

GREENING THE DIGITAL STATE

How Digital Public Infrastructure Can Accelerate Labour-Based Climate Transitions in Nigeria



This report is developed as part of the Africa Policy Dialogue (APD) on *Catalyzing Green Jobs through Low Carbon Transition in Nigeria*, being implemented by the Advocacy for Policy and Innovation (API) in partnership with INCLUDE Knowledge Platform.

The APD seeks to institutionalize inclusive green job policies and create a structured workforce pipeline to support Nigeria's low-carbon transition and sustainable development goals in relation to energy diversification. A core focus of the project is enabling access to opportunities in the renewable and sustainable energy sector. This requires an understanding of the landscape, necessitating research development to inform legislative deliberations and guide stakeholder decision-making.



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Executive Summary

Nigeria's digital public infrastructure is expanding across identity, public finance, payment rails, procurement, and service-delivery systems, creating a potentially powerful foundation for labour-based climate transitions and green job creation ([UNDP, 2023](#)). Yet this potential remains largely unrealised because digital systems and climate-employment policies have evolved in parallel rather than as an integrated governance architecture. While digital reforms have improved transparency and efficiency in important areas of public administration, the systems were not designed to define, track, verify, or incentivise climate-related employment outcomes.

This report argues that Nigeria does not need to build an entirely new climate-specific digital state to advance labour-based green transitions. Instead, it can align existing DPI layers with climate and employment objectives through targeted reforms to data standards, public procurement, payments, registries, institutional coordination, and accountability mechanisms. The most immediate opportunities lie in linking digital identity and worker-verification systems to public employment programmes, integrating green-job indicators into procurement and contract-management systems, using digital payments to improve traceability in labour-intensive climate programmes, and building interoperable data architectures that allow employment outcomes to be reported across ministries and agencies.

The report situates Nigeria within broader African debates on digital sovereignty, AI readiness, and digital trade. It finds that labour-based climate transitions now depend not only on climate-policy design but also on infrastructural sovereignty, data sovereignty, and algorithmic sovereignty- that is, on who owns the rails, who governs the data, and who defines the automated rules of decision-making in public systems ([Awoleye, n.d.](#)). In this context, aligning DPI with green-jobs objectives is not merely an administrative reform; it is a strategic state-building project tied to economic autonomy, public accountability, and Nigeria's regional role in African digital governance.

Five Major Constraints

- Institutional fragmentation continues to separate digital governance, labour policy, climate policy, procurement oversight, and public-finance management.

- Existing systems lack common classifications and reporting fields for green jobs, climate-relevant procurement, or just-transition outcomes.
- Legal and governance uncertainty around data sharing, privacy, and system interoperability limits cross-agency integration even where technical interfaces are possible.
- Inclusion gaps remain significant, especially for informal workers, women, low-connectivity populations, and people lacking usable digital credentials.
- There is limited institutional capacity to design and audit AI-enabled or rules-based systems in ways that serve public value and avoid reinforcing exclusion.

Core Argument

Nigeria's challenge is not a shortage of digital infrastructure. It is a governance problem: existing systems are not yet aligned, interoperable, or mandated to support labour-based climate outcomes. Fixing this requires institutional coordination, common data standards, legal clarity, and a sustained commitment to inclusion- not new platforms built from scratch.

Policy Roadmap in Brief

In the short term, Nigeria should adopt a common green-jobs and climate-labour data taxonomy, pilot green-procurement reporting in selected public programmes, and establish an inter-agency working group on DPI for labour-based climate transitions. In the medium term, it should integrate these standards into procurement systems, identity-linked beneficiary and worker-verification processes, and digital-payment channels for climate-related public expenditure. In the longer term, Nigeria should move toward an interoperable governance architecture in which employment, procurement, and climate data can be linked across the state with robust legal safeguards and public oversight.

1. Introduction

Digital public infrastructure has become central to how states identify people, move money, deliver services, and generate administrative data, reshaping core functions of governance in ways that go far beyond e-government in the narrow sense ([UNDP, 2023](#); [Sang, Munga and Sambuli, 2025](#)). Digital identity systems, electronic payment rails, e-procurement platforms, and interoperable data exchanges now underpin everything from social-protection delivery and payroll management to tax administration and public procurement. At the same time, climate transitions increasingly depend on the state's ability to target beneficiaries, verify workers, monitor contracts, deliver payments, and demonstrate measurable outcomes—especially where climate finance, public works, or just-transition measures are involved. In Nigeria, these two governance transformations are advancing simultaneously but have not yet been systematically connected in policy design, system architecture, or everyday administrative practice.

This gap matters because labour-based climate transitions are not only about technologies such as solar panels, efficient buildings, or waste systems; they are also about institutions, incentives, and implementation capacity ([SouthSouthNorth et al., 2025](#)). Public programmes that aim to create green jobs or make climate spending more inclusive depend on mundane but essential administrative capabilities: registering workers and beneficiaries; classifying jobs and projects consistently; monitoring delivery against contractual obligations; paying people transparently and on time; and generating evidence on who benefits, where, and under what conditions. Without those capabilities, green transitions risk becoming capital-intensive, weakly monitored, and socially exclusionary— with resources flowing to large contractors and hardware while employment, skills development, and local participation remain opaque or incidental.

The central question addressed in this report is therefore not simply whether Nigeria has digital systems, but whether those systems can be repurposed and governed as public infrastructure for labour-based climate transitions. This involves asking whether digital identity systems can support fair and inclusive worker verification in green public works; whether procurement platforms can systematically capture and report on climate-employment commitments; whether payment systems can transparently tag and trace wages and transfers; and whether data-governance arrangements allow employment, procurement, and

climate data to be combined for public-interest analysis without undermining privacy and trust ([Nigeria Data Protection Act, 2023](#)).

Against this backdrop, the report pursues three aims. First, it analyses the current DPI landscape in Nigeria, focusing on identity, payments, procurement, public finance, and selected sectoral systems most relevant to climate-related employment. Second, it identifies the institutional and governance bottlenecks that prevent these systems from being used to define, track, verify, or incentivise labour-based climate outcomes. Third, it proposes an actionable roadmap for aligning digital infrastructure with climate-employment objectives, with short-, medium-, and longer-term measures implementable within Nigeria's existing policy frameworks and fiscal constraints.

2. Conceptual Framing

2.1 DPI, Climate Transition, and Public Value

DPI is commonly understood as the foundational digital systems that allow public and private actors to transact, identify, and exchange information at scale, especially through digital identity, digital payments, and trusted data exchange ([UNDP, 2023](#); [Sang, Munga and Sambuli, 2025](#)). Policy thinking increasingly recognises that these layers are not neutral technical backbones but governance infrastructures that shape who can access services, who is visible to the state, and how public value is produced.

For labour-based climate transitions, the public-value question is especially important. If climate spending is to create jobs, strengthen inclusion, and support just transitions, public systems must capture more than financial disbursements or project completion rates. They must also capture labour intensity, worker characteristics, local participation, skills pathways, contractor performance, and distributional effects, so that governments can see who benefits and where gaps remain ([SouthSouthNorth et al., 2025](#)). In practice, this requires linking climate-policy design with digital administrative design: decisions about programme objectives, targeting, and safeguards must be reflected in how digital identity, procurement, payments, and registries are structured and governed.

[Sang, Munga and Sambuli \(2025\)](#) emphasise that DPI systems must be interoperable, modular, and built on open standards to deliver broad social

benefits- and caution that this approach differs fundamentally from closed, proprietary systems even when the latter are already entrenched. They draw specific attention to the precondition of situating DPI discourse within existing digital systems and governance structures: 'DPI initiatives have emerged as a prepackaged solution to help countries accelerate their digital transformation journey, though this creates the impression that new systems are needed, with little narrative effort to speak to existing systems' prospects to embody DPI principles'. The implication for Nigeria is direct: the goal is not to build new systems but to align existing ones around public-value objectives, with governance arrangements that make that alignment durable ([ODI Global, 2024](#)).

2.2 Sovereignty in the AI-DPI Era

The report adopts a sovereignty lens because digital governance is shaped by three overlapping dimensions. Infrastructural sovereignty concerns who owns and governs the rails, including core identity systems, payment systems, cloud infrastructure, and procurement platforms. Data sovereignty concerns who controls the storage, flows, exchange, and use of data generated by public systems and citizens, and under what legal and institutional arrangements. Algorithmic sovereignty concerns who designs, audits, and governs the automated or semi-automated rules embedded in digital systems- from simple validation rules to AI-based scoring and targeting tools- and whose interests those rules ultimately serve.

[Awoleye \(n.d.\)](#) documents how dependence on foreign-owned systems creates structural vulnerabilities in national digital ecosystems. In Nigeria specifically, the majority of commercial banks rely on foreign proprietary software for daily financial transactions, most bank websites are outsourced to and hosted by international firms outside the country, and the source codes for these systems are not available to the institutions that acquired them. [Kwet \(2019\)](#) frames this pattern as digital colonialism: software corporations that market proprietary products without supplying source codes retain absolute ownership, giving users no ability to change system behaviour. These sovereignty concerns extend directly into the DPI-for-climate agenda: if the digital rails underpinning green-jobs programmes are owned or controlled by external actors, the state's ability to set rules, enforce standards, and protect workers is structurally constrained ([Awoleye, n.d.](#)).

Nigeria's leadership role in digital governance and digital trade- including its early ratification and co-champion role under the AfCFTA Digital Trade Protocol- gives it a strategic opportunity to design domestic systems that serve national development priorities and contribute to broader rule-shaping on the continent. For labour-based climate transitions, choices about how DPI is built and governed will determine not only administrative efficiency, but also whose jobs are created, whose data is protected, and how much control Nigeria retains over the digital infrastructures underpinning its climate and employment policies.

Key Insight: The Sovereignty-Transition Nexus

Labour-based climate transitions in Nigeria are not solely a climate-policy challenge. They are a state-capacity challenge, a governance-design challenge, and a digital-sovereignty challenge. How Nigeria governs the rails, the data, and the algorithms of its DPI ecosystem will shape whether the green transition strengthens or erodes public accountability, economic inclusion, and national autonomy.

3. Nigeria's Current DPI Landscape

Nigeria's DPI ecosystem is not a single integrated platform but a layered and evolving set of systems distributed across public institutions and public-private interfaces. These include foundational identity infrastructure, government service portals, public procurement platforms, treasury and payroll systems, payment rails, and sector-specific registries. Their collective expansion has improved timeliness, accountability, and traceability in some domains of public administration, though the gains remain partial and uneven, particularly where cross-sector coordination and outcome tracking are required.

3.1 Identity and Foundational Systems

The National Identity Management Commission has continued to expand digital identity services and authentication functions. [Sang, Munga and Sambuli \(2025\)](#) note that across Africa approximately 85 percent of countries have national ID systems with digital capabilities, yet close to half a billion citizens still lack a foundational ID, and that the AU Interoperability Framework for Digital ID ([AU, 2023](#))- which sets out a vision for systems enabling Africans to access services securely on demand regardless of location- awaits adoption and enabling legislation by

member states. These continental gaps apply directly to Nigeria's identity infrastructure and its fitment for inclusive climate-employment programmes.

Workers in informal sectors, rural and peri-urban areas, and communities with low connectivity face systemic barriers to biometric registration and digital credential maintenance ([ITU, 2023](#)). Any reform that links identity verification to access to green-jobs programmes must address these barriers directly, or risk replicating existing exclusions in a new digital form. Offline or assisted registration channels, community verification mechanisms, and flexible credential arrangements should be standard design requirements, not afterthoughts.

3.2 Public Finance, Payroll, and Payments

Digital governance reforms in Nigeria have included major treasury, payroll, and public-finance systems that have strengthened transparency and administrative control over spending and personnel costs. Payment rails, supported by NIBSS-linked infrastructure and other public-private financial platforms, create opportunities for traceable disbursements to workers, contractors, and beneficiaries. [AfricaNenda \(2024\)](#) assessed 31 instant payment systems across the continent and found that none had attained a mature level of inclusivity, with Nigeria's eNaira classified at only the basic level- providing essential services but struggling to expand beyond P2P and P2B transaction capabilities ([AfricaNenda, 2024](#)).

[Osinubi and Simatele \(2026\)](#) provide the key analytical frame here. Their panel analysis across 37 African countries finds that while digitalisation reduces income inequality on average, governance quality strongly moderates this effect: interactive terms of digitalisation with government effectiveness, rule of law, regulatory quality, and voice and accountability all significantly worsen income disparity when governance is weak. The marginal impact of digitalisation on inequality remains negative but is substantially smaller than the unconditional impact ([Osinubi and Simatele, 2026](#)). Stakeholders consistently report that climate-related transactions are not yet systematically tagged or reported, which limits their usefulness for tracking green-jobs outcomes- a governance gap, not a technology gap.

3.3 Procurement and Contract Governance

The Bureau of Public Procurement's evolving digital systems are particularly significant because public procurement is one of the most direct tools the state has

for shaping market outcomes, investment patterns, and labour standards. Digital reforms in procurement- online tendering, electronic bid submission, and contract registers- can improve integrity and efficiency, and may also provide a basis for embedding sustainability and labour indicators into public contracts. For labour-based climate transitions, contracts for climate-relevant works such as retrofits, solar installations, waste management, and ecosystem restoration could include standard fields on expected and actual jobs created, local hiring, skills development, and just-transition measures, and these could be monitored through existing e-procurement workflows.

[ODI Global \(2024\)](#) found that less than 10 percent of African countries have implemented digital or smart identity systems and that only about one-third have various forms of data exchange systems, with only about 25 percent having payment systems that meet DPI characteristics. This means that the procurement systems Nigeria is building exist within a still-nascent continental DPI ecosystem ([ODI Global, 2024](#)). Extending procurement systems to capture labour and sustainability outcomes would be a significant but achievable reform, particularly if aligned with Nigeria's obligations under the AfCFTA Digital Trade Protocol.

3.4 Service Portals and Sectoral Platforms

Government service portals and sector-specific systems provide further possibilities for integration, especially where public services, licensing, employment schemes, or targeted subsidies are delivered digitally. Examples include online platforms for business registration, agricultural support, skills and employment programmes, and sectoral licensing- all of which could, in principle, become channels for registering and supporting workers in climate-related activities. However, these systems tend to be fragmented and designed around service-specific workflows rather than whole-of-government outcome tracking.

The data-exchange examples of Uganda's UGHub and Ghana's GhIPSS- highlighted by [Sang, Munga and Sambuli \(2025\)](#)- illustrate what more integrated approaches can achieve. GhIPSS, established by the Bank of Ghana in 2007, is used by all banks, savings and loans companies, mobile network operators, and third-party payment providers as the backbone for data exchange in the financial sector. Uganda's UGHub, launched in 2016, has grown from 12 government agencies to over 130 integrated entities. Neither has been extended to climate-employment tracking, but both demonstrate that government-wide data exchange is institutionally

achievable when governance and mandate are clear ([Sang, Munga and Sambuli, 2025](#)).

4. Where DPI Can Support Labour-Based Climate Transitions

Nigeria's existing DPI layers can already support several core functions for labour-based climate transitions if they are purposefully aligned with green-jobs objectives and basic safeguards. The four use cases below connect directly to identity, procurement, payments, and labour-market platforms.

4.1 Worker and Beneficiary Identification

One of the most immediate use cases is the identification and verification of workers and beneficiaries in green public works, renewable energy deployment programmes, adaptation projects, and just-transition support schemes ([UNDP, 2023](#)). Identity-linked verification can reduce leakage, improve transparency, and help governments distinguish between contractors, workers, trainees, and beneficiaries when implementing climate-related programmes. At the same time, using identity systems in this way creates new exclusion risks for people without robust credentials, in informal or low-connectivity settings, and groups that already face barriers to registration.

The Modular Open-Source Identity Platform (MOSIP), which enables national foundational IDs to be built on open-source modular architecture, is gaining traction across the continent: nine of eleven MOSIP-implementing countries are in Africa ([Sang, Munga and Sambuli, 2025](#)). This provides a convergence point for Nigeria's identity systems and continental DPI standards, and an opportunity to ensure that the identity layer underpinning climate-employment programmes is built on open, interoperable foundations rather than proprietary systems that create dependency and exclusion.

4.2 Green Public Procurement and Contract Monitoring

Procurement systems can play a transformative role if green-job indicators are integrated into planning, tendering, contracting, and reporting workflows. Contracts for climate-related projects can include structured fields on expected jobs created, local hiring, gender and youth participation, and skills development

commitments, and digital procurement systems can track whether these commitments are delivered over time. If configured appropriately, such systems can also support routine reporting on climate-related employment outcomes across portfolios, rather than leaving green-jobs tracking to ad hoc project evaluations.

The potential is substantial. [FSD Africa and Shortlist \(2024\)](#) project that a green economy could generate 3.3 million jobs across Africa's largest economies by 2030, with roughly 70 percent in the renewable energy sector alone and approximately 1.7 million in solar power ([Kimeu, 2024](#)). Nigeria is one of the five countries- alongside the DRC, Ethiopia, Kenya, and South Africa- expected to account for more than a fifth of these jobs. If procurement systems are not configured to track and enforce employment commitments, much of this job creation will remain invisible to public governance systems and labour standards will be unenforceable.

4.3 Digital Payments for Transparent Labour Flows

Digital payment systems can improve traceability in climate-related wage payments, stipends, grants, and transfers, especially where government programmes rely on large numbers of short-term workers and multiple implementing partners ([AfricaNenda, 2024](#)). Linking payments to verified worker or beneficiary records can help confirm that funds reach intended individuals, reduce opportunities for ghost workers, and create auditable records that support programme evaluation and financial oversight. For labour-based climate transitions, this makes it easier to demonstrate that climate spending translates into real jobs, regular payments, and fair treatment for workers- not only physical project outputs.

[Osinubi and Simatele \(2026\)](#) find that while digitalisation reduces income inequality, the interactive terms of governance quality consistently worsen the magnitude of this effect when governance is weak. The moderating role is strongest for government effectiveness, rule of law, and voice and accountability. Digital payment channels are therefore insufficient on their own: the institutional frameworks governing how payments are tagged, reported, and audited must be robust enough to generate real accountability ([Osinubi and Simatele, 2026](#)).

4.4 Skills, Job Matching, and Transition Pathways

Job platforms and training systems can be aligned with climate transitions by tagging green occupations, tracking training completion, and connecting workers

to emerging opportunities in sectors such as renewable energy, waste management, climate-smart agriculture, and building retrofits. [FSD Africa and Shortlist \(2024\)](#) find that roughly 30 percent of new green jobs will require specialised certification or vocational training and 10 percent will demand university degrees, while 20 percent will be administrative [\(Kimeu, 2024\)](#). Skills-matching infrastructure is therefore not optional but structurally necessary to realise the employment potential of the green transition.

At present, linkages between skills systems, job-matching platforms, and climate-related programmes remain weak and fragmented. Creating them requires common occupational classifications for green jobs, data exchange protocols between training registries and procurement systems, and procurement conditions requiring climate contractors to recruit from certified talent pools. None of these requirements are technically complex, but all require institutional coordination and sustained policy commitment.

5. Governance and Institutional Barriers

5.1 Fragmented Mandates and Siloed Systems

Identity systems, procurement systems, digital governance standards, labour policy, and climate policy are governed by different institutions with distinct mandates and accountability lines. This fragmentation limits coordination, makes it difficult to agree on shared objectives for green jobs, and reduces the likelihood that systems will be linked or reconfigured for climate-employment purposes even where digital platforms already exist. No single institution has both the authority and the incentive to drive alignment of DPI with labour-based climate transitions across government.

[Nyabvudzi, Xu and Sarpong \(2025\)](#) provide important empirical grounding. Their analysis of renewable energy efficiency across 23 Sub-Saharan African countries from 2005 to 2023 finds that governance quality is the most influential predictor of whether renewable energy investments translate into measurable efficiency gains. In their preferred specification, a one-unit improvement in governance quality increases renewable energy efficiency by approximately 33 percent relative to the sample mean, and this effect is roughly three times larger than the effect of FDI inflows into the energy sector [\(Nyabvudzi, Xu and Sarpong, 2025\)](#). The same principle

applies to DPI: siloed governance structures will suppress the returns to digital investment in climate-employment programmes regardless of the technical quality of the platforms themselves.

5.2 Weak Interoperability Governance

The key issue is not only technical interoperability but governance- that is, who decides when and how data is shared, under which legal basis, and for what specific purposes. In the absence of clear decision-making arrangements and standard protocols, data exchange for climate-employment tracking depends on ad hoc agreements and individual relationships, which undermines consistency and accountability.

[Sang, Munga and Sambuli \(2025\)](#) flag this as a critical precondition for DPI success in Africa: 'The political economy of DPI will be buttressed by the regulatory environment of respective African countries... In many African countries, digital ID, digital payments, and data exchange are distributed across various ministries. It will be essential to have a convening platform that brings different stakeholders together.' Brazil's Pix Forum- convened by the Central Bank of Brazil to bring together national associations representing end users and providers- provides a governance model for how multi-institutional digital infrastructure can be owned and managed in a way that is inclusive and accountable [\(Sang, Munga and Sambuli, 2025\)](#). Nigeria's path is to define governance rules for data exchange before technical specifications, not after.

5.3 Absence of Common Taxonomies

There is currently no widely embedded administrative taxonomy for green jobs or climate-related employment outcomes across core systems such as procurement, payroll, social programmes, and job platforms. As a result, programmes that create or support climate-relevant employment often use different labels, classifications, and reporting formats, which prevents aggregation and comparison across institutions or funding streams. Without common codes or data fields for green occupations, climate-relevant projects, or just-transition safeguards, DPI cannot easily be used to measure progress or enforce employment-related climate commitments. [SouthSouthNorth et al. \(2025\)](#) emphasise that 'there is no single, universally accepted definition of just transitions' and that 'a practical, continent-wide approach is required to balance Africa's climate and development

policies' ([SouthSouthNorth et al., 2025](#)). Until Nigeria embeds domestically owned definitions of green jobs and just-transition safeguards in its administrative data systems, the governance architecture for DPI-enabled climate transitions will remain incomplete.

5.4 Limited Institutional Readiness for AI-Enabled Governance

Institutions are increasingly exposed to proposals for automated or semi-automated tools to support targeting, verification, scoring, or risk management in public programmes, including climate-related schemes. However, many do not yet have sufficient capacity, guidance, or oversight mechanisms to audit or govern these tools, which creates risks of opaque, biased, or poorly justified decision-making in sensitive areas such as social protection, employment, and credit.

[Nyabvudzi, Xu and Sarpong \(2025\)](#) find through causal forest analysis that governance improvements and renewable-policy adoption produce the highest efficiency gains in mid-governance countries with stronger absorptive capacity, and that the wide dispersion in conditional average treatment effects across countries signals the importance of sequencing and institutional readiness: 'countries that adopt renewable-energy policies before establishing credible enforcement mechanisms often face temporary efficiency losses, as markets adjust to new rules, subsidies, and reporting requirements'. This is a direct warning for climate-employment DPI reform: algorithms and automated tools introduced without adequate governance foundations and oversight mechanisms risk entrenching rather than correcting existing inequalities ([Nyabvudzi, Xu and Sarpong, 2025](#)).

6. Inclusion, Rights, and Ethical Safeguards

6.1 The Inclusion Challenge

Digital systems can both expand access and reinforce exclusion, especially for vulnerable populations such as informal workers, women, youth, people with disabilities, and residents of low-connectivity areas ([ITU, 2023](#); [GSMA, 2023](#)). The ITU estimates that only 37 percent of Africans were online in 2023, with approximately 900 million people not yet connected- a digital divide that maps closely onto existing patterns of economic exclusion. If identity, payment, procurement, or

job-matching platforms become gatekeepers for accessing climate-related employment, people who are not registered or who face barriers to digital use risk systematic exclusion from green-jobs opportunities.

The gender dimension is especially important. [SouthSouthNorth et al. \(2025\)](#) document how women face systematic barriers to participation in energy-sector employment, skills training, and economic opportunity in Sub-Saharan Africa, with research from multiple country contexts showing that renewable energy projects frequently fail to reach women as beneficiaries or employees in meaningful numbers ([SouthSouthNorth et al., 2025](#)). An inclusion-sensitive approach to DPI reform requires deliberate attention to enrolment gaps, offline or assisted channels, language and accessibility features, and grievance mechanisms, so that labour-based climate transitions do not deepen existing inequalities.

6.2 Data Protection and Lawful Use

Any integration of systems to support labour-based climate transitions must comply with the [Nigeria Data Protection Act \(2023\)](#) and related regulatory guidance ([Nigeria Data Protection Act, 2023](#)). Climate-employment programmes that link identity, payments, procurement, and skills data will generate sensitive information about individuals' livelihoods, locations, and participation in public schemes, which heightens the need for clear legal bases, consent practices, and role-based access controls.

[Awoleye \(n.d.\)](#) documents the data-sovereignty stakes for Nigeria clearly: the routing of African internet traffic through root servers in the United States, the hosting of Nigerian bank websites by international firms, and the dependence on foreign-built software all create systemic risks of data exposure and loss of national control. Embedding privacy-by-design principles into DPI reforms- along with independent oversight and transparent documentation of data flows- is essential to maintaining rights while scaling digital tools for green-jobs governance ([Awoleye, n.d.](#)).

6.3 Trust, Legitimacy, and Recourse

Users must be able to understand how systems work, challenge decisions, and access remedies if labour-based climate transitions are to be seen as fair and legitimate. This requires clear communication about eligibility rules, data use, automated decision-making, and complaint channels, as well as practical avenues

for workers, contractors, and communities to correct errors or appeal outcomes in climate-related programmes.

[Osinubi and Simatele \(2026\)](#) find that voice and accountability has a significant positive moderating effect on income disparity in the digitalisation-inequality nexus- meaning that weak accountability mechanisms convert digitalisation's benefits into liabilities. The social contract around green jobs and just transitions can only be strengthened if DPI governance is itself demonstrably fair, transparent, and accessible. [Bayuo, Miliza and Floyd \(2025\)](#) make the same point in governance terms, arguing that DPI should be designed to ensure technology neutrality, prevent vendor lock-in, and guarantee that citizens have control over how their data is utilised ([Bayuo, Miliza and Floyd, 2025](#)).

7. Nigeria in the Broader Landscape

Nigeria's digital governance choices are increasingly tied to wider regional dynamics and policy frameworks, including the AU Digital Transformation Strategy for Africa ([AU, 2020](#)), the emerging African Digital Compact, and the AfCFTA Protocol on Digital Trade, all of which stress interoperability, inclusion, and sustainable development. These instruments frame digital identity, electronic payments, cross-border data flows, and platform regulation as levers for inclusive growth and green, resilient development.

Nigeria has been designated Africa's Digital Trade Champion and has articulated a national roadmap for implementing the AfCFTA Digital Trade Protocol, linking digital trade reforms to job creation targets and broader economic transformation. This leadership role gives Nigeria leverage to advocate for regional standards that recognise labour and sustainability indicators in digital procurement, facilitate secure cross-border wage payments for green value chains, and protect worker data in identity and platform systems operating across borders.

The [ACET African Transformation Index \(2023\)](#) found that Africa's economic transformation was slow over the 20-year period from 2000 to 2020, with average diversification scores declining and export competitiveness falling short of the trajectory needed for structural change ([Floyd et al., 2025](#)). [Floyd et al. \(2025\)](#) argue that green industrial transformation- anchored in renewable energy and digital public infrastructure- represents one of the clearest pathways out of this trajectory. They specifically highlight how DPI stacks combining digital identity, smart

metering, and data exchange can support renewable energy allocation, verified low-carbon manufacturing, and management of energy demand across industrial sectors.

[FSD Africa and Shortlist \(2024\)](#) find that the projected 3.3 million green jobs across Africa's five largest economies by 2030 could 'contribute to the formalisation of African economies and the inclusion of whole populations in stable systems of remuneration, social security, and taxation'- but that realising this potential requires 'supportive policies, infrastructure, and significant financial investments, estimated at over \$100 billion annually' ([Kimeu, 2024](#)). Governance systems capable of making those investments visible, traceable, and accountable are therefore not ancillary to the green transition but constitutive of it.

The [World Bank \(2025b\)](#) provides relevant institutional precedent in its Eastern Africa digital infrastructure work. Across projects in Kenya, Ethiopia, Djibouti, Madagascar, Somalia, and South Sudan, it requires that greening objectives be 'systematically integrated into relevant policies, guidelines, and technical specifications' and extended to 'procurement frameworks, including terms of reference, requests for proposals, bidding documents, and contracts' ([World Bank, 2025b](#)). The same logic applies to labour-based climate programmes in Nigeria: embedding employment conditions into standard procurement and contract-management workflows, rather than treating them as separate reporting obligations.

8. Use Cases for Nigeria

8.1 Green Public Works and Adaptation Programmes

Digital systems can support worker registration, payments, and monitoring in labour-intensive programmes such as climate-resilient public works, flood control, urban greening, erosion control, and basic infrastructure upgrades ([UNDP, 2023](#); [SouthSouthNorth et al., 2025](#)). Identity and registry systems can enrol and verify workers, capture basic socio-demographic information, and distinguish between contractors, workers, and beneficiaries. Payment platforms linked to verified worker records can ensure that wages, stipends, and insurance contributions are paid on time and leave an auditable trail for accountability and evaluation, including checks on local hiring, gender and youth participation, and adherence to labour standards.

The procurement integration model demonstrated by the [World Bank \(2025b\)](#) in Eastern Africa- where climate resilience objectives are written into terms of reference, contractor site assessments are mandated, and key performance indicators for resilience and mitigation outcomes are tracked throughout the project lifecycle- provides a direct template for how Nigeria could embed employment conditions into climate-related public works contracts without requiring new legislative frameworks.

8.2 Renewable Energy and Distributed Energy Programmes

DPI can support employment tracking and reporting in renewable energy projects, including off-grid solar, mini-grids, clean cooking, and public-facility retrofits. [Floyd et al. \(2025\)](#) document how DPI stacks combining digital identity, smart metering, and data exchange can directly support the governance of renewable energy allocation and verified low-carbon manufacturing. They note that Nigeria is among several African countries with a nationwide smart-meter rollout in progress ([Floyd et al., 2025](#)), and that with robust DPI, 'manufacturers and other users of electricity can interface with the platform to indicate surge periods and the need for greater volumes of renewable energy' while automated systems direct power based on data analytics. This energy-DPI stack is directly relevant to employment tracking: if firms can be identified on a platform, their employment commitments can be registered and monitored on the same infrastructure.

[Nyabvudzi, Xu and Sarpong \(2025\)](#) demonstrate empirically that green-technology adoption mediates the effect of governance quality on renewable energy efficiency, confirming that the technology pathway depends critically on institutional foundations. Their heterogeneity analysis identifies Kenya, Ghana, and South Africa as countries where policy adoption paired with administrative strengthening produces neutral or positive efficiency effects, while fragile states that adopt renewable-energy policies before establishing credible enforcement mechanisms often face temporary efficiency losses ([Nyabvudzi, Xu and Sarpong, 2025](#)). For Nigeria, the sequencing implication is clear: governance and enforcement capacity must accompany, not follow, the deployment of renewable energy and DPI systems.

8.3 Green Skills and Transition Pathways

Linking training systems and employment platforms can support workforce transitions into green sectors, including renewable energy, climate-smart

agriculture, waste management, circular-economy services, and building retrofits ([SouthSouthNorth et al., 2025](#); [Kimeu, 2024](#)). Training and certification systems can tag courses and credentials as green, record completion, and issue verifiable digital certificates recognisable across platforms, while job-matching portals classify vacancies using compatible categories for green occupations.

[Bayuo, Miliza and Floyd \(2025\)](#) argue that DPI can play a pivotal role in shaping Africa's future by facilitating the expansion of the technology ecosystem through a digital architecture that enables others to develop solutions at scale- 'creating opportunities for others, especially the digitally empowered youth with pathways to develop new innovations increasing market-driven solutions'. Building green-skills linkages requires common occupational classifications for green jobs, data exchange protocols between training registries and procurement systems, and procurement conditions requiring climate contractors to recruit from certified talent pools. These are achievable with institutional coordination and sustained policy commitment ([Bayuo, Miliza and Floyd, 2025](#)).

9. Actionable Policy and Institutional Roadmap

The roadmap below is organised around three time horizons, drawing on the phased DPI investment approach recommended by [Bayuo, Miliza and Floyd \(2025\)](#) and the governance-sequencing preconditions identified by [Sang, Munga and Sambuli \(2025\)](#) for successful DPI deployment in African contexts. It is designed to be realistic about institutional capacity and fiscal constraints, while being ambitious about the scale of change needed to make DPI a genuine backbone for labour-based climate transitions ([Sang, Munga and Sambuli, 2025](#); [Bayuo, Miliza and Floyd, 2025](#)).

Short Term 0-12 Months	• Adopt common green-jobs and climate-labour data taxonomy • Establish inter-agency DPI coordination working group • Pilot green-procurement reporting in two to three priority programmes • Develop inclusion protocols and grievance channels for climate-employment platforms • Clarify legal basis for cross-agency data sharing for climate-employment purposes
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Medium Term 12-36 Months	• Embed green-jobs standards in e-procurement workflows and contract templates • Scale interoperability protocols across identity, payments, and procurement systems • Integrate climate-employment tracking into payroll and programme registries • Roll out capacity-building for officials across key implementing agencies • Establish regular reporting on green-jobs indicators to a designated oversight body
Long Term 36+ Months	• Consolidate an interoperable governance architecture across the DPI ecosystem • Embed climate-employment goals in national digital strategies and budget frameworks • Strengthen legal frameworks for data sharing, algorithmic accountability, and AI oversight • Establish mature public accountability mechanisms with meaningful recourse for workers • Position Nigeria's DPI-for-climate model as a replicable template for AfCFTA partners

9.1 Short Term: Establish Foundations (0-12 Months)

In the first 12 months, the priority is to put basic governance and classification building blocks in place and to test them in concrete labour-based climate programmes. This includes establishing a light but empowered coordination mechanism across core DPI owners and climate-employment actors- a working group bringing together identity, procurement, payments, labour, and climate institutions with a clear mandate to align systems around green-jobs objectives. It also involves developing and agreeing common taxonomies and data fields for green jobs, climate-related projects, and just-transition safeguards, and piloting their use in selected public works, renewable energy, or adaptation schemes, with simple reporting templates and feedback loops to refine the approach.

9.2 Medium Term: Integrate Systems and Scale Reporting (12-36 Months)

Over the following 24 months, the focus shifts from pilots to integration and routine use. This phase embeds agreed green-jobs and climate-employment standards into the design and operation of key systems such as e-procurement platforms, programme registries, payroll and payments, and job-matching portals. It involves

scaling interoperability arrangements and implementing standard data-exchange protocols between identity, procurement, and payments systems for climate-related programmes. [Nyabvudzi, Xu and Sarpong \(2025\)](#) find that governance improvements produce the highest efficiency gains in mid-governance countries with stronger absorptive capacity- suggesting that this integration phase is where Nigeria's early investments in coordination and taxonomy will begin to compound into measurable green-employment outcomes ([Nyabvudzi, Xu and Sarpong, 2025](#)).

9.3 Long Term: Build Interoperable Governance Architecture (36+ Months)

Beyond 36 months, the objective is to move toward a coherent, accountable, and integrated digital governance architecture that can support labour-based climate transitions at scale ([AU, 2020](#)). This includes consolidating and strengthening the institutional arrangements that govern interoperability, data protection, algorithmic use, and public accountability across DPI. Climate-employment objectives and safeguards would be fully embedded into national digital strategies, sectoral plans, and budget frameworks, supported by mature technical infrastructure for secure data sharing, comprehensive outcome tracking, and meaningful recourse for users.

10. Institutional Action Points

The table below maps immediate and medium-term actions to each major institutional actor, with a note on their strategic role in enabling DPI to support labour-based climate transitions in Nigeria.

Institution / Actor	Immediate Action	Medium-Term Action	Strategic Role
Digital governance authorities	Convene inter-agency process on standards and interoperability	Embed climate-employment fields and exchange protocols into public-system standards	Anchor coherent DPI governance
Procurement authorities	Pilot green-job reporting in selected contracts	Scale standard reporting and contract-monitoring modules	Make procurement a lever for inclusive climate transitions

Institution / Actor	Immediate Action	Medium-Term Action	Strategic Role
Labour and employment institutions	Define green-job classifications and indicators	Link skills, employment, and programme data	Anchor labour policy within digital transition governance
Climate and sector ministries	Identify priority programmes for pilots	Require employment reporting in climate-funded programmes	Align spending with just-transition outcomes
Finance and payment actors	Support tagged payment flows for climate labour schemes	Integrate auditable payment reporting	Improve transparency and traceability
Data-protection authority	Clarify lawful public-interest data use cases	Develop safeguards for interoperable public systems	Protect trust, privacy, and legitimacy
Development partners	Support pilot financing and technical assistance	Help scale proven models and comparative learning	Reduce fragmentation and crowd in reform support
Civil society and research actors	Monitor pilots and inclusion risks	Contribute to oversight and evaluation	Strengthen accountability and social legitimacy

Conclusion

Nigeria has a meaningful opportunity to use digital public infrastructure as a practical tool for labour-based climate transitions and green job creation, building on systems that already exist across identity, payments, procurement, service portals, and labour-market platforms ([UNDP, 2023](#)). Rather than starting from scratch, the priority is to repurpose and align these systems so that climate-related programmes can routinely identify workers and beneficiaries, enforce employment-related conditions, track green-jobs outcomes, and protect vulnerable groups from exclusion or harm.

The key challenge is therefore not infrastructure availability but governance alignment, institutional coordination, and rights protection. [Nyabvudzi, Xu and Sarpong \(2025\)](#) demonstrate empirically that governance quality functions as the institutional backbone of energy and climate transitions- without it, investment in renewable technologies and DPI alike fails to produce measurable efficiency gains. [Osinubi and Simatele \(2026\)](#) show that the same dynamic applies to digitalisation and inequality: digital channels reduce income gaps on average, but weak

governance erodes this benefit substantially ([Osinubi and Simatele, 2026](#); [Nyabvudzi, Xu and Sarpong, 2025](#)). Addressing these governance gaps requires deliberate reforms in how institutions collaborate, how data and standards are defined and shared, and how safeguards and accountability mechanisms are embedded into digital systems that touch people's livelihoods.

Integrating DPI with climate-employment objectives is both a practical reform agenda and a strategic pathway toward a more capable and inclusive state. At a practical level, it involves sequenced actions such as creating coordination forums, piloting green-jobs indicators in procurement and payments, and gradually standardising data fields and reporting across programmes. At a strategic level, it redefines what Nigeria's digital state is for, positioning digital infrastructure not only as a tool for administrative efficiency or revenue collection, but as a core instrument for delivering just transitions, expanding decent work, and strengthening the social contract in a low-carbon economy.

Nigeria is already a continental leader in digital governance. The task now is to make that leadership count for labour and the climate- to demonstrate, at scale, that digital public infrastructure and green, inclusive development are not parallel tracks but a single integrated agenda.

Final Observation

The roadmap and recommendations in this report are designed to be sequenced and realistic. They do not require new laws, new platforms, or new institutions in the first instance. They require political commitment, institutional coordination, and a governance framework that makes existing systems serve climate-employment objectives. Nigeria has the digital infrastructure. It now needs the governance architecture to match.

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