78 percent of United Nations member states had enacted legislation or issued policy frameworks for digital IDs to enable access to public services,[26] and more than 90 percent of the countries had foundational ID systems supported by digital data.[27] Despite this progress, digital inequality remains widespread, with 3.3 billion people still lacking access to a government-recognised digital ID to access online services.[28] Here, women are the most affected, with lower mobile or internet access, leaving 240 million women offline and reinforcing a persistent global gender divide in digital access and participation.[29]

Even more acute to these divides is the rising tendencies of digital authoritarianism and control especially towards women and other underrepresented groups made possible by DPI systems. The COVID-19 pandemic magnified the use of digital technologies in public life which saw the gradual growth of models of digital control hinged on DPI. With this, there has been a gradual retreat of internet freedoms in the form of internet shutdowns, surveillance aided by public-private partnerships among other factors collectively termed as digital authoritarianism.

Digital authoritarianism can be understood as "the use of digital information technology by authoritarian regimes to surveil, repress, and manipulate domestic and foreign populations"[30]. Furthermore, tendencies towards digital authoritarianism are high in countries with weak democratic safeguards and consequently, where the expansion of DPI increases the risk of state overreach, including mass surveillance, content restrictions, and internet shutdowns.[31] On the whole, these practices are often used to manipulate information, monitor citizens, and suppress citizen rights and civic participation.

In seeking to understand the gendered dimensions of digital authoritarianism in Africa, analysis must begin with broader debates on DPI and gender equality, where DPI is often framed as a pathway to more inclusive societies. Evidence indicates that such claims rest partly on DPI's potential to address entrenched gender inequalities, including women's disproportionate exclusion from formal financial systems among other issues. Globally, women remain overrepresented among the unbanked, largely due to their concentration in informal employment, lower and irregular incomes, and limited access to legally recognised assets required for financial inclusion.[32] These barriers are further reinforced by gaps in access to digital ID, as well as patriarchal and restrictive inheritance and property laws that

26 *Kara, O., (2025), National digital IDs in the age of artificial intelligence. The International Institute for Strategic Studies (IISS) Retrieved on Oct 2, 2025 from https://www.iiss.org/online-analysis/six-analytic-blog/2025/08/national-digital-ids-in-the-age-of-artificial-intelligence/*

27 *ID4D, (2025) Global ID Coverage. World Bank, Identification for Development (ID4D). Retrieved on Oct 3, 2025 from https://id4d.worldbank.org/global-dataset?*

28 *ID4D. (n.d.). Global ID coverage dataset. World Bank Identification for Development (ID4D). Retrieved October 31, 2025, from https://id4d.worldbank.org/global-dataset?utm_*

29 *ITU, (2023) Digital gender parity is still a distant prospect in regions with low Internet use. https://www.itu.int/itu-d/reports/statistics/2023/10/10/ff23-the-gender-digital-divide/?utm*

30 *Polyakova, A., and Meserole, C., (2019). Exporting digital authoritarianism: The Russian and Chinese models. Policy Brief. P.1.*

31 *Nanfuka, J., (2025, Oct) The G20 should challenge the power dynamics in digital public infrastructure. Collaboration on International ICT for East and Southern Africa (CIPESA) (Uganda).*

32 *World Bank. (2025). The Global Findex Database 2025: Financial inclusion, digital payments, and resilience. Washington, DC: World Bank. Retrieved January 2, 2026 from https://www.worldbank.org/en/publication/globalfindex/report*

constrain women's ability to secure formal identification and related economic rights.[33] As a result, the very DPI systems intended to expand access to services risk reproducing existing gendered exclusions where structural legal, economic, and social barriers remain unaddressed.

In Africa, gendered digital authoritarianism manifests typically through self reinforcing patriarchal standards as seen in gender based differences in accessing ID, applying for passports and registering the birth of children and the conferring of citizenship on children and partners.[34] This is especially where women are required to either obtain permission from a male guardian or husband to get documentation where it is typically not expected of men. The data on this phenomenon is astounding[35] with many countries still legally requiring male 'authorisation' such as letters of consent for women to obtain or renew their passports, lengthy processes in changing one's maiden name after marriage or divorce, and at extreme, where women's contractual capacities are limited e.g. in Equatorial Guinea where a married woman is required to obtain her husband's permission to sign a contract.[36]

Other countries such as Nigeria, Malawi, Republic of Benin, Gabon still have these misogynistic laws which are being challenged by feminists legally and socially. In one such legal case where the Nigerian Immigration Service was sued by Prof Priye Iyalla Amadi for married women needing to obtain letters of consent from their husbands to obtain passport, the defendant classed women as 'minors' requiring protection but also stated that this was to protect the institution of marriage in Nigeria.[37] While this policy was repealed, other such similar logics ensure where many Nigerian women are still being necessitated to present similar information such as husband's passport biodata page or their National Identity Number (NIN)when changing names due to marriage which speaks to the endurance of patriarchal norms in public governance as reinforced by societal patriarchal culture. Another common example is women not having the legal powers to confer citizenship either on their children or their spouses which poses special challenges for refugee and stateless peoples and other underrepresented groups. At the heart of this is essentially institutional misogyny which does not consider women full citizens as it does men.

Thus, while most countries do not explicitly restrict women from obtaining ID for themselves or for their children, such gender based differences in law practice marginalizes them from these foundational systems. Moreover, this marginalization is compounded by intersectional gendered marginalisations such as most women having lower education levels or lower income levels or being predominantly preoccupied with care work which limits their engagement with DPI systems to their benefit.

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33 World Bank Identification for Development (ID4D). (2023). Addressing the gender gap in ID access. Washington, DC: World Bank. Retrieved January 2, 2026 from https://id4d.worldbank.org/sites/id4d/files/ID4D-Gender-and-Legal-Barriers-Summary-EN.pdf

34 World Bank. (2024). Addressing the gender gap in ID access: Gender and legal barriers summary. World Bank Identification for Development (ID4D). Retrieved October 31, 2025, https://id4d.worldbank.org/sites/id4d/files/ID4D-Gender-and-Legal-Barriers-Summary-EN.pdf

35 Nickabugu, A. [@a_nickabugu]. (2020, May 23). Beginning tomorrow, everyday, I will tweet one law that discriminates against women, especially in African countries. I want to see … [Tweet]. X. Retrieved October 31, 2025, https://x.com/a_nickabugu/status/1264295256473964545?s=20

36 Women, Business and the Law (2024). Equatorial Guinea https://wbl.worldbank.org/content/dam/documents/wbl/2024/snapshots/Equatorial-guinea.pdf

37 Vanguard News. (2009, June). Court voids Immigration condition for issuing passports to married women. Retrieved October 31, 2025, https://www.vanguardngr.com/2009/06/court-voids-immigration-condition-for-issuing-passports-to-married-women/

Hence calls for policy reforms on gender-based legal barriers particularly around discriminatory laws on nationality laws, birth certification and the role marriage plays in current identification systems such as the passport laws is critical to ensuring DPI confers equitable impacts on all people and especially society's most vulnerable groups who already exist at the margins of society. Some of the proposed reforms in line with this include the call for constitutional changes from the top which can trickle down to cultural and social norms.[38] Here, it is worth noting some success stories where repressive, patriarchal laws have been upended, for example Algeria, Morocco and Sierra Leone which have in the previous years granted men and women equal rights to confer nationality.[39]

Besides the manifestations of control reinforced by patriarchal standards, women and other underrepresented groups also get to bear the brunt of the more blanket digital authoritarian practices which affect all sects of any society. For example, across Africa, there has been an increase in digital authoritarian practices including internet shutdowns and surveillance of citizens. For instance, in 2024, 21 internet shutdowns occurred across 15 countries, surpassing the existing record of 19 shutdowns in 2020 and 2021[40]. Countries such as Comoros, Guinea-Bissau, Mauritius, Burundi, Ethiopia, Equatorial Guinea, Kenya, Guinea, Nigeria, Senegal, and Tanzania were affected. In Ethiopia, a near-total internet blackout during the 2020–2022 Tigray conflict limited information flow among their citizens and between citizens and the outside world. Similarly, Sudan's military regime enforced multiple shutdowns in 2019 and 2023 amid pro-democracy protests. Uganda also experienced a nationwide internet and social media blackout during the 2021 elections. In Kenya, government monitoring of online content and temporary social media restrictions have been used during the recent political upheavals as well.

Additionally, beyond shutdowns, surveillance laws and online censorship further entrench digital authoritarianism across Africa. For example, Zimbabwe's 2025 Cyber and Data Protection Act enables real-time monitoring of citizens' communications, Nigeria's 2015 Cybercrimes Act has been used to surveil and detain journalists, and Tanzania's 2020 pre-election regulations forced social media platforms to remove "misinformation" advocating measures to monitor online content while holding citizens accountable for their posts. On the whole, a lot of regulations seem to be skewed towards the suppression of core freedom such as expression affecting groups such as women human rights defenders who as well face the double burden of online violence / Technology-Facilitated Gender Based Violence (TfGBV).

38 United Nations Women, (2016). United Nations Entity for Gender Equality and the Empowerment of Women. Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) for Youth. Retrieved January 22, 2026, from https://www.unwomen.org/en/digital-library/publications/2016/12/cedaw-for-youth.

39 Women's World Banking. (2023, August). Policy brief: Making digital public infrastructure work for women. Retrieved October 31, 2025, from https://www.womensworldbanking.org/insights/policy-brief-making-digital-public-infrastructure-work-for-women/

40 Egbejule, E., (2025, May) Internet shutdowns at record high in Africa as access 'weaponised'. The Guardian.

Methodology

This study employed a qualitative research approach combining both secondary and primary data collection and analysis. The combined approach made it possible to understand the current digital public infrastructure landscape in Uganda, Kenya, and South Africa, its governance context, and the gendered barriers experienced by women and other underrepresented groups in accessing essential services through these digital systems.

Desk Review: A desk review was conducted to better understand the ongoing debates and emerging discussions surrounding digital public infrastructures landscape, and a gendered outlook on DPIs across Africa.

Key Informant Interviews: In addition, the study employed Key Informant Interviews (KIIs) to collect insights from individuals with expert knowledge and experience in digital public infrastructure, digital governance, digital rights and gender inclusion. A total of six key informants were purposely selected from government agencies such as the Ministry of ICT and NITA-U in Uganda, civil society organisations working on digital rights and gender inclusion in Uganda and Kenya, and a regional advocacy organisation based in South Africa. The KIIs were conducted virtually using a semi-structured KII guide that was developed in alignment with the study's objectives.

Case Studies: To illustrate how DPIs operate and influence inclusion, three country case studies were developed: Uganda, Kenya, and South Africa. Each case study examined how DPI systems are structured, governed, and experienced, with particular attention to their impact on women and other underrepresented groups. The cases explored the intersection of gender, rights, access, and governance. These countries were selected for their distinct policy environments, differing stages of digital transformation, and their progress in moving from pilot initiatives to fully implemented DPI systems, offering valuable comparative insights into implementation and inclusion across contexts.

Data Analysis: Data were collated using Atlas.ti software for thematic analysis, following Braun and Clarke's 2006 six-step framework: familiarization, coding, theme generation, review, definition, and reporting.[41] Codes were derived inductively from data and deductively from objectives, with inter-coder checks for consistency. The analysis focused on identifying recurring patterns and emerging themes across the three countries.

Ethical Considerations: The study followed ethical research practices throughout the process. Participation in KIIs was voluntary, and informed consent was obtained from all Study participants. Confidentiality was maintained by anonymising participants' identities, and the information gathered was used solely for the purpose of this study.

41 *Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa*

Study Limitations

This study acknowledges certain limitations. Although it aimed to capture perspectives from a broader pool of subject experts across different sectors, factors such as limited timeframe, scheduling constraints, resource constraints, and availability of key stakeholders restricted the number of participants. The small sample size therefore limits the generalisability of the findings. The study therefore relied mostly on secondary data and documentary review, complemented by primary data gathered through key informant interviews. Nonetheless, the insights gathered offer valuable perspectives that deepen understanding of DPIs, digital authoritarian practices, and the gendered dynamics shaping access to and use of these digital systems.

Additionally, data was collected solely from key informant interviews with experts and practitioners rather than direct users of the DPIs. The absence of voices from women and other underrepresented groups who actively engage with digital identification, digital payment, or data exchange systems limits the study's ability to fully reflect lived experiences. Future research could therefore complement this expert perspective through in-depth interviews and focus group discussions with end users to provide a more grounded understanding of how these digital systems affect daily access of women to these essential services.

Findings

This section presents findings on how Study participants understand Digital Public Infrastructures and ways in which these digital systems influence women's and other underrepresented groups' access to essential services. It also explores the barriers that continue to hinder equitable access to and use of DPIs. Country case studies are included to provide context and illustrate how DPIs operate in practice, highlighting their implications for inclusion, accessibility, and digital rights.

Understanding of Digital Public Infrastructures

In defining Digital Public Infrastructures, study participants across Uganda, Kenya, and South Africa broadly understood Digital Public Infrastructures as the backbone of digital transformation and service delivery. They described DPIs as the systems that enable both public and private sectors to offer essential services to citizens digitally. These include digital identification systems, digital payment platforms, and data exchange frameworks that collectively facilitate the integration of various services across sectors.

Study participants also discussed the difference between e-government services and DPI noting that while e-government refers to the delivery of public services online, DPI is not restricted to government use but rather opens up or enables use and integration for government, private sector and individuals to be able to access services or exchange information anywhere. Thus DPIs are more the fundamental backbone and enabler of e-government or government service delivery online and serve as shared infrastructure upon which both government and private systems operate.

Uganda

Uganda's government launched its Digital Uganda Vision with a bold goal to leverage technology for inclusive social and economic development.[42] The strategy seeks to create a connected ecosystem where Digital Public Infrastructure serves as the backbone of digital transformation, anchored in the National Digital Transformation Roadmap (2021–2026).[43] Key components include the Identity Pillar (via the Ndaga Muntu National ID managed by the National Identification and Registration Authority), the Payments Pillar (mobile money integrations like MoMo Pay), and the Data Exchange Pillar (the UGHub platform for system interoperability). In 2025, Uganda joined the global 50-in-5 campaign committing as a country to develop safe, inclusive, and interoperable DPI within five years.[44]

However, these efforts have been undermined by the digital authoritarian practices that limit how citizens access and use online platforms.[45] Study participants recalled previous incidents, including the 2016 social media blackout and the complete internet shutdown during the 2021 general elections. With the next election set for early 2026, there are already widespread fears of renewed internet restrictions.[46] As a consequence of such internet disruptions, women and other underrepresented groups, who depend on digital platforms for education, health, entrepreneurship, and access to essential public services, are disproportionately affected.[47]

These authoritarian practices also represent a systemic threat to digital rights, including the right to hold opinions without interference, access to information, privacy all of which are enshrined in Articles 19 of the International Covenant on Civil and Political Rights, (ICCPR),[48] as well as Article 9 of the African Charter on Human and Peoples' Rights,[49] both of which Uganda has ratified. At the continental level, there is growing recognition of these harms. The African Commission on Human and Peoples' Rights (Resolution 580, Res.580 (LXXVIII) urges member states to refrain from intentional disruptions of internet access, affirming that such practices contravene democratic governance and inclusive development.[50]

42 *DPI Africa. (2025, August). Digital transformation in public service delivery: A case study of Uganda. Retrieved October 30, 2025, https://dpi.africa.com/digital-transformation-in-public-service-delivery-a-case-study-of-uganda/*

43 *Nansuna, G., (2025). Advancing Uganda's Digital Transformation at MWC25 Kigali. Ministry of ICT and National Guidance.*

44 *Ministry of ICT and National Guidance (2025). Uganda Joins Global 50-in-5 Campaign to Accelerate Safe, Inclusive and Interoperable Digital Public Infrastructure. Retrieved January 20, 2026 from https://share.google/K81FJnAxnL1PCCCps*

45 *Selnes, F. N. (2021). Internet restrictions in Uganda: examining their impact on journalism. Information, Communication & Society, 24(3), 490-506.*

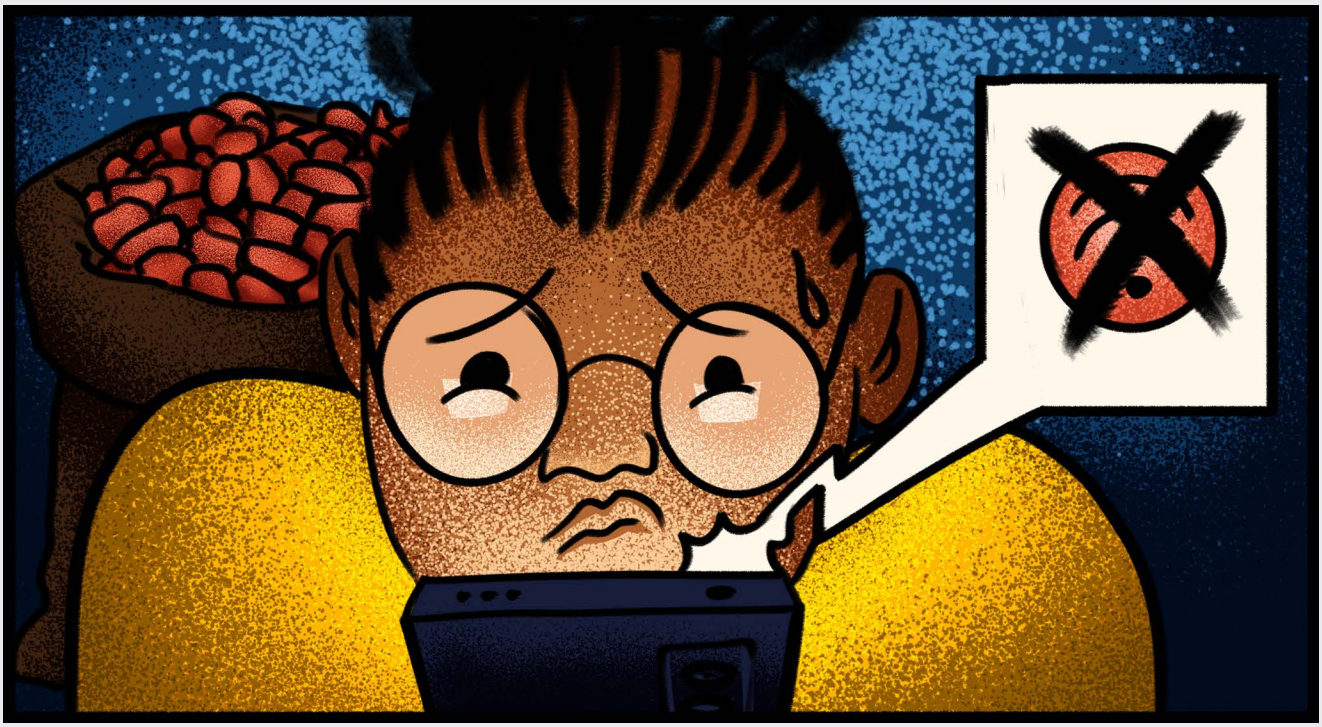
46 *KII3_Uganda*

47 *Ibid*

48 *OHCHR. International Covenant on Civil and Political Rights. https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights*

49 *African Union (n.d) Chapter I: Human And Peoples' Rights. https://achpr.au.int/en/node/641*

50 *https://achpr.au.int/en/adopted-resolutions/580-internet-shutdowns-elections-africa-achprres580-lxxvii*



Case Study: Uganda

In practice, Uganda's DPI emphasizes interoperability and public-private partnerships. NIRA's digital ID system integrates with UGHub, enabling seamless data sharing across sectors for services like passport issuance, tax filings via URA portals, and social protection payments. DPI has shown successes, such as improved tax administration leveraging digital tools to boost the tax-to-GDP ratio toward 18% by 2030.[51] URA has modernised tax collection through Digital Public Infrastructures (DPIs) such as the Integrated Tax Administration System (ITAS), Electronic Fiscal Receipting and Invoicing System (EFRIS), Payment Identification Numbers (PINs), and Digital Tax Stamps (DTS).[52]

However, the promise of Uganda's digital transformation continues to be undermined by restrictive digital governance practices, particularly the use of internet shutdowns.[53] The January 2021 nationwide shutdown during elections, lasting five days, disrupted all major online services, causing domestic internet traffic to drop by 95%.[54] Economic costs were estimated at around UGX390 billion, with women-led informal enterprises disproportionately affected.[55] The suspension of mobile money and e-commerce systems left many women unable to send or receive payments, run businesses, or send remittances.[56]

51 *Sanday, A., and Nalweera, A., (2025, April) Leveraging Digital Public Infrastructure to Enhance Uganda's Tax Revenue Potential.IMF- PFM*

52 *Sanday, A., and Nalweera, A., (2025, April) Leveraging Digital Public Infrastructure to Enhance Uganda's Tax Revenue Potential.IMF- PFM*

53 *Acheng, S. (2021) The Impact of Internet Shutdowns on Women in Uganda. Internews*

54 *https://www.accessnow.org/the-world-is-watching-uganda-elections/*

55 *Murungi, P., (2022, January), Uganda lost Shs390 billion in internet shutdown last year. The Daily Monitor.*

56 *KII3_Uganda*

> ***"When Uganda ordered an internet shutdown on the eve of the presidential election, groundnut seller Susan Tafumba's trade collapsed. The 34-year-old was selling groundnuts at Kampala's Nakawa market, but much of her business was coming through a mobile phone app that customers used to order goods to be delivered to them by motorcycle taxis. Tagumba is one of countless women small scale traders whose increasingly tech-dependent livelihoods were hit by the shutdown."***[57]

For women who tend to depend on shared or borrowed digital devices, the shutdown deepened their digital disconnection by removing their most accessible means of accessing information, public services, and customers. This incident illustrates how internet disruptions, far from being temporary inconveniences, deepen digital disconnection and reinforce gendered economic and other marginalisations.

DPI governance under the Data Protection and Privacy Act (2019) is challenged by weak enforcement, institutional dependencies, insufficient regulatory capacities, resource constraints, and weak accountability culture.[58] Shutdowns and surveillance erode trust, with fears mounting for the 2026 elections that the government may block the internet citing reasons around national security specifically maintaining "peace."[59]

Digital rights advocates, via campaigns like #KeepItOn,[60] urge uninterrupted access, citing Resolution 580 from the African Commission to stem shutdowns. This highlights how state control over networks undermines DPI's reliability, particularly for women and other underrepresented groups. Uganda's DPI thus advances efficiency but risks perpetuating exclusion without reforms. Recurring shutdowns, as in 2021, highlight the need for participatory governance, stronger data protections, and gender- sensitive decision making to ensure equitable access and uphold digital rights and institutional safeguards that protect connectivity as a core part of the enjoyment of rights in the modern world, ensuring that DPIs remain accessible and functional.

Beyond internet shutdowns, the effects extend to online surveillance, content regulation, and control, with both the perception and reality of state monitoring influencing how citizens, especially women engage on digital platforms.[61] Study participants mentioned that the government acquiring sophisticated spyware such as Pegasus indicates the full extent of potential intrusion into private

57 Bhalla, N. (2021, January 20). 100 hours in the dark: How an election internet blackout hit poor Ugandans. Reuters. https://www.reuters.com/world/100-hours-dark-how-an-election-internet-blackout-hit-poor-ugandans-2021-01-20/

58 Kisakye F., (2024, March). New study exposes data protection challenges in Uganda. The Observer.

59 Owich, J., (2025, September) Government may block Internet during 2026 elections – minister Kabbyanga. The Daily Monitor.

60 https://www.accessnow.org/campaign/keepiton/

61 Imam, M., Manimekalai, N., & Suba, S. (2025). From Data to Discrimination: Gender, Privacy, and the Politics of Digital Surveillance. Synergy: International Journal of Multidisciplinary Studies, 2(2), 52-64.

communications of citizens. One participant explained, "The government does not necessarily have to hack into someone's device; it can gather a great deal of information from people's social media platforms where they live, who their friends are, what they post and use this information if they wish to pursue someone using spyware such as Pegasus.[62] These practices are a direct violation of the right to privacy, protected under Article 27 of Uganda's Constitution that guarantees the right to privacy of person, home, and other property.[63]

In light of this, several women increasingly rely on others to access online services or shift to less traceable technologies. "You find someone now preferring to use what are called feature phones, those small button phones, because they believe they are much safer and less prone to digital surveillance and monitoring."[64] This sustained environment of surveillance and moral regulation deepens digital disconnection, reinforcing exclusion from public dialogue and decision-making processes affecting their lives.[65] This instills a chilling effect, reducing women's participation in civic discourse and digital advocacy, silencing voices that must be included for democratic processes and gender equality.

The study revealed that women's access to and use of digital public infrastructures in Uganda is shaped not only by digital authoritarian practices but also deeply rooted social and cultural attitudes and structures. Cultural attitudes towards women and digital technologies in Uganda, are deeply intertwined with patriarchal traditional and societal expectations that have conventionally defined women essentially as caregivers and homemakers.[66] Patriarchy within households was noted as the key factor in barring women's autonomous access to and utilization of digital tools.

Study participants mentioned that in several homes in rural areas, mobile phones and digital devices are still considered household property under the control of men. As one key informant explained,

> ***"In several communities, the man is the head of the family and controls most resources. Even when a phone is bought by a woman, the man often takes it. If the husband is not willing to let her use the phone, then she cannot access digital services."***[67]

More worrying, with the increasing significance of technology to the economy, politics, and governance, digital disconnection continues to exclude women, denying them meaningful participation and representation in national development.[68]

In addition, historical legacies of patriarchal control rooted in traditional norms, colonial governance, and post-independence state structures continue to create barriers to access and safety that push

62 *KII3_Uganda*

63 *https://www.ngobureau.go.ug/sites/default/files/laws_regulations/2020/12/Uganda%20Constitution%20 1995.pdf*

64 *KII3_Uganda*

65 *Kimumwe, P., Kapiyo, V., Toussi, S., and Wakabi, W. (2022). The State of Media Freedom and Safety of Journalists in Africa. CIPESA.*

66 *Kato, J. K., (2024). Cultural Attitudes towards Women in Technology in Uganda: Historical Factors and Contemporary Challenges. ROJBAS Publication. ISSN: 1115-9200*

67 *KII3_Uganda*

68 *Iyer, N., Nyamwire, B., & Nabulega, S. (2020). Alternate Realities, Alternate Internets African; Feminist Research for a Feminist Internet. Pollicy. https://ogbv.pollicy.org/report.pdf*

many women offline. During colonial administration, identity and citizenship systems were designed primarily for surveillance, taxation, and labour control rather than inclusion.[69] These systems privileged men as heads of households and recognised formal workers, while women were largely categorised as dependants.[70] Study participants noted that this legacy persists within contemporary governance models, where access to identification, property ownership, and financial services often remains mediated through male authority.[71] These historical and cultural continuities demonstrate that the barriers women face in accessing DPIs are not merely technical, but are deeply embedded within enduring social and institutional power relations.[72]

Concerns around moral policing also emerged across the key informant interviews. Moral policing is where concepts such as honor, decency and shame are used as tools for censorship, surveillance and control to morally police women into abiding by the dominant standards of society.[73] The fear of judgement, especially from men or community members, discourages women particularly from engaging online. This highlights how community surveillance and moral control over women's online visibility foster women's digital disconnection or drive them off the digital spaces completely, pushing them into silence.[74]

Cultural norms and religious beliefs were found to also restrict women's ability to participate in digital systems for instance that require biometric data, such as digital ID registration. Some religious communities discourage women from removing religious veils entirely, due to modesty expectations and prohibitions against unveiling in public.[75] However, during the National ID registration process, many registration assistants under NIRA ask women to remove all forms of head covering before taking the ID photo, without paying attention to religious beliefs.[76] This has raised a lot of concern among Muslim women and Catholic nuns and sisters, who feel humiliated and stripped of their religious dignity, especially when the process is conducted in the presence of male officers or mixed crowds.[77] These findings highlight how culturally insensitive implementation of DPIs for example, the national digital ID system-can inadvertently reinforce exclusion and deepen distrust among women from faith-based communities.

The study also identified a range of other interlinked barriers that continue to limit women's ability to

69 *Kinyanjui, M. N., (2014) Women and the Informal Economy in Urban Africa: From the Margins to the Centre.ISBN 978-1-78032-631-3 hb*

70 *Mamdani, M., (2018). Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism. DOI: 10.23943/9781400889716. ISBN: 9781400889716*

71 *KII2_Uganda*

72 *Mader, P., Duvendack, M., Lees, A., Larquemin, A., and Macdonald, K., (2022). Enablers, Barriers and Impacts of Digital Financial Services: Insights from an Evidence Gap Map and Implications for Taxation.ICTD Working Paper 142*

73 *Venturini, J., (2022) Policies for tackling tech-facilitated gender-based violence: multi-stakeholder perspectives and learnings from around the world. UNFPA. Wilson Center*

74 *Mijatovic, D., (2022) No space for violence against women and girls in the digital world. Commissioner for Human rights*

75 *Svraka-Imamovic, A. (2024). Freedom of Religion or Belief: The Right to Wear the Hijab in Public Spaces. Context Journal of Interdisciplinary Studies 11(2):71-107. DOI: 10.55425/23036966.2024.11.2.71*

76 *Adeya, J. K(2025, June) Muslim Women Complain to NIRA over No Veil Photos. Retrieved on October 30, 2025 from https://www.kampalaedgetimes.com/muslim-women-complain-to-nira-over-veil/*

77 *Ibid*

access and benefit from digital public services in Uganda. The persistence of these barriers constitutes an infringement on the right to equal access to public services and undermines national commitments to the Sustainable Development Goals (SDGs) for gender equality and digital inclusion.[78]

One of the persistent barriers to women's digital inclusion in Uganda mentioned by the study participants is the high cost of internet connectivity.[79] The cost of 1 GB of mobile data in Uganda averages 16.2% of the average monthly income (GNI per capita basis) which is far exceeding the UN Broadband Commission's affordability target of less than 2% for meaningful access.[80] One of the study participants mentioned that,

> ***"The more you provide everything online, the more you require internet and connectivity access all over the country. And yet we have a cost issue, internet access and affordability is a big barrier for women we have to address,"***[81]

High mobile data costs particularly disadvantage women in low-income and rural areas, many of whom depend on irregular or informal income sources.[82] This limits their ability to regularly access digital services such as e-health platforms, or online financial transactions.

Access and ownership of internet-enabled devices also remains a major obstacle to women's participation in Uganda's digital ecosystem.[83] Key informants mentioned that most digital devices in Uganda are unaffordable for a significant proportion of low-income users, particularly women.[84] The 2024 GSMA Mobile Gender Gap Report shows a 17% gender gap in smartphone ownership across low- and middle-income countries (LMICs), with an 8% gap in overall mobile ownership.[85] In Uganda, several women are not the rightful owners of the mobile phones and many use sim cards registered in other people's names.[86] This further limits the ability of women to open mobile wallets or bank accounts, and also restricts their capacity to transact independently, leaving them vulnerable to exploitation and without recourse in the event of fraudulent or failed transactions.

The situation is made worse by gendered economic dependency. Even within urban areas, young women were reported to rely on men for access to smartphones and phones, with some facing coercive or exploitative arrangements to obtain them. One key informant mentioned that:

78 *UN Women (2025). Progress on the Sustainable Development Goals: The gender snapshot 2025.United Nations Entity for Gender Equality and the Empowerment of Women (UN Women); Department of Economic and Social Affairs (DESA). ISBN; 9789211592337*

79 *African Media Agency (2020, October). Men are 43% more likely than women to use the internet in Uganda.*

80 *Ministry of ICT and National Guidance, with Knowledge Consulting Ltd and Research ICT Solutions (2022). National Broadband Baseline Survey And Infrastructure Blueprint. ISBN: 978-9913-628-76-1*

81 *KII2_Uganda*

82 *Caine, A. (2021). How and Why are Women Using the Internet and is it Providing Them with Opportunities for Empowerment? A Study Undertaken in and around Kampala, Uganda (Doctoral dissertation, University of Reading).*

83 *Mulungu, K. (2025). Gender perspectives on mobile phone ownership and use: a case study of smallholder farmers in Uganda. Gender, Technology and Development, 1-14.*

84 *KII3_Uganda*

85 *GSMA, (2025) The Mobile Gender Gap Report 2024. The gender gap in mobile internet adoption has narrowed for the first time since 2020.*

86 *FSD, (2021). Gender Barriers to Access and Use of Financial Services by Women in Uganda. FSD Uganda.*

> ***"Even within urban centres, many young women depend on men for access to phones. You will find some engaging in sexual relationships just to get smartphones. In rural areas, it is even worse. For a person who hardly earns UGX10,000 in a week or a month, how can she afford a smartphone or a computer?"***[87]

This kind of dependency exposes women and girls to heightened risks of Technology-Facilitated Gender-Based Violence (TFGBV), sexual exploitation, and demonstrates how economic inequality and patriarchal power relations transform what should be essential public goods into tools of dependency and control.[88]

Low digital literacy emerged as a significant barrier limiting women's ability to access and use Digital Public Infrastructures in Uganda. Uganda's national digital literacy rate stands at just 20%, and the skills gap is further widened by gender disparities.[89] According to the 2021 Uganda Inclusive Digital Economy Score Card report, the country scored 33% on digital skills.[90] A survey from the World Wide Web Foundation also found that 46% of women in Uganda said they don't use the internet because they don't know how, compared with 40% of men.[91] Study participants revealed that many women, particularly in rural areas, lack the basic digital skills, confidence, and awareness needed to navigate online systems safely and independently. Many women also still lack the skills to perform basic money transfer and payment functions.[92]

This lack of basic digital competence extends to the use of e-government portals. Study participants mentioned that several women frequently rely on middlemen to complete online transactions, such as applying for passports or renewing national identification cards. This dependence increases the risk of exploitation and privacy breaches, as unregulated intermediaries often gain access to personal information and charge informal fees for assistance.[93] This demonstrates how low digital literacy barriers can undermine the security intentions of otherwise well-designed digital systems.

Another barrier identified by study participants was the DPIs' lack of inclusive and adaptive designs which poses an access limitation for People With Disabilities in their use of Uganda's digital systems. For instance, participants noted that several platforms do not apply adequate colour contrast, scalable text, or visual clarity, creating barriers for users with visual impairments. Women with disabilities often experience compounded exclusion arising from the intersection of gender, disability, lower digital literacy, reduced income, and limited access to assistive technologies.[94] In addition, the absence of

87 *KII3_Uganda*

88 *Hameed S, Tyabashe-Phume B, Tunggal E, Hunt X, Ned L, Soldatic K. (2025) Technology-facilitated gender-based violence against women with disabilities in low- and middle-income countries: a scoping review protocol. BMJ Open. Mar 25;15(3):e093988. doi: 10.1136/bmjopen-2024-093988. PMID: 40132824; PMCID: PMC11938253.*

89 *Muvunyi, T. A., (2025, April) New Report Reveals Uganda's Most 5 Digitised and Highest-Paying Jobs.*

90 *UNCDF (2021) Inclusive Digital Economy Scorecard (IDES) Report – Uganda.*

91 *African Media Agency (2020, October). Men are 43% more likely than women to use the internet in Uganda.*

92 *KII3_Uganda*

93 *Nankunda, C., (2014). The pain of getting a Ugandan Passport. The Newvision.*

94 *UN Women. (2025). Progress on the Sustainable Development Goals: The gender snapshot 2025. United Nations Entity for Gender Equality and the Empowerment of Women.*

accessibility features such as audio prompts, screen reader compatibility, and transcription services excludes users with low vision or blindness altogether.[95] This shows the lack of inclusive design due to failure to adhere to the principles of Universal Design,[96] and compliance with the Web Content Accessibility Guidelines (WCAG),[97] which are internationally accepted as the benchmark against which digital content should be tested for access by any user regardless of ability. Such exclusionary design is not only about a technical oversight but actually a violation of the Convention on the Rights of Persons with Disabilities (CRPD), to which Uganda is a signatory.[98] Article 9 of the CRPD explicitly obliges states to take appropriate measures to ensure that persons with disabilities have equal access to the physical environment, transportation, information and communications, and other services and facilities open to the public which include the internet.[99]

These accessibility challenges are not limited to permanent disabilities; there are also situational and work-related conditions. Study participants mentioned that rural women who do farming or informal work whose fingerprints wear out also get excluded in the biometric systems. The lack of multi-modal authentication options, such as combining fingerprint, iris, and facial recognition, or allowing assisted verification, restricts fair use of digital public infrastructures by women, especially rural-dwellers.[100] This constitutes a breach of Uganda's international human rights obligations and undermines the principle of equal participation especially by women in the country's digital transformation agenda.

Language also presents a significant barrier to digital inclusion of women and other underrepresented groups in Uganda. Respondents mentioned that most digital platforms, including financial, health, and e-government services in Uganda, are designed in the English language. This systematically locks out women and other groups with low literacy or special needs who often find it difficult to navigate an interface that is in English.[101] Where instructions cannot be read or understood, the confidence of women in being able to transact safely is quickly lost. This pushes them to rely on intermediaries, normally family members, agents, or cybercafe operators who will undertake, for instance the registration of

95 KII3_Uganda

96 Tovar, E., (2024, November). How Do the 7 Principles of Universal Design Help Us Create Better Architecture?.

97 WCAG (2024) 101: Understanding the Web Content Accessibility Guidelines.

98 Ministry of Gender, Labour and Social Development, (2023). revised national policy on persons with Disabilities

99 EBU, (2022). Article 9 - Accessibility - (Country information). https://www.euroblind.org/convention/article-9

100 KII3_Uganda

101 Nakitende, P. (2025) Digitalisation in Uganda: improving accountability and transforming service delivery. Global Dev. Science, Finance and Innovation

SIM cards, opening of bank accounts, or application for IDs on their behalf.[102] This exposes women to identity theft, financial fraud, and misuse of personal data risks explicitly prohibited under Section 20 of the Uganda's Data Protection and Privacy Act of 2019, which requires data collectors, processors, and controllers to implement appropriate and reasonable security measures to protect the integrity of personal data they hold or control.[103]

Addressing these barriers demands policies that are gender-responsive, rights-based and ensure connectivity as a public good. Uganda's DPI can empower women and other vulnerable but only if shutdowns end, designs include women and rights are enforced.

102 Sharma R., and Mishra, R., (2017). Investigating the role of intermediaries in adoption of public access outlets for delivery of e-Government services in developing countries: An empirical study. Government Information Quarterly 34(4) DOI: 10.1016/j.giq.2017.10.001

103 Data Protection and Privacy Act, 2019 Act 9 of 2019 Uganda. Legislation as at 3 May 2019.

Kenya

Kenya, often lauded as a continental leader in digitisation, paints an interesting picture for DPI in Africa in terms of how system innovation, adoption and social transformation shape up as part of broader digital transformation efforts. And while the country only recently launched a DPI roadmap,[104] meant to guide the implementation of a secure, interoperable, inclusive digital ecosystem, the country already has a fragmented DPI ecosystem that presents useful lessons in DPI approaches and practices especially on citizen experiences and material implications of these systems. Notably, this roadmap emphasises that DPI isn't just about systems but about efficient interaction between citizens, government and businesses.

Across the three core DPI components, Kenya has made tangible progress towards all of them. With regard to digital identification, Kenya has been in the process of rolling out a third generation digital ID over the last few years with the current Kenya Kwanza government having introduced the Maisha Namba, a Unique Personal Identifier,[105] at the beginning of their term. This ID however follows several failed attempts at a digital ID such as the most recent Huduma Namba which many Kenyans have perceived as part of the other struggling public sector digitisation efforts. This sentiment shows public skepticism about such initiatives and how much they meaningfully benefit citizens since the government's actual goal according to citizens seems to be the desire to benefit from procurement related rents as opposed to delivering public value.[106]

This brings a broader issue in view - DPI systems are often looked at simply from the technical perspective however, their implementation is very much as reliant on power and political incentives to deploy them. Kenya has for instance had over 90% ID coverage for a while now[107]. The incentive to onboard a digital ID often explained along the lines of delivering a wider range of benefits such as increased ID coverage and the ability to authenticate individuals comes off as marginal to an already existing ID system. This is in light of the fact that for example, to increase ID coverage, conditions to

104 Indeje, D. (2025, September 15). Kenya launches strategic roadmap to build inclusive digital public infrastructure. KICTANet https://www.kictanet.or.ke/kenya-launches-strategic-roadmap-to-build-inclusive-digital-public-infrastructure/

105 Kiprono, D (2024, October) Digital Public Infrastructure: Address These Issues For Optimization. ICJ https://icj-kenya.org/news/digital-public-infrastructure-address-these-issues-for-optimization/

106 Zollmann, J., Sambuli, N., & Wanjala, C. (2024). Citizen experiences with DPI: Kenya's digital ID transition. Center for Financial Inclusion at Accion International https://www.centerforfinancialinclusion.org/wp-content/uploads/2024/08/Citizen-Experiences-with-DPI-in-Kenya-Web.pdf

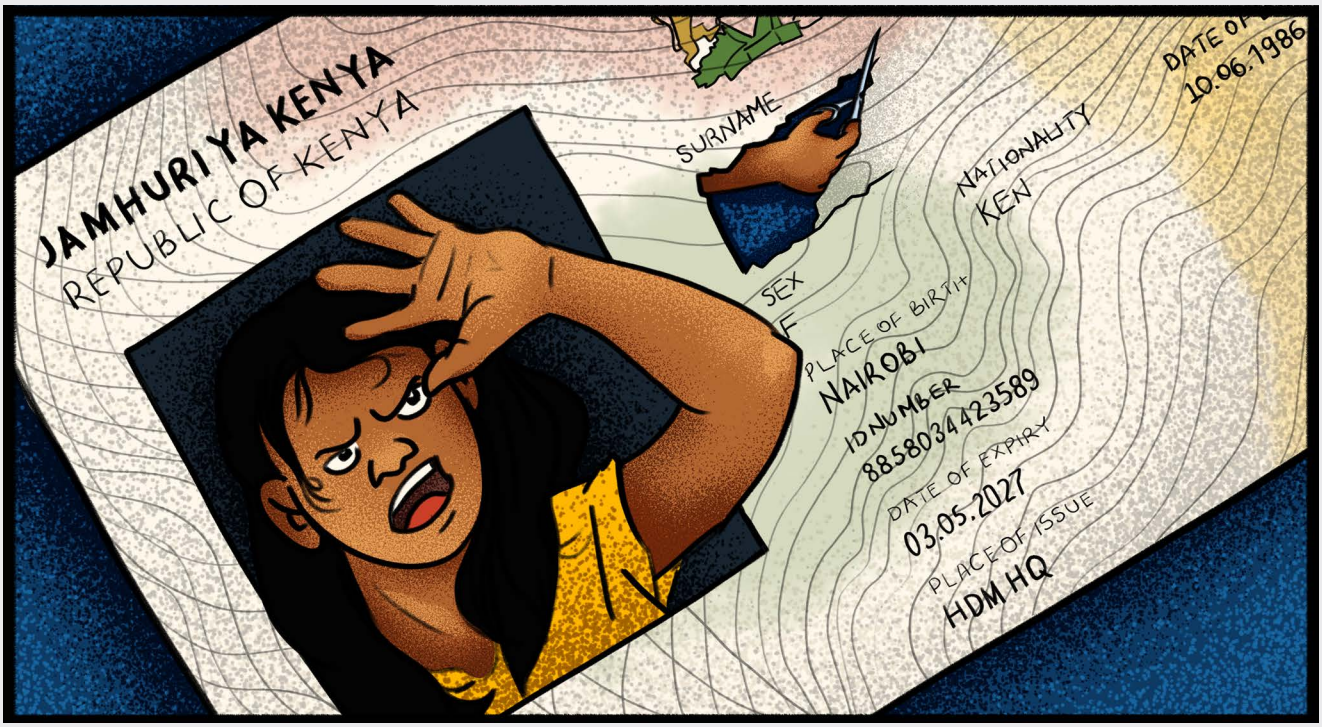
107 Musoni, M., Domingo, E., & Ogah, E. (2023). Digital ID systems in Africa: Challenges, risks and opportunities (Discussion Paper No. 360). European Centre for Development Policy Management (ECDPM).https://ecdpm.org/application/files/5517/0254/4789/Digital-ID-systems-in-Africa-ECDPM-Discussion-Paper-360-2023.pdf

realise that include the new system actively reducing barriers to access such as cost and addressing the discrimination of certain people from the national ID system.[108]

Unfortunately, these gaps do not seem to have been addressed with risks around exclusion being perpetuated further. For example, most Kenyans deem getting a national ID difficult and will pay bribes to access them. Here, statistics show that about 43% of Kenyans have paid bribes to obtain national ID with the country's own Ethics and Anti-corruption board placing this estimate further up at 75%.[109] One effectively notices the burden DPI can place on the citizenry through its inefficiency and exacerbated corruption. Another interesting illustration of how political DPI is, is the reported smoother and quicker obtaining of IDs during election season where mass registration is common to get more eligible voters.

Even worse is the experiences of minority groups who face significant challenges in obtaining the national ID for various reasons. Firstly are the ethnic minorities especially along border communities who have long dealt with socio-historical injustices along their citizenship and nationality status. This is very burdensome as arbitrary citizenship denials, citizenship based discrimination and de facto statelessness often based on ethnic manipulations for political ends denies individuals the enjoyment of their civil, political, social and economic rights which not having citizenship renders ineffective and in worse cases, leads individuals to live in a constant state of fear due to threats of violence and even death often expressed publicly. One insidious feature of this form of discrimination is that the general public tends to hold similar discriminatory sentiments as stems from either state or cultural years of messaging stoking behaviours like xenophobia from this 'insider/outsider' logic or who is deemed indigenous and who isn't. This discrimination is unfortunately exacerbated for women who also have to deal with patriarchal double exclusions further eroding at their basic rights and freedoms.

108 Ibid
109 Ibid



Case study: Digital ID, citizenship precarity and rights for ethnic minorities in Kenya

Citizenship in Kenya, like in most former colonies, stems from colonial logics of unequal citizenship which have carried on with the post-colonial state with some groups enjoying more rights than others. This is also increasingly becoming the case across many places in the world today with an immigration crisis looming globally.

For Kenya however, citizenship rights have been inflicted with exclusive tendencies,[110] enabled by the architecture through which citizenship rights are conferred on one or not. Typically, lineage is used to determine the identity of Kenyans which is further nuanced by ethnicity, regionalism, faith and gender as women for instance are not legally able to confer citizenship on their spouses. Further, certain ethnic groups are considered bonafide citizens while others have to qualify and prove their citizenship,[111] according to legal stipulations in the constitution and related immigration and citizenship Acts. This conversation ought to be at the center of the goal of establishing inclusive DPI since digital ID is the means through which this recognition and verification process is effected and consequently whether people are rendered citizens or not as a result of such backend but deciding political factors.

110 *Adam, A. H., & Maende, J. (2024.). Foreigners at home: The dilemma of citizenship in northern Kenya. Kenya Human Rights Commission (KHRC). https://khrc.or.ke/wp-content/uploads/2024/02/Foreigners-at-Home-The-Dilemma-of-Citizenship-in-Northern-Kenya.pdf*

111 *Ibid*

Since citizenship speaks to one's belonging and foundationally addresses the obligations a state has to respect, protect, promote and fulfil one's rights, the focus on ID should as much be on the promotion of access to citizenship rights. Border communities particularly in North Western Kenya including the Somali and Nubian ethnic groups as well as Muslims generally have experienced the brunt of this exclusion from ID systems since they have been construed as illegal immigrants or refugees which has led to them lacking automatic recognition during application for ID.[112] Individuals from these communities have to undergo brutal vetting processes where they are subjected to additional processes or asked to 'furnish more evidence' to validate their ethnic lineage and confirm their nationality. While the government tends to argue that this is for 'security' purposes, especially for border communities, this approach creates incentives to deny ID and other critical documents like passports.

Women's plight under these circumstances is compounded as they experience both state and cultural and religious barriers to their public and domestic life. This exclusion and oppression works across their intersecting identities. For instance, being a Kenyan Somali woman further complicates ID processing since muslims tend to experience this disenfranchisement as well and these women must also be linked to a husband or father to obtain citizenship which reinforces logics of control by these men. Even more, given that regions experiencing this marginalisation such as North Western Kenya are also economically poor, these women tend to be uneducated and so have low literacy levels and minimal ownership and access to resources like land as well as barely contributing to decision making on the whole which ultimately impact whether these women are able to access the IDs.

All of these factors matter across the digital ID landscape in terms of how much ID systems actually work to meet these individuals within this context and close barriers to access. Public apathy to the consequences of these issues should as well be addressed since this differential treatment in front of the law ought to be seen as a violation of citizen rights as groups such as refugees are also guaranteed rights under International law. The few civil society actors driving this conversation are critical partners and should be more meaningfully engaged in the design and implementation of DPI and not in a tokenist, marginal way the government tends to involve such actors.

Besides ethnic minorities, gender diverse people and sexual minorities also face similar exclusion by the design of digital ID systems as one of this study's respondents noted, saying,

> ***"for instance, (with) digital IDs or when applying for a passport, you are either male or female; there is nothing in between. When applying for a birth certificate, your identity follows you throughout life. You must choose one or the other; there is no non-binary option."***

This binary logic locks out gender-diverse groups from enjoying their full freedoms and rights, which exclusion is also reinforced by cultural stances which try to dictate how individuals must present themselves socially.

112 *Ibid*

Another critical challenge with the digital ID is the citizen distrust around government digitisation processes on the whole[113] which hinders its uptake and consequently, its promise of universal coverage and usage by citizens and residents for critical access to services. This was aptly captured by one of this study's interviewees who remarked "You can't trust DPIs. You don't want to give your information because it exists digitally, and anyone can search and find information about you. That's a major problem" and further adding with specificity to the ID that,

> ***"I think it was before the 2017 electoral cycle, or soon after in 2018, there was this whole mass registration for Huduma Namba, which was meant to be a digital ID. People were saying, 'We don't know where our information is going,' right? So, we cannot trust the system or the government. It's also because of what we experienced during previous electoral cycles through the use of social media, data, and information where Cambridge Analytica was using our information to manipulate our thoughts and decisions, right?"***

This sentiment paints a picture of distrust for the massive data collection exercise in deploying DPI and what this data is ultimately used for. In the absence of strong regulatory regimes and institutional mechanisms to enforce accountability from the government, this situation is only likely to worsen. Moreover, this sentiment also touches on the issue of public-private partnerships which seek to aggregate power and revenue as opposed to DPI which is geared towards public value.

Digital payments on the other hand have probably seen some of the most success as one of the DPI components in Kenya with the celebrated M-Pesa boom in the county and beyond. The spread of mobile money from 2008 to 2014 is said to have lifted about 1 million people or 2% of the Kenyan population out of poverty.[114] In many ways, M-Pesa is a precursor to the digital payment movement globally given how much it has transformed Kenya from a largely cash based economy to a mostly cashless society with DPI proponents advocating for the benchmarking and building upon its model towards inclusive and robust DPI.

Mobile payments have become mainstay so much so that they are the primary money exchange and transaction point for most citizens as one respondent remarked that,

> ***"so, M-PESA is more trusted than your bank, can you imagine? Because all your money goes into your bank account just for formality. But really, you pay your rent through M-PESA, you pay for your DStv subscription, your electricity, your water, everything, even your bus fare. Everything is done on M-PESA. When you look at your bank statements, the M-PESA statement becomes even more trusted than the bank statement itself. The bank statement just shows deposits and withdrawals, but your M-PESA statement shows your daily life."***

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113 Zollmann, J., Sambuli, N., & Wanjala, C. (2024). Citizen experiences with DPI: Kenya's digital ID transition. Center for Financial Inclusion at Accion International https://www.centerforfinancialinclusion.org/wp-content/uploads/2024/08/Citizen-Experiences-with-DPI-in-Kenya-Web.pdf

114 Bandura, R., & Ramanujam, S. R. (2021). Developing inclusive digital payment systems. Center for Strategic and International Studies (CSIS) https://www.jstor.org/stable/pdf/resrep35090.pdf

This shows how much the system has reshaped even the Kenyan monetary space towards greater access and inclusion.

However, while this mobile payment system has availed benefits in time and convenience and more broadly, in being most people's entry point into the financial system and as such having access to other products like saving and loans, the purported greater agency that these systems advance is not universal especially for already underrepresented groups such as women and rural dwellers who bear a different set of realities that ultimately shape their engagement and successful integrating with these systems. For women, specifically those who are rural dwellers, their agency in interacting with digital payments is tempered by existing socio-cultural attitudes which minimise how much they benefit from these systems.

This is vividly illustrated by one respondent who in alluding to patriarchal control over women's finances and their limited access to personal phones reflected that

> ***"my understanding of patriarchy in Kenya, especially regarding access to digital tools, has to do with how access is controlled and monitored."***

further adding that,

> ***"For example, when sending money to someone in a rural area and I'm speaking from my own experience, there is often only one phone in a household, and it is usually owned by the man. So the man controls the income flow, even if he is not the one earning it. This shows why we sometimes say a cash-based economy could empower women more, even though fintech has included more women through banks and mobile services."***

This paints the nuanced realities that women deal with digital payments which may not necessarily be a burden on men and women who are urban dwellers.

So even in talking about inclusive DPI systems, an intersectional approach is required to understand the niche realities of all sects of the population and not just the majority even down to groups such as women who tend to be looked at homogeneously. This reality was elaborated by one of this study's respondents who noted,

> ***"so you notice that in urban areas, most women are educated. They're able to, you know, pay for something as simple as their bus fare using M-PESA, you use it every day. You go to a restaurant, and this is how you pay. So it's about exposure and frequency of use. On the other hand, there are people who do not use this infrastructure as often. And so what it means is that because I don't use these things so frequently, I will hesitate to use them."***

Access to digital technologies like phones but also their usage are therefore equally important in the successful uptake of digital payments with gaps in Kenya looming especially for women across the urban-rural divide.

Lastly on digital payments, this study recorded a major success story where women have actually been able to push back on patriarchy and state neglect on social welfare by carving out alternative welfare systems for themselves called chamas or what is called stokvels in South Africa. This welfare model has become widely popular across Africa given the looming gap in social welfare programs. This is as one of this study's respondents noted saying,

> ***"but on the other hand, I feel like it also challenges patriarchy. When I think of the social construct, it is mostly women who are building chamas, right? I don't know how to explain chamas, I think in South Africa, they are called stokvels. You know, it's a women's group, actually a welfare group. It's made up of women who share a common identity. We could be going to the same church, or just mothers in a school; there is normally a shared identity among the group. They then build their own welfare systems, which are really a response to the failure of the state."***

Such a case is evidence of citizens finding power and agency in DPI systems as many of these exchanges in the chamas are DPI-enabled.

Finally, the component of data exchange remains scantily documented in Kenya especially as it is not directly citizen facing. However, systems such as the Integrated Population Registration System (IPRS),[115] which while not explicitly defined as DPI works as a government run database integrating data across government MDAs and also allows individuals and firms to confirm citizen or resident identities, thus functioning as one of the earliest DPI data exchange systems. The identification affiliated National Integrated Identity Management System (NIIMS)[116] envisioned as a national population register also fits here.

Public interest governance remains a critical factor shaping the discourse around these data exchange systems as massive amounts of personal information are hosted thereon and moreover with different actors allowed access to it. From principles such as privacy and consent, data governance actors and the public have been pushing for the institutional upholding of these by governments who host these systems. Similar conversations attend to DPI which is private sector hosted. In all this however, as shown in the sections above, citizen trust remains low owing to the lack of transparency by government in sharing their plans around these systems which opacity has led the public to view these systems with suspicion.

For instance, during the protests both last June and this year in Kenya, it came up that citizens were being tracked and in fact went missing based on their information basing on their digital data, specifically Safaricom's, the biggest telecom which hosts huge numbers of customers especially for their M-Pesa service. This is another case of the convenient marriage between state power and private capital. As one study respondent noted,

115 *https://usajili.go.ke/integrated-population-registration-service*

116 *https://nims.co.ke/*

"if they can find me through my phone, if they know where my house is, they can come to my house because I'm tweeting from my phone, then I'm not ready for that, you know. So, the people who were arrested, it was almost like a warning to serve as an example to the rest of us to stay quiet. And we're seeing that these people are saying this is actually being done in collaboration with the networks like Safaricom, the most widely used network in Kenya. We are using Safaricom for our M-PESA transactions and everything. So people are like, we are actually being targeted."

More generally, there is questioning of the necessity of some of the government's digitisation efforts, many of which are DPI enabled. This sentiment was mostly in line with the reality that some of these efforts are not endogenous and tend to be donor driven fads which the government implements for its own purposes rather than for public facing value[117]. For instance, an interviewee questioned and noted that

"What is the real advantage of digitising? And there is a lack of information. We are moving from an analogue system to a digital system which, funnily enough, was actually the campaign slogan in 2013 when Uhuru and Ruto came to power. They said, "We are transitioning from an analogue system to a digital system."

It was almost like romanticising and fetishising the idea of what "digital" means."

This trend to indiscriminately digitise has been criticized to probably bear unwanted consequences for the country and its citizens in a few years if more caution isn't taken. This was illustrated by the example of children now going to school needing a registration number that is digital. According to this respondent,

"I don't really know what the advantage of that is. It's like tracking your child from the time they are in primary school until adulthood. It feels like surveillance because it's almost as if they are asking, What does a good citizen look like? How many marks did you score? What can we include you in or exclude you from? It's surveillance from infancy, and I don't think we are questioning it at the moment because it looks fancy and modern. It's seen as a unified system, but what will that mean in the next ten years when the social implications begin to show?"

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117 Zollmann, J., Sambuli, N., & Wanjala, C. (2024). Citizen experiences with DPI: Kenya's digital ID transition. Center for Financial Inclusion at Accion International https://www.centerforfinancialinclusion.org/wp-content/uploads/2024/08/Citizen-Experiences-with-DPI-in-Kenya-Web.pdf

South Africa

In South Africa's National Development Plan-2030 goals, digital transformation is stated as one of the country's critical enablers to development.[118] This is especially pertinent in light of the fact that while the nation is one of Africa's leading economies, it is at the same time the most unequal country in the world[119] with critical challenges including racial inequality as well education and employment disparities which have been shaped by the legacy of apartheid. The intersectional matrix of inequality is greatly vivid particularly along the lines of race, sex, gender, education levels and geographic location. And as the NPD aptly quotes,

> ***"no political democracy can survive and flourish if the mass of our people remain in poverty".***

Hereby, policy considerations of the high inequality reality have been established in commitments, including along ICTs, to promote equality of opportunities across races and disadvantaged groups such as women and the youth and overall to contribute to inclusive development. However, like in many policy agendas, much of the focus on ICT's contributions are discussed broadly in line with 'effective infrastructure' or structures that facilitate universal access to all citizens while largely overlooking other core factors which are drivers of inclusive digitization. This is exemplified in the gaps in data on citizen experiences and material impact of DPI in South Africa.

This is where the conversation on DPI comes in. DPI has been posited as a transformative tool for South Africa's unique challenges.[120] Only recently, the Government of SA launched a unified digital government services initiative, **'MyMzansi'**[121], which uses a DPI approach, with the aim to **'deliver a safe, inclusive future by changing how government services are designed and accessed.'** This DPI-driven system wide roadmap will be rolled out in a phased manner starting with the establishing of key DPI components including the digital ID and a data exchange system both of which will focus on social protection[122] among other critical issues. Generally, MyMzansi presents one of the most robust DPI systems in Africa which, while it is only being rolled out, warrants review, at least in its framing of issues, to anticipate any risks/ challenges to attaining its goal of supporting SA's inclusive development goals.

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118 National Planning Commission. (2012). National Development Plan 2030: Our future – make it work (ISBN 978-0-621-41180-5). Pretoria, South Africa: The Presidency, Republic of South Africa https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf

119 World Bank. (2022). Inequality in Southern Africa: An assessment of the Southern African Customs Union (Country Brief: South Africa). Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/099125003072240961/pdf/P1649270b73f1f0b5093fb0e644d33bc6f1.pdf

120 Madyibi, A. (2025, May). Digital public infrastructure: Unlocking South Africa's path to inclusive growth. Public Sector Manager Magazine.

121 https://www.mymzansi.org.za/about

122 https://www.mymzansi.org.za/roadmap

Case study: Thandi's journey - Critique of her framing as the 'universal' user (Inclusive design approach)

Thandi's journey[123] is a short descriptor narrative which shows the evolution of scenarios that Thandi encounters along her journey pre and post-digital transformation as aided by MyMzansi. More generally, this journey serves as an illustration of the user-design guide for MyMzansi as elaborated along Thandi's journey stating that 'Thandi represents the journey of millions of South Africans as they engage with government services across life events.'

This case study is a critical analysis of Thandi's persona as envisioned by the South African government in rolling out MyMzansi. In essence, Thandi represents what this system's design frames as the 'universal' user of it in South Africa. According to her journey, this imagined user is framed as educated, connected to the internet and digitally literate among other core design assumptions. While indeed this is a sect of the South African population, this framing does not cater to the many South Africans who are not formally educated or with minimal education and by extension many of whom are digitally illiterate as well as those who have minimal to no internet connection many of whom are women who are both rural dwellers and unemployed. This is evidenced in the country's socio-economic landscape at the moment.

In consequence, this illustration highlights a design process which focuses on the core needs and realities of some people while excluding many others. This is because design, even when user-centred, falls short at being inclusive when it does not address diversity within populations and in this case, the South African public. For a system wide approach, DPI systems like MyMzansi risk being exclusionary by design from this standpoint.

123 *https://www.mymzansi.org.za/thandi*

Intersectionality addresses how user experiences can be affected by the presence of multiple intersecting identities like race, gender, ability, education levels, sexuality, class etc.[124] From some of the challenges that manifest in Thandi's journey as a result of it not fitting well with some of the South African population such as the inaccessible framing of DPI functions where localised, simple language isn't used to explain them, the risk for algorithmic bias or where access and usage are simply not possible to some sects of the population due to literacy or connectivity gaps, a user-design process which creates different user personas allows for real inclusive DPI framing and implementation.

Thus, for equitable access and use, framing of policy design processes for DPI is just as critical as their implementation as illustrated in the analysis above which makes a case for the reimagining of DPI design beyond the current mode of designing for a universal user first, then having add-ons to address emerging needs for underrecognised and or, underrepresented populations.

For greater context to the above case study, approximately 51.1% of the South African population are women[125] which demographic also grapples with higher economic vulnerability. Here, black women are the most vulnerable with an unemployment rate of over 30% as well as the majority of them having lower education levels. Additionally, a gender digital divide exists in the country where women use the internet at an average rate of about 41%.[126] In seeking to better understand how DPI can support the country's inclusive development, having such pertinent realities reflected in policy planning and implementation is indispensable to its success.

Currently, South Africa is only rolling out its digital ID under MyMzansi although it has generally had a robust identification system for decades moving from the green bar-coded ID to the Smart ID card since 2014. In fact, it boasts of near universal civil registration and identification which has been made possible through the provision of tangible benefits or incentives for getting identification particularly for the social welfare schemes like the Child Support Grant.[127]

The Smart ID has been a crucial part of identification in SA with one of this study's respondents noting,

> ***"access begins at the entrypoint- that is the Smart ID… whether as a citizen or regularised migrant"***

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124 Iyer, N., and Achieng, G. (2022). Inclusion, Not Just an Add-On. Retrieved on November 3, 2025 from https://pollicy.org/wp-content/uploads/2022/01/Inclusion_Not_Just_an_Addon_guide.pdf

125 Statistics South Africa. (2020). Crimes against women in South Africa: An analysis of the phenomenon of GBV and femicide. Pretoria, South Africa: Statistics South Africa. Retrieved from https://www.parliament.gov.za/storage/app/media/1_Stock/Events_Institutional/2020/womens_charter_2020/docs/30-07-2020/A_Statistical_Overview_R_Maluleke.pdf

126 Shiferaw, Y. A. (2024). A spatial analysis of the digital gender gap in South Africa: Are there any fundamental differences? Technological Forecasting and Social Change, 204, 123443. https://doi.org/10.1016/j.techfore.2024.123443 retrieved from https://www.sciencedirect.com/science/article/pii/S0040162524002397

127 World Bank. 2018. South Africa ID Case Study, Washington, DC: World Bank License: Creative Commons Attribution 3.0 IGO (CC BY 3.0 IGO). https://openknowledge.worldbank.org/server/api/core/bitstreams/17e5272f-1186-53fd-b5f1-77f95e8643bc/content

given that citizens and other residents require ID to access critical and optional services including telecommunications, banking, health insurance and so on. With the government announcing the rolling out of a digital ID under MyMzansi over the next four years, concerns about what data is being collected, from whom and how both government and third-party vendors will use it have arisen with fears expressed in how the ID threatens citizen's freedoms and rights for instance through surveillance aided by ID's connection to a central database or when access to basic services is cut off.[128] These fears are not unfounded as the government, particularly the Department of Home Affairs has rights that can deter significant freedoms via ID. For example, the Department already has powers to block IDs it deems fraudulent with sufficient evidence and has in fact blocked over one million IDs[129] which have been ruled unconstitutional, unjust and invalid.

The implications of DPI systems such as the ID system explored above are different across different categories of society. For example, as noted by this study's respondents, women continue to face access and usage related barriers through gaps in affordability of data, device ownership, connectivity limitations, digital literacy gaps, language barriers and social access challenges emanating from patriarchal cultural structures which ultimately lock them out of greatly benefiting from these systems.

Issues to do with patriarchal control and subsequent moral policing from it are influential in women's access and use of DPI yet policymaking rarely recognises and validates their place in risks to mitigate when rolling out systems like MyMzansi. Socio-culturally, South Africa remains a deeply patriarchal society which tends to manifest as monitoring and the control of smart phone usage by women either by their partners or family members or guardians. This control is especially done under the guise of 'ownership' of the devices by the men especially in households which guarantees their control over them or limiting usage because 'you're too active online' as one study respondent remarked. 'What are they doing, who are they talking to' are some questions asked in this regard.

Moreover, this control becomes moral policing which becomes self reinforcing such that women themselves regulate their online engagement so that they do not do something 'shameful' online or do not get exposed to immorality there which attitudes only cement traditional gender roles and hierarchies where women are leashed off to the private realms while men freely roam and dominate public spaces including digital spaces today.

Unfortunately, real life consequences beyond inaccessibility and exclusion from critical services has followed these logics of moral policing and patriarchal control where for example this study found that women's growing financial independence in digital payment systems has led to household conflict which often results in GBV and femicide both of which are still highly prevalent in South Africa,[130] as

128 Labuschagne, H. (2025, October 3). Big questions about digital IDs in South Africa. MyBroadband. https://mybroadband.co.za/news/government/612552-big-questions-about-digital-ids-in-south-africa.html

129 Maqhina, M. (2020). South Africa: Home Affairs probes avalanche of blocked ID documents https://citizenshiprightsafrica.org/south-africa-home-affairs-probes-avalanche-of-blocked-id-documents/

130 Statistics South Africa. (2020). Crimes against women in South Africa: An analysis of the phenomenon of GBV and femicide. Pretoria, South Africa: Statistics South Africa. Retrived from https://www.parliament.gov.za/storage/app/media/1_Stock/Events_Institutional/2020/womens_charter_2020/docs/30-07-2020/A_Statistical_Overview_R_Maluleke.pdf

one of this study's respondents noted that, 'even access to devices has effects for example economic resources are a driving factor for perpetrator violence in homes.' It is therefore important to design DPI systems with awareness of the matrix of social realities beyond the technical factors to minimise marginalization of certain groups even further for instance here where not embedding checks in the system can be a risk factor for furthering gendered violence and broadly, further gender inequality.

Still in line with the fears associated with the deployment of DPI like the digital ID, it should be noted that South Africa has not experienced much of the common digital authoritarian practices that are more common elsewhere in Africa, especially internet shutdowns. However, even with these limited controls to the internet in the country, this study's respondents remain critical of the influence of the growing trend of shutdowns across Africa which might impact their country soon. Here, one respondent noted how internet shutdowns explicitly stifle democracy and since gender equality is much more likely to be the norm in democratic countries, internet shutdowns doubly risk worsening women's access, participation et cetera across the board. Additionally, it was noted that the authoritarian tendency of surveillance affects service outreach such as health support, GBV support, and services or information related to sexuality and reproductive health given the erosion of trust from platforms which leads to withdrawal from usage or engagement.

Ultimately however, the South African government has taken significant steps to increase public trust in data handling through its data protection act- POPIA. In fact, as noted one by an interviewee,

> ***"the country has strong constitutional frameworks often referenced by almost all institutions as well as a highly regarded Information Regulator".***

South Africa is also one of the few African countries revamping its ID laws.[131] All of these factors generally speak to the existence of guardrails that can support DPI implementation which is rights respecting. In finality however, as one of this study's respondents pondered,

> ***'yes, the frameworks exist, but are they gender responsive or sensitive to women's needs? Do people in rural areas know about their data rights and how to seek redress or accountability when engaging with DPI?'.***

131 *Musoni, M., Domingo, E., & Ogah, E. (2023). Digital ID systems in Africa: Challenges, risks and opportunities (Discussion Paper No. 360). European Centre for Development Policy Management (ECDPM). https://ecdpm.org/application/files/5517/0254/4789/Digital-ID-systems-in-Africa-ECDPM-Discussion-Paper-360-2023.pdf*

Conclusions

In summation, this study reveals that the efforts to build modern Digital Public Infrastructures (DPIs) characterized by digital identity, payments, and data exchange systems in Uganda, Kenya and South Africa, are fundamentally undermined by limited understanding of citizen realities as seen across issues of persistent digital authoritarian practices, entrenched patriarchal norms, and structural inequities for this study. These intersecting factors systematically erode the trust, accessibility, reliability, and benefits of DPIs, particularly for women. The key tension is that DPIs are proving highly effective for state-centric goals like revenue mobilization and system efficiency, yet they fail to prioritize a citizen-centric lens centering inclusive access and democratic rights. This demonstrates that the risk is not just one of digital exclusion, but of digital marginalization by design and by governance. For Africa's digital future to be inclusive, policy must urgently shift from a technology-first approach to one that is rights-respecting, Afro-feminist, and structurally corrective.

Recommendations

A. Governments, Policy Makers and Institutional Actors

Allocate targeted resources to adopt gender-by-design approaches in DPI policy and system development, recognising that gender-neutral designs can reinforce existing inequalities. This requires institutional design choices that actively correct structural gender asymmetries and account for intersectional differences in education levels, income, labour conditions, and caregiving roles. Last-mile service delivery models that retain meaningful human support should be prioritised, as these approaches remain critical for women and girls who face compounded access barriers.

Allocate sustained resources in studying and understanding citizen realities in relation to DPI use for more evidence based decision making in implementing DPI. This is useful in bridging the gap between technocentric DPI approaches and citizen centered DPI approaches.

Address long standing socio-historical and political barriers that shape citizen's engagement with government processes mediated via DPI like the Digital Identification systems. This includes confronting legacies of exclusion embedded in citizenship, documentation, and verification practices that continue to disadvantage women and other underrepresented groups.

Prioritise citizen's needs as the primary organising principle of DPI implementation, while also ensuring that the government's own priorities do not override accessibility, dignity, and rights

Prioritise establishment of interoperable systems and integrate gender-disaggregated data tracking while tending to minimise challenges associated with massive data aggregation such as risks for cyber attacks which could lead to data privacy loss and misuse of different kinds.

Prioritise women's groups uptake of digital financial services for broader socio-economic development as aided by financial inclusion recognising access to digital payments and public benefits as economic rights rather than optional welfare measures. This should be made possible by digital payment systems and broader interoperability of systems which eases their access to essential services.

Address trust in data systems as a core part of closing gaps to citizen uptake of critical DPI. Without building of trust, these gaps are likely to persist rendering efforts to support development through DPI minimal. For example, user driven/ centric solutions and participatory governance of DPI are routes to this trust building process.

Update DPI-related legal and institutional frameworks that center women, womxn and human rights defenders and other at risk groups emphasising and upholding rights such as privacy, dignity, non-discrimination, freedoms of speech, agency and decisional autonomy over their data, just models of data ownership

B. Civil Society Organisations, Feminist and Digital Rights Networks.

Support the building of an evidence base showing granularly how and whether DPIs are in fact resulting in increased access and usage of various DPI systems- reporting mechanisms eg user experience studies to assess qualitative and quantitative impacts of implementation of DPI systems like ID - evaluation across lifecycle of systems to understand actors and institutional arrangements as regards the different DPI systems.

Build community digital literacy and safety capacity by implementing tailored digital literacy and online safety programmes targeting rural women, and persons with disabilities. Partner with local authorities and women's and feminist networks to improve awareness of data rights, privacy, and safe online practice.

Foster multi-stakeholder advocacy for digital rights by strengthening coalitions with government, academia, private sector, and regional advocacy platforms to influence inclusive DPI frameworks. CSOs should continue supporting global and regional campaigns such as #KeepItOn and advocate for enforceable commitments against internet shutdowns and online censorship.

C. Private Sector and Technology Developers

Telecom operators, fintech companies, and technology developers should adopt universal design standards and accessible interfaces that accommodate low-digital literacy users, persons with disabilities, and users of local languages. Products should be tested with diverse user groups before deployment.

Collaborate with governments to reduce the cost of internet access and smartphones, including through targeted subsidies or zero-rating essential public services where access to certain online public services is made free of internet data charges.

Private sector actors should also support inclusive data-sharing frameworks aligned with ethical data principles.

The private sector should respect user's data rights in handling it or gaining access to it via these integrated data platforms even where they are paying for it.

D. African Internet Rights Alliance

AIRA should facilitate cross-country dialogue on DPI inclusion, digital rights, and gender equality by synthesising evidence and supporting policy engagement across member countries

Further fundraising of more resources to allow for the conducting of more studies investigating citizen experiences in Africa.

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