RIS
Research and Information System for Developing Countries
विकासशील देशों की अनुसंधान एवं सूचना प्रणाली

DAKSHIN
Development and Knowledge Sharing Initiative
GLOBAL SOUTH CENTRE OF EXCELLENCE

Uganda Council on Foreign Relations
UCFR

DAKSHIN Workshop
Leveraging Digital Public Infrastructure for Inclusive Development: Experiences in India and Uganda

15 April 2025

Report

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Concept Note

Digital technologies have emerged as important vehicles for social economic transformation in developing countries. With a predominantly young, vibrant and tech savvy population, increasing access to internet connect connectivity, increasing access smartphones and internet connectivity, developing countries have the potential to harness digital technologies for inclusive development. As in other developing countries, Uganda has experienced rapid growth in mobile phone and internet access – currently estimated at 58% of the population. Smartphones in the hands of the country's mostly youthful population – 78% of the population is under 30 years – is a fertile ground for a digital revolution. On its part, the government has developed policies to support digital transformation most notably Digital Uganda Vision, and digital transformation roadmap, National Fourth Industrial Revolution strategy, among other. There has also been an effort to develop infrastructure with nearly 50% of the country covered with 4,172 km of national backbone infrastructure.

Digital Public infrastructure (DPI) has emerged as a vital tool for fostering inclusive digital transformation. DPI is defined broadly as a set of shared digital systems that are secure and interoperable and can support the inclusive delivery of and access to public and private services at societal scale. The DPI approach focuses on building foundational digital building blocks for public benefit. This can include systems—like digital identity, digital payments, and data sharing—that underpin many digital transactions across the public and private sector. The shared public infrastructure sets a foundation for both private and public actors to create use-centric digital products and services. According to UNDP estimates, DPIs have potential to increase GDP of low- and middle-income countries by between 1 and 1.4 percentage points by 2030.

Digital Public Infrastructure initiatives in India and Uganda

Uganda has attained notable progress is developing digital public infrastructure. Commendable progress has been registered in building a national ID system. Launched in 2014, the National biometric ID has since become a vital document for accessing essential services including social protection support, financial services, access to public premises, among others. As of 2022, about 80 percent of the population have a national ID. While the country still strives for universal coverage, the government is working on an upgrade of the National ID to include authentication features. In addition to digital ID, Uganda is one of the pioneers in digital payment using telecom-led mobile money services. Mobile money services mostly rely on Unstructured Supplementary Service Data (USSD) and Sim Tool Kit (STK) to provide an instant means of money transfer

and payments to customers. Launched in 2009, the country has over 42.9 million mobile money account as of June 2023. Furthermore, the government launched UGhub Systems Integration Platform to enable seamlessly sharing of data across Government systems in a rational, secure, efficient and sustainable manner. By fostering efficient and secure data exchange, UGHub empowers Ministries, Departments and Agencies (MDA) to deliver improved e-services to both citizens and private entities. Additionally, UGPass was launched in 2024as a digital authentication and electronic signature platform.

Despite significant development of key digital public infrastructure, Uganda's digital transformation is sub-optimal. Digital payments systems have underperformed in part due to low adoption among MSMEs, transaction costs, and low levels of merchant payments. Use of e-governance is generally low due to low digital literacy among the population, lack of trust in online government services, and inadequate government capacity to implement digital systems. Additionally, there are concerns of data security and privacy, data governance and data control.

In India, DPI has been a story of scale, necessitated by the size of its population and vastness of its geography. Its citizen unique biometric identity Aadhaar has been issued to over 93% of its population as of 2023. Aadhaar is used to provide subsidised food grains to low income persons, independent of their location in the country, with the integration of Aadhaar with the food Public Distribution System (PDS). Aadhaar is used for money transfers within India, with the DPI called Aadhaar Enabled Payment System (AePS). Similarly, there are apps for storage of digital documents of citizens (DigiLocker), telemedicine (eSanjeevani), travel (Digi Yatra) and more. The government has set up a nation-wide bill payment system with sellers & service providers from both private and public sectors, with multiple apps and websites for payers. Many e-governance services are delivered on government websites, the success shows in adoption and continued use by citizens.

Leveraging on longstanding relations between India and Uganda including digital cooperation frameworks in the health and education sectors, there is a great opportunity for sharing experiences, best practices, and collectively explore solutions to challenges in DPI implementations. Key issues to explore may include sponsorship, technology, ownership, privacy, continuity, sovereignty, user behaviour, among others.

In this context, the workshop aims to achieve the following:

- Explore DPI initiatives in India and Uganda and opportunities for mutual learning.
- Share experiences on how to leverage public-private partnerships for building inclusive digital ecosystems leveraging on DPI.
- Devise how to address concerns in DPI including concerns of data privacy, data security, data governance and data control.

Agenda

5:00 pm – 5:10 pm	*Welcome Remarks* • **Professor Sachin Chaturvedi**, Director General, RIS • **General (Rtd) Ivan Koreta**, Chairman, Uganda Council on Foreign Relations (UCFR), Uganda
5:10 pm – 5:20 pm	*Opening remarks* • **H.E Upender Singh Rawat,** High Commissioner of India to Uganda, Kampala • **Mr. Mwanika Brian Phenox**, Counsellor at the Uganda High Commission, New Delhi
5:20 pm – 6:10 pm	*Panel Discussion* *Moderator* **– Mr. Venkatesh Krishnamurthy**, Advisor, Digital Solutions, DAKSHIN, RIS. • **Mr. Anish Kumar,** Advisor, Ministry of External Affairs, Government of India • **Prof. Robinson Ogwang,** Fellow, Uganda Council on Foreign Relations (UCFR), Uganda • **Prof. S. Rajagopalan,** President, Modular Open Source Identity Platform (MOSIP) & Open G2P Projects, India • **Dr. Feta Simon**, Fellow, Uganda Council on Foreign Relations (UCFR), Uganda • **Mr. Nagarajan Santhanam,** Chief Dissemination Officer, Modular Open Source Identity Platform (MOSIP) & OpenG2P, India • **Dr. Jacqueline Nakayizi,** Fellow, Uganda Council on Foreign Relations (UCFR), Uganda • **Mr. Ritesh Shukla,** CEO, NPCI International Payments Limited (NIPL), India
6:10 pm – 6:25 pm	*Open Discussion*
6:25 pm – 6:30 pm	*Concluding Remarks* **Professor Gulshan Sachdeva**, Chief Coordinator, DAKSHIN-Global South Centre of Excellence , RIS, India

Summary Report

DAKSHIN organized the virtual workshop titled "Leveraging Digital Public Infrastructure for Inclusive Development: Experiences in India and Uganda" in collaboration with Uganda Council on Foreign Relations (UCFR), Uganda on 15 April 2025. This workshop under the digital solutions theme, held as part of DAKSHIN's ongoing efforts to promote knowledge exchange, best practices, capacity building, and development cooperation under the South-South Cooperation framework.

Prof. Gulshan Sachdeva, Chief Coordinator, DAKSHIN – Global South Centre of Excellence, RIS, welcomed participants and outlined the Centre's mandate to foster collaboration among think tanks across the Global South. He highlighted RIS's extensive network of over 140 think tanks globally, including 63 in Africa, and identified the Uganda Council on Foreign Relations (UCFR) as a key partner. Referring to prior meetings with UCFR and Ambassador Katana, he emphasized the mutual agreement to identify specific areas of India–Uganda collaboration that could be translated into actionable proposals. Prof. Sachdeva explained that the present meeting was convened to focus specifically on Digital Public Infrastructure (DPI) and explore pathways for deeper cooperation between the two countries.

Prof. Sachin Chaturvedi, Director General, RIS, highlighted DPI as a critical enabler of inclusive development. He described South–South cooperation as both demand-driven and grounded in shared development experiences. Drawing on India's experience, he explained how DPI has helped reduce transaction costs, enhance access, and promote equity and inclusion, while following a balanced model combining public digital infrastructure with high-quality private services, distinct from approaches in the United States and the European Union. He noted that India's DPI framework gained global recognition during its G20 Presidency and received support from multilateral development banks. Emphasizing the importance of predictable, reliable, cost-effective, and inclusive development models, he reaffirmed the commitment of both India and Uganda to this agenda and commended both teams for developing a strong and relevant programme.

Mr. Chris Karuhanga , UCFR (delivered remarks on behalf of General (Rtd) Ivan Koreta, Chairman, UCFR, Uganda), emphasized the need for Uganda, Africa, and the wider developing world to realign their interests in response to a rapidly changing global order, with India emerging as a major and influential partner. He underscored the close link between technological advancement, economic growth, and evolving geopolitical dynamics, outlining key priorities for alignment, including economic sovereignty, technological advancement, resource control and bargaining power, security, food security, health security including pharmaceutical independence, and the expansion of global influence. He described the webinar as a timely platform for exploring how Uganda could leverage India's technological capabilities to strengthen and expand its DPI across critical

social and economic sectors.

H.E. Upender Singh Rawat, High Commissioner of India to Uganda, highlighted ongoing discussions on DPI and digital services between India and Uganda, noting India's readiness to share its experience. He referred to specific initiatives under discussion, including a modular open-source digital identity platform based on Indian technologies already operational with Uganda's Ministry of Internal Affairs, and advanced-stage discussions on implementing India's Unified Payments Interface (UPI) in Uganda. Mr. Rawat also highlighted deliberations at the India–Uganda Joint Trade Committee meeting on bilateral trade settlement in local currencies, including mechanisms such as special rupee vostro accounts, which could reduce transaction costs and reliance on hard currencies. He emphasized lessons from India's experience relevant to Uganda, including infrastructure development for digital services, addressing connectivity challenges in remote and rural areas, stakeholder engagement with marginalized populations, capacity building and training for both service providers and citizens, and addressing cultural and linguistic diversity. He underscored the significance of long-term financial sustainability, robust monitoring and evaluation, and ethical considerations such as privacy, data security, equity, inclusivity, and accountability.

Mr. Mwanika Brian Phenox, Counsellor at the Uganda High Commission, New Delhi, emphasized the global call for DPI deployment to advance digital development and enable less developed countries to leapfrog technological stages. In Uganda's context, he stressed the importance of seamless system integration, robust regulatory frameworks, particularly on data privacy, and active private sector involvement as a driver of economic growth. He noted Uganda's significant foundational progress and highlighted the value of benchmarking against successful DPI models, such as India's, which has received international recognition. Referring to recent India–Uganda government engagements on digital transformation and payments, he described the dialogue as a step in the right direction and emphasized that India's people-centric digital model offers valuable lessons for Uganda.

Mr. Venkatesh Krishnamurthy, Advisor – Digital Solutions, DAKSHIN, RIS, moderated the panel discussion, highlighting two core principles guiding India's engagement with the Global South on DPI: accessibility and openness. He emphasized that India's DPI is free from vendor lock-in, allowing partner countries to retain full ownership and adapt solutions to their sovereign needs. Mr. Krishnamurthy focused discussion on DPI, inclusive development, and impact assessment, inviting Professor Rajagopalan to share perspectives.

Prof. S. Rajagopalan, President, MOSIP & OpenG2P Projects, India, outlined the core architecture of DPI, identifying five essential components: identity, payments, credentials, contracts, and trust infrastructure. He emphasized DPI as a rights-based framework, ensuring universal access and inclusion. Prof. Rajagopalan shared field experiences from

Africa, including portable tablet-based identity enrolment systems and alternative authentication methods such as facial or iris recognition to address manual labour and connectivity constraints. He highlighted tools like Gender Magnifier for evaluating gender bias in software design. He recommended adherence to global frameworks such as UN safeguards and UNESCO's AI ethics guidelines and reaffirmed ongoing cooperation with Ugandan institutions.

Mr. Ritesh Shukla, CEO, NPCI International Payments Limited, India, explained India Stack's four foundational layers: presence-less identity, paperless services, cashless payments, and consent-based data sharing. He highlighted NPCI's role in enabling inclusive digital payments across rural and urban areas, reducing transaction costs, improving liquidity, facilitating access to formal credit, formalizing informal economies, and supporting private sector innovation. He emphasized the applicability of India's open-source, license-free digital payment solutions to Uganda's context, particularly given its young and digitally emerging population, and reaffirmed NPCI's willingness to collaborate in building a sovereign and resilient digital payments ecosystem.

Mr. Anish Kumar, Advisor, Ministry of External Affairs, Government of India, focused on DPI as an enabler of inclusive development, ensuring that economic and social benefits reach the last mile. He highlighted India's approach to international collaboration, initiated during the G20 Presidency in 2023, which includes experience-sharing on policy, regulatory, and legal challenges, capacity building, and hands-on implementation support. Through examples such as doorstep pension delivery, telemedicine access, and small business credit through UPI, he illustrated DPI's transformative impact on citizens' lives, economic formalization, and upward mobility. He also emphasized sectoral digital stacks in agriculture and health and underlined principles of openness, inclusivity, transparency, privacy, interoperability, and public ownership.

Mr. Nagarajan Santhanam, Chief Dissemination Officer, MOSIP & OpenG2P, India, stressed that foundational digital identity is central to effective service delivery and national trust. He highlighted MOSIP's three key dimensions: enrollment and registration, authentication, and interoperability with service delivery applications. Using the Philippines as an example, he illustrated how MOSIP's offline registration enabled enrollment across dispersed islands, achieving over 53 million registrations within a year. He underscored offline authentication as critical in low-connectivity contexts and emphasized the importance of capacity building through commercial partnerships, training of country teams, and university collaborations. Mr. Nagarajan highlighted Uganda's rigorous selection of MOSIP as its national platform and noted the imminent launch of Uganda's ID system, confident that MOSIP will drive inclusive digital transformation.

Dr. Feta Simon, Fellow, Uganda Council on Foreign Relations (UCFR), Uganda, appreciated India's achievements in DPI deployment and highlighted the value of collaboration and mutual learning. He identified four thematic areas for DPI extension in Uganda: health systems, accessibility and infrastructure (including urban traffic and transport), big data for public good and economic empowerment, and DPI sovereignty through domestic control of

software and hardware. Dr. Simon emphasized that India's experience provides lessons to make DPI a lived, everyday reality that tangibly benefits citizens.

Dr. Jacqueline Nakayizi, Fellow, UCFR, Uganda, highlighted the importance of technology transfer for Uganda, emphasizing the need for continuous capacity building and skills development, particularly among youth, who form the majority of Uganda's population. She underscored that sustainability of DPI requires local ownership and training and welcomed India's open and non-proprietary approach. She also stressed the importance of strong policies, legal frameworks, and ethical safeguards, particularly regarding data privacy and protection against exploitation by multinational entities, noting that inclusive DPI can drive employment, harness Uganda's youth bulge, and contribute to socio-economic development.

Outcomes

The webinar emphasized the importance of strengthening Uganda's institutional and human capacity to manage DPI including training government officials, engaging the private sector, partnering with universities, and fostering long-term technical expertise to ensure sustainable adoption.

- DPI has the potential to formalize informal economies, strengthen rural and small businesses, reduce reliance on cash, improve access to credit, and enhance tax compliance.
- DPI must adhere to principles of transparency, privacy, accountability, and long-term sustainability. Effective monitoring, evaluation frameworks, and ethical safeguards are essential to maintain trust and ensure DPI contributes to inclusive and equitable development.
- Uganda can leverage India's technological expertise to strengthen its DPI across economic and social sectors including economic sovereignty, technological advancement, resource management, security, health, and financial inclusion.
- Uganda's young population presents a significant opportunity for inclusive digital growth. Skill development, education, and vocational training are critical to ensure youth participation in DPI ecosystems, innovation, and long-term sustainability.
- DPI initiatives must ensure that all citizens can access digital services by prioritizing accessibility, equity, and gender inclusion. Using tools and alternative authentication methods, such as facial or iris recognition helps overcome connectivity, mobility, or literacy barriers and prevents marginalized populations from being excluded.

Glimpses

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RIS specialises in issues related to international economic development, trade, investment and technology. It is envisioned as a forum for fostering effective policy dialogue and capacity-building among developing countries on global and regional economic issues. The focus of the work programme of RIS is to promote South-South Cooperation and collaborate with developing countries in multilateral negotiations in various forums. Through its following centres/forums, RIS promotes policy dialogue and coherence on regional and international economic issues.

The word "DAKSHIN" (दक्षिण) is of Sanskrit origin, meaning "South." The Hon'ble Prime Minister of India, Shri Narendra Modi, inaugurated DAKSHIN – Global South Centre of Excellence in November 2023. The initiative was inspired by the deliberations of Global South leaders during the Voice of the Global South Summits. DAKSHIN stands for Development and Knowledge Sharing Initiative. Hosted at the RIS, DAKSHIN has established linkages with leading think tanks and universities across the Global South and is building a dynamic network of scholars working on Global South issues.

AIC at RIS has been working to strengthen India's strategic partnership with ASEAN in its realisation of the ASEAN Community. AIC at RIS undertakes research, policy advocacy and regular networking activities with relevant organisations and think-tanks in India and ASEAN countries, with the aim of providing policy inputs, up-to-date information, data resources and sustained interaction, for strengthening ASEAN-India partnership.

CMEC has been established at RIS under the aegis of the Ministry of Ports, Shipping and Waterways (MoPS&W), Government of India. CMEC is a collaboration between RIS and Indian Ports Association (IPA). It has been mandated to act as an advisory/technological arm of MoPSW to provide the analytical support on policies and their implementation.

FITM is a joint initiative by the Ministry of Ayush and RIS. It has been established with the objective of undertaking policy research on economy, intellectual property rights (IPRs) trade, sustainability and international cooperation in traditional medicines. FITM provides analytical support to the Ministry of Ayush on policy and strategy responses on emerging national and global developments.

BEF aims to serve as a dedicated platform for fostering dialogue on promoting the concept in the Indian Ocean and other regions. The forum focuses on conducting studies on the potential, prospects and challenges of blue economy; providing regular inputs to practitioners in the government and the private sectors; and promoting advocacy for its smooth adoption in national economic policies.

FIDC, has been engaged in exploring nuances of India's development cooperation programme, keeping in view the wider perspective of South-South Cooperation in the backdrop of international development cooperation scenario. It is a tripartite initiative of the Development Partnership Administration (DPA) of the Ministry of External Affairs, Government of India, academia and civil society organisations.

FISD aims to harness the full potential and synergy between science and technology, diplomacy, foreign policy and development cooperation in order to meet India's development and security needs. It is also engaged in strengthening India's engagement with the international system and on key global issues involving science and technology.

As part of its work programme, RIS has been deeply involved in strengthening economic integration in the South Asia region. In this context, the role of the South Asia Centre for Policy Studies (SACEPS) is very important. SACEPS is a network organisation engaged in addressing regional issues of common concerns in South Asia.

Knowledge generated endogenously among the Southern partners can help in consolidation of stronger common issues at different global policy fora. The purpose of NeST is to provide a global platform for Southern Think-Tanks for collaboratively generating, systematising, consolidating and sharing knowledge on South South Cooperation approaches for international development.

DST-Satellite Centre for Policy Research on STI Diplomacy at RIS aims to advance policy research at the intersection of science, technology, innovation (STI) and diplomacy, in alignment with India's developmental priorities and foreign policy objectives.

— Policy research to shape the international development agenda —

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