How can the Atlantic South gain from the Digital-Energy Nexus?

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1. Introduction

The Digital-Energy Nexus is reshaping the geography of investment, infrastructure and economic development competitiveness. As artificial intelligence (AI), cloud computing and data-intensive activities increase electricity demand, access to reliable, affordable and increasingly low-carbon energy is becoming a critical determinant of digital infrastructure deployment. Most of the debate on this shift has focused on the challenges it creates for established digital hubs. Less attention has gone to an equally important question for the Atlantic South: can this transformation create new opportunities for countries endowed with abundant energy resources, strategic geographic positioning and growing connectivity infrastructure?

This paper argues that the key issue is the terms on which the Atlantic South participates in the Digital-Energy Nexus. Without deliberate policy choices, countries risk remaining providers of land, energy and infrastructure hosting, with higher-value activities concentrated elsewhere. Where digital and energy investments are instead linked to domestic development objectives, the nexus could support infrastructure upgrading, industrial development and new forms of Atlantic cooperation. The discussion therefore shifts from infrastructure deployment alone to the broader question of value capture and partnership design. This paper approaches the issue primarily from an economic-development perspective and focuses on conditions under which digital-energy investments can generate broader development gains for some countries of the Atlantic South.

The Atlantic dimension is particularly relevant because the basin combines several characteristics that are increasingly important in the Digital-Energy Nexus. It connects some of the world's largest digital and consumer markets in North America and Europe with countries in the South that possess abundant energy resources, growing digital connectivity and strategic geographic positioning. Existing trade, energy and infrastructure links across the Atlantic provide a foundation for new forms of cooperation, though shared infrastructure does not by itself guarantee shared interests. It is this combination of complementarity and unresolved interest alignment that makes questions of infrastructure development, energy integration and value capture increasingly relevant across the basin.

2. The Growing Relevance of the Atlantic South

The growing relevance of the Atlantic South in the Digital-Energy Nexus stems from the increasing energy intensity of digital infrastructure and the mounting constraints faced by traditional digital hubs. According to the International Energy Agency (IEA), electricity consumption from data centers could double to around 945 TWh by 2030, reaching just under 3% of global electricity demand (IEA, 2025). Much of this increase is expected to be driven by AI-related applications, whose computational requirements are significantly more energy intensive than traditional digital services.

The implications of this shift are already visible in established digital hubs. In Ireland, data centers accounted for 22% of metered electricity consumption in 2024, up from 5% in 2015 (Central Statistics Office, 2025). Faced with growing pressure on the electricity system, regulators restricted new grid connections for data centers in the Dublin area beginning in 2021 before adopting a more conditional framework linking future expansion to renewable energy and grid resilience requirements (Bloomberg, 2025). As such, the Irish experience illustrates the fact that energy constraints are increasingly becoming a decisive factor shaping investment decisions and infrastructure geography for digital infrastructure deployment.

In this context, countries combining competitive energy resources, strategic location and improving connectivity are attracting growing attention. The Atlantic South is highly heterogeneous, and opportunities are unlikely to be distributed evenly across countries. Nevertheless, several economies possess characteristics that may increase their relevance within emerging digital-energy value chains.

Morocco illustrates one such strategy. The country combines significant renewable energy ambitions, electricity interconnections with Europe and growing digital infrastructure investments, including Oracle's decision to establish public cloud regions in Casablanca and Settat (Berahab, 2023, Oracle, 2025). Brazil represents a different model, combining a relatively clean electricity mix, a large domestic market, extensive submarine-cable connectivity and an established presence of major cloud providers (IEA, 2026, Reuters, 2024, Bojczuk, 2026). These examples point to something narrower than a relocation of the digital economy toward the Atlantic South: certain countries are becoming more strategically relevant as investors seek locations that combine energy availability, connectivity and market access.

From an economic perspective, the significance of this shift lies in the possibility that new infrastructure, energy and connectivity investments may create opportunities for value capture. Whether these opportunities translate into broader development gains, however, remain uncertain and will depend on how countries position themselves within emerging digital-energy value chains.

3. Potential Pathways for Value Capture

The Digital-Energy Nexus does not automatically translate into economic transformation. Given the relatively recent emergence of AI-driven infrastructure demand and the limited empirical evidence currently available, the pathways discussed below should be understood as plausible scenarios rather than established outcomes. As such, the implications of the Digital-Energy Nexus will likely depend on technological developments, investment decisions, regulatory choices and broader geopolitical dynamics that are still unfolding.

3.1. Infrastructure and Investment Capture

The most immediate and realistic gains from the Digital-Energy Nexus are likely to come from infrastructure and investment capture. As demand for AI, cloud computing, and digital services expands, substantial investments will be required not only in data centers but also in the supporting infrastructure that underpins them, including energy generation, transmission networks, submarine cables, fiber-optic connectivity and grid modernization. For many countries in the Atlantic South, participation in these infrastructure layers represents the most accessible entry point into emerging digital-energy value chains.

The first avenue of value capture lies in digital connectivity infrastructure. Submarine cables are often viewed as telecommunications assets, yet their economic significance extends far beyond connectivity. By reducing latency, increasing bandwidth and lowering internet costs, they improve the conditions for digital services, e-commerce, cloud computing and broader economic activity. South Africa provides an illustrative example. The Google-backed Equiano cable landed in South Africa in 2022, with a design capacity of 144 Tbps (Submarine Cable Network, 2024), while the 2Africa system is designed as a 45,000 km cable connecting 46 landing stations across 33 countries (2Africa, 2026). These systems have expanded South Africa's international connectivity capacity and been followed by major investments in cloud infrastructure. Microsoft launched its first African cloud data-center facilities in Johannesburg and Cape Town in 2019 (Microsoft, 2019), Amazon Web Services (AWS) opened its Africa cloud region in Cape Town in 2020 (Amazon News, 2020), and Google Cloud opened its Johannesburg cloud region in 2024 (Google Cloud, 2024).

For countries of the Atlantic South, the South African experience suggests that connectivity infrastructure can serve as a gateway to broader digital activities, attracting cloud services, data hosting and related investments, but connectivity alone is not sufficient to sustain them. Scaling these activities ultimately requires addressing energy constraints, which remain a critical component of the Digital-Energy Nexus.

3.2. Strengthening Domestic Energy Systems Through Digital Demand

A second pathway of value capture lies in using digital demand to support domestic energy-system development. Data centers do not only consume electricity; they can create large, stable and potentially creditworthy demand for it. In principle, this demand can improve the economics of generation projects, support long-term power purchase agreements (PPAs) and justify investments in transmission and grid modernization. This trend is already visible globally: Amazon alone announced 8.8 GW of PPAs across 16 countries in 2023 (BloombergNEF, 2024). The developmental effects of these agreements are nonetheless conditional: PPAs do not always translate into additional generation capacity, and even when they do, their benefit for domestic energy demand depends on whether projects connect to national grids, local infrastructure needs and broader development strategies.

Uruguay offers an early illustration of how a relatively clean and reliable electricity system (IEA, 2026) can become part of a country's digital infrastructure attractiveness. In 2023, Google announced an investment of more than USD 850 million to build a data center in Canelones, Uruguay, its second data center in Latin America (Google, 2024). This captures one direction of the nexus: energy-system quality attracting digital infrastructure. The reverse dynamic, digital demand strengthening domestic energy systems, remains more limited in the Atlantic South and is still emerging.

South Africa illustrates the risk side of this equation. It shows that digital infrastructure can expand despite energy constraints, but also that digital growth does not automatically translate into stronger energy systems. While South Africa has attracted major cloud infrastructure investments, its power system has faced recurring load-shedding episodes, pushing data-center operators to secure alternative power solutions and, in some cases, invest in on-site energy capacity (TechCentral, 2024). This suggests that expanding digital infrastructure may reinforce pressure on electricity systems unless it is accompanied by new generation capacity, grid upgrades and clear regulatory conditions.

Morocco's green hydrogen ambitions offer a useful counterpoint, showing what the mechanism looks like when it does work. Green hydrogen requires renewable electricity at a scale that exceeds existing system capacity, so project developers are expected to build dedicated renewable generation alongside electrolysis facilities rather than relying on the national grid alone. Here, industrial demand becomes a catalyst for expanding electricity supply rather than simply competing for existing capacity. Digital infrastructure and green hydrogen differ substantially, but they share the same underlying economic logic: sufficiently large and predictable demand can strengthen the investment case for expanding energy infrastructure. Whether this mechanism will systematically generate broader development gains through digital infrastructure remains an open empirical question.

3.3. Building Domestic Capabilities

Infrastructure investments and energy-system improvements represent the potential immediate channels through which countries of the Atlantic South can benefit from the Digital-Energy Nexus. Yet these gains should not be confused with long-term value capture. Building a data center, a transmission line or a submarine cable generates investment, construction activity and fiscal revenues, but these are largely one-off gains. The longer-term economic value lies in designing, operating, maintaining and continuously upgrading increasingly complex digital-energy systems. The challenge for countries of the Atlantic South is

therefore not simply to attract infrastructure, or improve energy systems, but to use these investments as a foundation for building domestic capabilities.

As emphasized in the literature on industrial upgrading and capability accumulation (Amsden, 1989; Evans, 1995; Rodrik, 2004), infrastructure investments create opportunities for development, but long-term gains depend on the ability to build the human, technical and institutional capabilities required to capture a growing share of value over time. The Digital-Energy Nexus follows the same logic: operating, integrating and continuously upgrading these systems is precisely where durable value accumulates, and where countries either build capacity to participate or remain confined to a hosting role. Hosting data centers or energy infrastructure may create opportunities, but these opportunities will remain limited unless they are accompanied by capability accumulation.

The implications vary significantly across countries, and along more than one dimension. Economies such as Brazil, which benefit from large domestic markets and relatively developed digital ecosystems, may be better positioned to expand higher-value digital services and complementary technology sectors. Countries such as Morocco, with narrower domestic markets but clearer comparative advantages in renewable energy, connectivity and industrial policy, are more likely to build capability by specializing in the technical, engineering and operational layer of digital-energy infrastructure. Smaller economies with more limited initial capabilities may instead prioritize basic technical skills, regulatory capacity and mechanisms to ensure infrastructure investments generate broader local benefits. The pathways for capability accumulation are therefore unlikely to be uniform across the Atlantic South and will depend on countries' initial capabilities, institutional capacity and economic structure.

The Digital-Energy Nexus should therefore not be viewed as a guaranteed pathway to economic transformation. Rather, it presents a strategic choice. Countries can remain hosts of infrastructure and providers of energy, capturing a limited share of the value generated by the nexus, or they can use infrastructure investments as a platform for capability accumulation. The central question is whether countries can develop the human, technical and institutional capabilities required to shape the terms of their participation. Ultimately, the difference between these two trajectories may determine whether the Atlantic South becomes merely a location for digital-energy assets or an active participant in the emerging digital-energy economy.

4. Toward a New Atlantic Partnership?

The emergence of the Digital-Energy Nexus raises a broader question about the future of Atlantic cooperation. The capability argument developed above matters here for a specific reason: capability is what makes a country harder to substitute. A country that offers only land, electricity and connectivity can usually be replaced by another location offering the same thing, which weakens its position when partnership terms are set. A country that also offers technical capacity, regulatory predictability or specialized infrastructure is a less interchangeable partner, and that scarcity is what translates into greater bargaining power. This question should also not be framed only from the perspective of the South: as established digital hubs face growing constraints on electricity, grid capacity, land and regulation, the North Atlantic has its own reasons to seek out alternative, diversified locations.

Two broad scenarios illustrate how this could unfold, though both remain possibilities rather than settled outcomes at this stage. In the first, the Digital-Energy Nexus reinforces existing patterns of integration: countries of the Atlantic South supply land, energy and connectivity, while the higher-value activity built on top of that infrastructure, cloud services, AI applications, software, stays concentrated elsewhere. This is the more likely path where a country's offering is easily substitutable: if the same infrastructure could be built

almost as easily somewhere else, investors have little incentive to negotiate terms that favor the host beyond what is strictly necessary to secure the project.

In the second scenario, the nexus becomes a catalyst for more balanced integration. This becomes more likely as a country's capabilities make it harder to substitute, whether through specialized engineering capacity, credible regulatory institutions, or energy and connectivity assets that are not easily replicated elsewhere. A less substitutable partner can negotiate for more: local content requirements, technology transfer, training commitments, or a larger share of the value generated. This also serves Northern interests, since capable, institutionally stable partners carry lower political and regulatory risk, which in turn lowers the cost of the investment itself. Which of these two paths a given country follows will depend on choices, by both host governments and Northern investors, that are still being made.

However, this does not imply a single Atlantic partnership model. The Atlantic South is highly heterogeneous, and countries differ widely in energy resources, electricity-system reliability, market size, digital ecosystems, industrial capabilities and institutional capacity. The relevant partnership model, and the terms a country is able to negotiate, will therefore vary from one country to another.

This points to a more useful question than what an Atlantic partnership should look like in general: what binding constraint currently prevents each country from capturing more value from the Digital-Energy Nexus. In some countries of the Atlantic South, that constraint is energy availability or grid capacity, and cooperation should focus on generation, transmission and grid resilience. In others, it is digital connectivity, making cables, cloud infrastructure and data hosting more relevant. In countries with stronger industrial and institutional bases, the constraint may lie in skills, engineering capacity or participation in higher-value digital services. Identifying that constraint, rather than pursuing infrastructure deployment for its own sake, is what determines whether a partnership actually shifts a country's position, or simply adds another hosting arrangement to the existing pattern.

This differentiated approach also changes how Atlantic cooperation should be assessed. The relevant measure is not only the volume of data centers, cables or energy projects deployed, but whether those investments address the specific bottleneck limiting domestic value capture, while also serving Northern partners' interests in reliable and commercially viable infrastructure.

From this perspective, the Digital-Energy Nexus is best understood as a new field of negotiation rather than a ready-made cooperation agenda. Its development impact will depend on whether partnerships are built around the binding constraints keeping countries confined to infrastructure hosting; its strategic relevance will depend on whether those same partnerships also respond to Northern interests in resilience, diversification and lower risk. The quality of Atlantic cooperation should, therefore, ultimately be judged by whether it produces arrangements that make economic sense for investors and development sense for host countries.

5. Conclusion

The Digital-Energy Nexus is contributing to a reconfiguration of infrastructure and investment patterns that may increase the strategic relevance of parts of the Atlantic South. This emerging opportunity should not be overstated: the evidence remains limited, many projects are still at an early stage, and the long-term implications of AI-driven infrastructure demand remain uncertain.

What the evidence does suggest is that infrastructure and energy investments alone do not determine how much value a country captures. What matters more is how substitutable a country's offering is, and how well it can identify and address the specific constraint holding back its own participation, whether that constraint is energy, connectivity, skills or institutions. Countries that build capability become harder to

replace, and a harder-to-replace partner is better positioned to negotiate the terms on which infrastructure, energy and digital investments actually contribute to domestic development.

The Digital-Energy Nexus is therefore best understood as an opportunity structure rather than a development model: it creates conditions under which value capture becomes possible, but the outcome depends on the capabilities countries build, the constraints they resolve, and the terms they are able to negotiate as a result.