

Comparative Analysis and Mapping of Digital Startup Clusters in Nigeria



JUNE 2023

A Publication of the NESG Non-Residential Fellowship Programme





Comparative Analysis And Mapping Of Digital Startup Clusters In Nigeria

A publication of the NESG Non-Residential
Fellowship Programme

Acknowledgements

The authors would like to thank Prof. Perekunah Bright Eregha, NESG NRRFP Non-Resident Faculty and Senior Fellow, for his helpful comments. The authors would also like to thank panellists and participants at the policy dialogue on this research project hosted by the NESG in September 2022 for their valuable comments.

The authors acknowledge financial support from the NESG.

Contributors

Dr. Raymond Onuoha

NESG Non-Resident Senior Fellow

raymond.onouha@nesgroup.org; ronuoha@lbs.edu.ng

Dr. Salihu Dasuki

NESG Non-Resident Senior Fellow

salihu.dasuki@nesgroup.org; salihudasuki@gmail.com



Table of Contents

Acronyms	6
Executive Summary	7
Introduction	9
» <i>The Importance of a Thriving Startup Ecosystem</i>	
Assessment Framework	12
Research design	13
Digital startup cluster mapping and comparative analysis	14
Cluster assessment results	14
Cluster Comparative Analysis	22
» <i>Anambra-Enugu Cluster</i>	
» <i>Kaduna-Kebbi Cluster</i>	
» <i>Lagos-Ogun Cluster</i>	
Conclusion and Policy Recommendations	26
» <i>Recommendations</i>	
References	27

Acronyms

GDP - Gross Domestic Product

Saudi PIF - Saudi Public Investment Fund

SEC - Securities & Exchange Commission

SME - Small and Medium Enterprises

SWFs - Sovereign Wealth Funds

UAE - United Arab Emirates

VC - Venture Capital

Executive Summary

A thriving startup ecosystem is foundational for scaling productive entrepreneurship within any socio-economic context. On October 19, 2022, Nigeria's digital startup ecosystem received a policy impetus boost when President Muhammadu Buhari signed the Nigeria Startup Bill (NSB) into law. Recognising that regardless of the overall market outcomes of Nigeria's information and technology sector over the past 15 years, the development and adoption of technology capacities within the digital innovation ecosystem has been uneven across different regions and states within the country. The key objective of this report is to map the startup ecosystem of Nigeria at the States level to identify emerging regional hubs for startup scaling via policy intervention. The innovation ecosystem theory underpins the assessment framework for the study. In specific relation to innovation ecosystem cluster mapping, innovation ecosystem theory defines a systemic framework that helps reveal cluster strengths and weaknesses, as well as potential benefits and threats in developing a cluster's comparative advantage in relation to their technological and industrial competencies. Drawing data from secondary academic literature, policy reports, and available online data evidence on Nigeria's digital ecosystem, the study highlighted the requirements for the ecosystem in catalysing market innovation within Nigeria's digital economy, examining the innovation limitations of the ecosystem, and exploring mutually reinforcing structural characteristics that can be leveraged to engender socially valuable innovations in Nigeria via the instrumentality of the Nigerian Startup Act.



Introduction

As of Q2 2022, the contribution of the ICT sector to Nigeria's GDP was put at 18% by the Nigerian Bureau of Statistics (NBS). By 2025, according to the Nigeria ICT Innovation and Entrepreneurship Vision (NIIEV)¹, ICT is expected to contribute up to 25 percent to the National GDP. This upward trajectory is buoyed by favourable fundamentals for evolving a digital economy, including a youthful population, a large mobile market, and an improving broadband infrastructure with strong international connectivity. This positive outlook aligns with the Vision 2030 aspirations of the country to leverage the digital economy to create 100 million jobs. However, to be realistic in actualisation, the country needs to develop an enabling environment to spur the digital market. In 2019, the Federal Government, via the Nigerian Communications Commission, launched the National Digital Economy Policy and Strategy (NDEPS | 2020-2030)² as a policy roadmap to accelerate market innovation development within the country's digital ecosystem, driven by high-growth technology startups.

Within the above context, according to Startup Blink's Global Startup Ecosystem Index, 2021³, Nigeria is ranked as one of Africa's fastest-growing startup ecosystems, with massive potential to become a world leader in the global digital tech ecosystem and a major destination for foreign venture investments. As of 2021, the Nigerian startup ecosystem has enabled the emergence of digital unicorns – including Flutterwave, Interswitch, Jumia, Opay and, most recently, Andela. While these laudable achievements have been recorded in the last few years, the scale-up of the digital economic opportunity will be significantly

realized via more strategic investments and ecosystem partnerships as a sure pathway in upwardly steering Nigeria's economic growth and accelerating its digital transformation.

On October 19, 2022, Nigeria's digital startup ecosystem received a policy impetus boost when President Muhammadu Buhari signed the Nigeria Startup Bill (NSB) into law. According to the Minister of Communications and Digital Economy, Prof. Isa Pantami, a major target of the Nigeria Startup Act (NSA, 2022) is to provide the enabling innovation environment to scale the contribution of the tech sector upwards to 40 percent of the country's Gross Domestic Product (GDP) on an annual basis, from the 18 percent recorded in 2022, while positioning Nigeria as the digital technology capital of Africa.

The Importance of a Thriving Startup Ecosystem

A thriving startup ecosystem is foundational for scaling productive entrepreneurship within any socio-economic context (Stam, 2015; Manyà, 2020). Within this context, a critical enabling factor that has drawn significant global attention in recent times is the potential for high-growth startups to catalyse innovation and create jobs within the digital economy (Leamon, Garcia-Robles & Lerner, 2013). However, the impact of strategic policy intervention in evolving a virile startup ecosystem is often overlooked. In this respect, leading global tech ecosystems like the United States, Singapore, China, Sweden, and Israel have combined critical government investment initiatives and startup legislation that encourages digital venture entrepreneurship (Wolken, 2020).

¹<http://www.greenenergyinvestment.com.ng/sites/default/files/documents/Nigeria%20ICT%20and%20Entrepreneurship%20Vision.pdf>

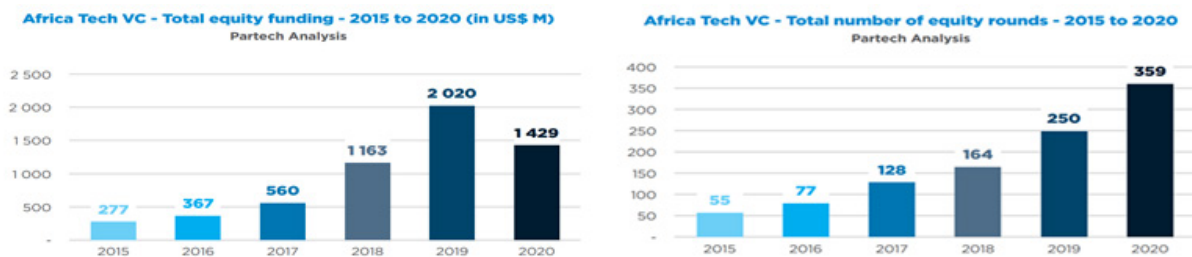
²<https://www.ncc.gov.ng/docman-main/industry-statistics/policies-reports/883-national-digital-economy-policy-and-strategy/file>

³<https://www.startupblink.com/blog/global-startup-ecosystem-index/>

Within the context of an emerging market, startup ecosystem development is relatively still in its nascent stages across Africa, with venture investments flows representing just around 3-4 percent of total global Venture Capital (VC) funding (AfDB, 2021).

Nevertheless, venture funding, as a major indicator of startup development, has grown steadily since 2015, with an initial dipping in total equity funding in 2020, largely due to the global economic disruption due to the COVID-19 pandemic (Figure 1).

Figure 1: VC funding trends in Africa. Source: Partech Partners 2020 Africa Tech Venture Capital Report



Despite being a relatively nascent digital ecosystem, the progressive growth of venture funding across Africa was fundamentally underpinned by a relatively strong macroeconomic outlook, with GDP growth averaging 4.6 percent between 2000 and 2016 (ODI, 2018), coupled with an expanding middle-class consumer base, a thriving entrepreneurial culture and an emerging policy and regulatory landscape for technology startups (AVCA, 2020). Even with this progressive VC outlook within the African digital ecosystem, critical funding gaps still exist, especially for early-stage technology ventures (Carraro, 2020; World Bank, 2020). Based on the above venture characteristics, early-stage venture capitalists take on higher investment risk to incubate early-stage startups before their scale phase if they are successful in the long term. While this category of venture funders has existed in developed markets since the late 1990s (Falat-Kilijanska, 2018), they are, however, still relatively nascent in emerging markets and developing countries, with institutional voids

and, in some cases, restrictive regulations that further negate investor risk appetites within these high-risk market segments (OECD, 2015; World Bank, 2020). This market constraint impedes the evolution of startups into commercially viable enterprises (World Bank, 2019).

In response to the above challenge, Startup Acts are becoming the next frontier for instrumental digital policy innovation across Africa (Wolken, 2020; ICRReport, 2021). Startup Acts are comprehensive legislation specifically targeted to catalyzing high-growth digital entrepreneurship and encompass regulatory frameworks and fiscal incentives for their accelerated development. Tunisia and Senegal passed their Startup Acts in 2018 and 2019, respectively, with sixteen more African countries enacting their own (including Nigeria, Rwanda, Ghana, Kenya, Ethiopia, Mali, Benin, DR Congo, Togo and Uganda).

Another area of digital policy innovation in the last few years is the deployment of Sovereign

Wealth Funds (SWFs) as critical co-investment vehicles with other SWFs and Multilateral development agencies for domestic investing in technology startups alongside traditionally foreign VC funds within the digital economy of developing countries (Adonu, 2020). In Africa, for example, Wessal Capital⁴ was set up as a co-investment platform by Ithmar Capital Government Fund of Morocco⁵ to raise U.S.\$2.5 billion from other SWFs including Mubadala Investment Company of UAE and Saudi PIF, for digital ecosystem investments. Other SWF policy initiatives are emerging across the continent, including the Mezzanine Investment Fund by Angola's Funso Soberano de Angola (FSDA) and Gabon's Okoume Capital, which have significant commitments to digital economy investments. These alternative forms of venture capital usually have higher liquidity premiums and risk-adjusted returns with longer investment horizons than traditional VC investments (Adonu, 2020). From a demand-side perspective, a major constraint to developing a VC market is the lack of investor-ready startups (OECD, 2015). An innovation policy focus should therefore be on deepening market access to knowledge networks and linkages at both the local and the global levels for critical entrepreneurial knowledge, skills, and VC investment matches via incubators and accelerators.

Recognising that regardless of the overall market outcomes of Nigeria's information and technology sector over the past 15 years, the development and adoption of technology capacities within the digital innovation

ecosystem has been uneven across different regions and states within the country, "driven by disparities in available talent, understanding of innovation, infrastructure, and government priorities" (Dalberg, 2020: 3). Within the above context, the key objective of this report is therefore, to *map the startup ecosystem of Nigeria at the States level to identify emerging regional hubs for startup scaling via policy intervention*.

Based on the key objective above, the main research question for this article is - How can an enabling startup ecosystem catalyze market innovation at the regional level within Nigeria's digital economy? This broad question will be interrogated within the confines of the sub-objectives below:

- » Examine the innovation limitations of the startup ecosystem at the state level within Nigeria's digital ecosystem.
- » Explore mutually reinforcing structural characteristics that limit the capacity of the startup ecosystem at the state level to produce socially valuable innovations in Nigeria.
- » Assess the role of innovation policy (in particular, the Nigeria Startup Act) in enhancing the capacity of the startup ecosystem at the regional level within Nigeria's digital ecosystem

Overall, the paper seeks to translate the appraised gaps from the benchmarking assessment and ecosystem mapping into veritable policy recommendations for startup cluster innovation within the Nigerian context.

⁴<https://www.swfinstitute.org/profile/5a7faff233885754399a8420>

⁵<https://www.swfinstitute.org/profile/598cdaa50124e9fd2d05b4ce>

Assessment Framework

The innovation ecosystem theory underpins the analytical framework for this study. The theory is apt for interrogating how ecosystem stakeholders collectively work to enable technological development and generate innovation. At the national level, it assesses the integrations between economic actors, technologies, institutions, cultural and sociological elements, and external partners in driving ecosystem innovations.

In specific relation to innovation ecosystem cluster mapping, innovation ecosystem theory defines a systemic framework that helps reveal cluster strengths and weaknesses, as well as potential benefits and threats in developing a cluster's comparative advantage in relation to their technological and industrial competencies (Carayannis, Meissner & Edelkina, 2017). Within this purview, we leverage the MIT approach for assessing innovation ecosystems (see Murray & Budden, 2017). Four key parameters are important in assessing a cluster, as operationalized via the WebApp⁶:

I. Foundational institutions

- a. Rules, practices and norms that ensure investments in innovative capacities are protected and optimally leveraged to drive the innovation economy.
- b. Financial institutions that support innovation capacities
- c. Ease of doing business

II. Innovation and entrepreneurship capacity

- a. Comprising five areas –
 - i. **Human capital:** with relevant education, training and experience for either innovation or entrepreneurship or both)
 - » relevant educational institutions

- ii. **Funding:** a variety of types of capital (from the public and private sectors) that support innovation and entrepreneurship both at their origins but also throughout the journey from idea to impact, or startup to scale-up
 - » angel equity funding
 - » venture capital (VC)
 - » debt finance
 - » other credit arrangements

- iii. **Infrastructure:** necessary to support innovation and entrepreneurship at their different stages – including space as well as equipment required for discovery, production and supply chains, etc.
 - » specialized technological support
 - » large scale production support
 - » logistics

- iv. **Demand:** the level and nature of specialized demand for the outputs of innovation and entrepreneurial capacities supplied by different organizations in the system (size of the domestic market); and

III. Comparative advantage; and

IV. Impact

- a. innovation-driven enterprises (IDEs)
- b. small/medium-sized enterprises (SMEs)

Factors I and II cumulatively lead to III and IV specialized around areas of expertise for a cluster. The application of specific innovation policy catalyses the resulting impact and can then be used to optimally evaluate the performance of the innovation policy in the longer run with respect to their economic contributions, job creation and levels of valuation (Sheriff & Muffatto, 2015).

⁶<https://innovationecosystems.mit.edu/explore-innovation>

Research design

The research design for this study draws data from secondary academic literature, policy reports, and available online data evidence on Nigeria's digital ecosystem. This understanding can help inform policy reforms to improve the

ability of relevant ecosystem stakeholders to finance innovation and supplement those markets in areas where they cannot and in alignment with the comparative advantages of mapped innovation clusters.



Digital startup cluster mapping and comparative analysis (Cluster assessment results)

Table 1a: Foundational institutions

Foundational institutions				
State	Region	rules, practices and norms that enable entrepreneurial innovation	financial institutions supporting entrepreneurial innovation	ease of doing business (Budget 2022)
Abia	SE/SS			31
Adamawa	N			21
Akwa Ibom	SE/SS			4
Anambra	SE/SS		UBA, Fidelity Bank	7
Bauchi	N			5
Bayelsa	SE/SS			10
Benue	N			16
Borno	N			31
Cross River	SE/SS			28
Delta	SE/SS			34
Ebonyi	SE/SS			23
Edo	SE/SS			33
Ekiti	SW			18
Enugu	SE/SS		Fidelity Bank	27
Gombe	N		Taj Bank	1
Imo	SE/SS		Union Bank	11
Jigawa	N			3
Kaduna	N	Kaduna Investment Promotion Agency (KADIPA)	Bank of Industry (BoI), StanbicIBTC	13
Kano	N			32
Katsina	N			9
Kebbi	N		CBN, Bank of Agriculture, Bank of Industry (BoI)	6
Kogi	N		Bank of Industry (BoI)	22
Kwara	N		CBN	30
Lagos	SW	LAGOS RESILIENCE STRATEGY	Bank of Industry (BoI)	20
Nasarawa	N			24
Niger	N			26
Ogun	SW	OGUN STATE ECONOMIC TRANSFORMATION PROJECT	FCMB	19
Ondo	SW			8
Osun	SW			15
Oyo	SW		Oyo- Ifelodun Cassava Processing Cooperative Investment and Credit Society Limited (CICS)	29
Plateau	N			14
Rivers	SE/SS			11
Sokoto	N			2
Taraba	N			35
Yobe	N			25
Zamfara	N			36

Table 1b: Quantitative score - foundational institutions

Foundational institutions (40)				
State	Region	rules, practices and norms (20)	financial institutions (10)	ease of doing business {10}
Abia	SE/SS	0	0	31
Adamawa	N	0	0	21
Akwa Ibom	SE/SS	0	0	4
Anambra	SE/SS	0	10	7
Bauchi	N	0	0	5
Bayelsa	SE/SS	0	0	10
Benue	N	0	0	16
Borno	N	0	0	31
Cross River	SE/SS	0	0	28
Delta	SE/SS	0	0	34
Ebonyi	SE/SS	0	0	23
Edo	SE/SS	0	0	33
Ekiti	SW	0	0	18
Enugu	SE/SS	0	5	27
Gombe	N	0	5	1
Imo	SE/SS	0	5	11
Jigawa	N	0		3
Kaduna	N	20	10	13
Kano	N	0	0	32
Katsina	N	0	0	9
Kebbi	N	0	10	6
Kogi	N	0	5	22
Kwara	N	0	5	30
Lagos	SW	20	5	20
Nasarawa	N	0	0	24
Niger	N	0	0	26
Ogun	SW	20	5	19
Ondo	SW	0	0	8
Osun	SW	0	0	15
Oyo	SW	0	5	29
Plateau	N	0	0	14
Rivers	SE/SS	0	0	11
Sokoto	N	0	0	2
Taraba	N	0	0	35
Yobe	N	0	0	25
Zamfara	N	0	0	36

Table 2a: Innovation and entrepreneurship capacity

Innovation and entrepreneurship capacity							
State	Region	human capital (number of relevant educational institutions for innovation entrepreneurship): Proxy list: JAMB	Innovation funding sources	infrastructure			Proxy size of domestic market
				specialized technological support	large scale production support	logistics	
Abia	SE/SS	1		Abia Tech Hub, Innovation Growth Hub			N144 billion (Aba Shoe Market)
Adamawa	N	0		Northeast Humanitarian Innovation Hub			
Akwa Ibom	SE/SS	8		Start Innovation Hub			
Anambra	SE/SS	4					
Bauchi	N	0					
Bayelsa	SE/SS	2					
Benue	N	0					
Borno	N	0					
Cross River	SE/SS	7					
Delta	SE/SS	8		Delta State Innovation Hub			
Ebonyi	SE/SS	2				Nnewe- Oduma Road; linking Enugu and Ebonyi states	N30 billion (Rice Mill Industry)
Edo	SE/SS	6		Inner-City Innovative Hub, Edo Innovation Hub, Edo Tech Park	Edo Production Center		
Ekiti	SW	1				Ekiti Cargo Airport	
Enugu	SE/SS	7		Technology Hub and Youth Innovation Centres (2), Enugu Innovation Center		Nnewe- Oduma Road; linking Enugu and Ebonyi states	
Gombe	N	0					
Imo	SE/SS	6		Imo State Innovation Park, Heartland Hub incubator			
Jigawa	N	1			Jigawa Specialized Markets	Kano-Hadejia Road; linking Jigawa and Kano states	
Kaduna	N	11		Kaduna Technology City	Ministry of Business, Innovation and Technology	Kaduna State Infrastructure Master Plan; Strategic location in the northern urban corridor (Abuja-Kaduna-Zaria-Kano)	
Kano	N	6		Kano State (Innovation Capacity Development) Incubation Hub		Lagos-Kano-Jibiya (Katsina/Niger Border) Transport Corridor	
Katsina	N	3		ICT Innovation Hub		Funtua BCGA Dry Port dual carriageway	
Kebbi	N	0		Kebbi Innovation and Tech Hub			

Kogi	N	4					
Kwara	N	3					
Lagos	SW	35	Lagos Angel Network	Eko Innovation Center, Yaba ICT Cluster Project, Co-Creation Hub	Yaba Industrial Estate, Lagos Industrial Hub	Lagos Multi-modal Transport System	~30% of Nigeria's GDP
Nasarawa	N	3		Technology Incubation Centre			
Niger	N	1					
Ogun	SW	8		Tedprime Hub		Ogun multi-modern Transport Master Plan; linking Lagos	
Ondo	SW	2					
Osun	SW	9				Lagos-Kano Railway Line (Osogbo Station); MKO Abiola Aerodrome; Osogbo-Ikirun-Kwara State Boundary Road	
Oyo	SW	11		Seyi Makinde Tech Innovation Hub, Special Agro-Processing Zone (SAPZ)		Lagos-Ibadan Railway	
Plateau	N	5		Students Entrepreneurship Activities-Hub (SEA-Hub)			
Rivers	SE/SS	1		ICT Innovation and Incubation Park			
Sokoto	N	0					
Taraba	N	0					
Yobe	N	0					
Zamfara	N	0		Zamfara State (Innovation Capacity Development) Incubation Hub			



Table 2b: Quantitative score - innovation and entrepreneurship capacity

Innovation and entrepreneurship capacity							
State	Region	human capital (10)	Innovation funding (10)	infrastructure (10)			size of domestic market (10)
				specialized technological support (3)	large scale production support (3)	logistics (4)	
Abia	SE/SS	0.3	0	2	0	0	5
Adamawa	N	0.0	0	1	0	0	0
Akwa Ibom	SE/SS	2.3	0	1	0	0	0
Anambra	SE/SS	1.1	0	0	0	0	0
Bauchi	N	0.0	0	0	0	0	0
Bayelsa	SE/SS	0.6	0	0	0	0	0
Benue	N	0.0	0	0	0	0	0
Borno	N	0.0	0	0	0	0	0
Cross River	SE/SS	2.0	0	0	0	0	0
Delta	SE/SS	2.3	0	1	0	0	0
Ebonyi	SE/SS	0.6	0	0	0	2	2
Edo	SE/SS	1.7	0	3	1	0	0
Ekiti	SW	0.3	0	0	0	2	0
Enugu	SE/SS	2.0	0	3	0	2	0
Gombe	N	0.0	0	0	0	0	0
Imo	SE/SS	1.7	0	2	0	0	0
Jigawa	N	0.3	0	0	1	2	0
Kaduna	N	3.1	0	1	1	3	0
Kano	N	1.7	0	1	0	2	0
Katsina	N	0.9	0	1	0	2	0
Kebbi	N	0.0	0	1	0	0	0
Kogi	N	1.1	0	0	0	0	0
Kwara	N	0.9	0	1	0	0	0
Lagos	SW	10.0	10	3	2	3	10
Nasarawa	N	0.9	0	1	0	0	0
Niger	N	0.3	0	0	0	0	0
Ogun	SW	2.3	0	1	0	2	0
Ondo	SW	0.6	0	0	0	0	0
Osun	SW	2.6	0	0	0	3	0
Oyo	SW	3.1	0	2	0	2	0
Plateau	N	1.4	0	1	0	0	0
Rivers	SE/SS	0.3	0	1	0	0	0
Sokoto	N	0.0	0	0	0	0	0
Taraba	N	0.0	0	0	0	0	0
Yobe	N	0.0	0	0	0	0	0
Zamfara	N	0.0	0	1	0	0	0

Table 3a: Impact

Impact			
State	Region	number of small/medium sized enterprises (SMEs)<->Potential IDEs Proxy - SMEDAN 2017	% of Country Total
Abia	SE/SS	2,342	3.2
Adamawa	N	734	1
Akwa Ibom	SE/SS	1,887	2.6
Anambra	SE/SS	1,504	2.1
Bauchi	N	2,241	3.1
Bayelsa	SE/SS	300	0.4
Benue	N	1,811	2.5
Borno	N	538	0.7
Cross River	SE/SS	1,456	2
Delta	SE/SS	1,524	2.1
Ebonyi	SE/SS	2,433	3.3
Edo	SE/SS	2,677	3.7
Ekiti	SW	928	1.3
Enugu	SE/SS	1,432	2
Gombe	N	904	1.2
Imo	SE/SS	2,020	2.8
Jigawa	N	2,370	3.2
Kaduna	N	2,650	3.6
Kano	N	2,441	3.3
Katsina	N	1,367	1.9
Kebbi	N	815	1.1
Kogi	N	1,027	1.4
Kwara	N	1,416	1.9
Lagos	SW	8,395	11.5
Nasarawa	N	2,604	3.6
Niger	N	2,121	2.9
Ogun	SW	2,465	3.4
Ondo	SW	2,363	3.2
Osun	SW	3,007	4.1
Oyo	SW	6,131	8.4
Plateau	N	1,574	2.2
Rivers	SE/SS	1,658	2.3
Sokoto	N	852	1.2
Taraba	N	930	1.3
Yobe	N	102	0.1
Zamfara	N	1,236	1.7

Table 3b: Quantitative score - regional impact

Impact (20)		
State	Region	number of small/medium sized enterprises (SMEs)<->Potential IDEs Proxy - SMEDAN 2017
Abia	SE/SS	5.6
Adamawa	N	1.7
Akwa Ibom	SE/SS	4.5
Anambra	SE/SS	3.7
Bauchi	N	5.4
Bayelsa	SE/SS	0.7
Benue	N	4.3
Borno	N	1.2
Cross River	SE/SS	3.5
Delta	SE/SS	3.7
Ebonyi	SE/SS	5.7
Edo	SE/SS	6.4
Ekiti	SW	2.3
Enugu	SE/SS	3.5
Gombe	N	2.1
Imo	SE/SS	4.9
Jigawa	N	5.6
Kaduna	N	6.3
Kano	N	5.7
Katsina	N	3.3
Kebbi	N	1.9
Kogi	N	2.4
Kwara	N	3.3
Lagos	SW	20.0
Nasarawa	N	6.3
Niger	N	5.0
Ogun	SW	5.9
Ondo	SW	5.6
Osun	SW	7.1
Oyo	SW	14.6
Plateau	N	3.8
Rivers	SE/SS	4.0
Sokoto	N	2.1
Taraba	N	2.3
Yobe	N	0.2
Zamfara	N	3.0

Table 4: State scoring

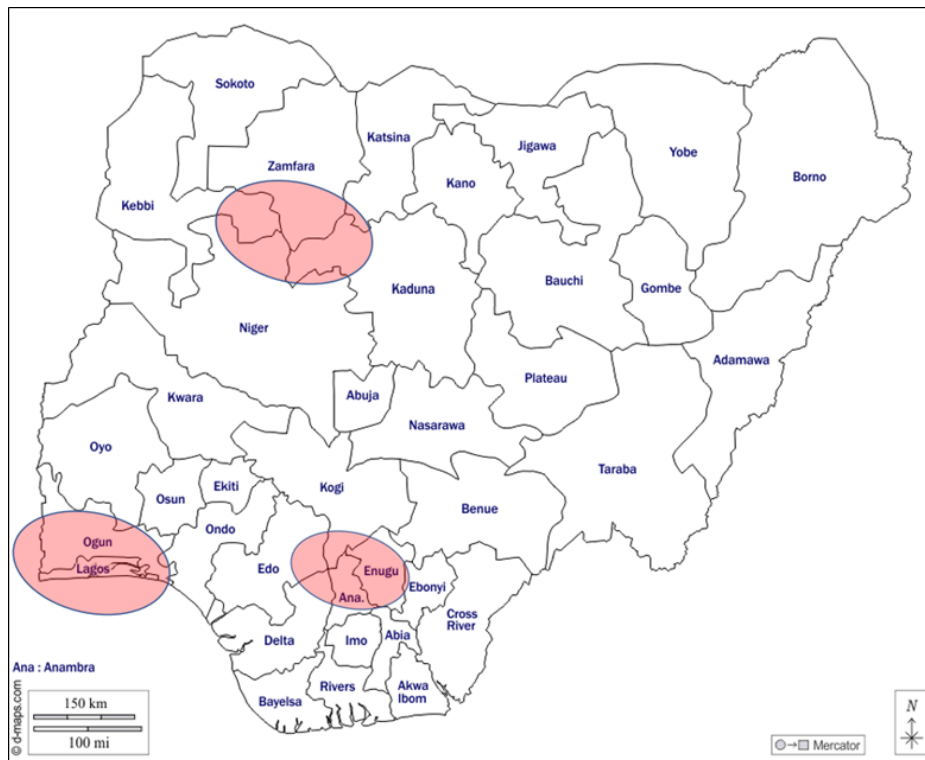
State	Region	Total Score (100)
Abia	SE/SS	13.2
Adamawa	N	3.2
Akwa Ibom	SE/SS	10.3
Anambra	SE/SS	16.2
Bauchi	N	7.4
Bayelsa	SE/SS	2.3
Benue	N	5.0
Borno	N	1.5
Cross River	SE/SS	5.8
Delta	SE/SS	7.2
Ebonyi	SE/SS	10.7
Edo	SE/SS	12.5
Ekiti	SW	5.1
Enugu	SE/SS	15.8
Gombe	N	17.1
Imo	SE/SS	14.5
Jigawa	N	12.2
Kaduna	N	45.2
Kano	N	10.8
Katsina	N	8.3
Kebbi	N	14.6
Kogi	N	9.0
Kwara	N	10.5
Lagos	SW	83.5
Nasarawa	N	8.5
Niger	N	5.7
Ogun	SW	36.7
Ondo	SW	7.4
Osun	SW	13.4
Oyo	SW	27.1
Plateau	N	7.0
Rivers	SE/SS	6.2
Sokoto	N	7.1
Taraba	N	2.5
Yobe	N	0.6
Zamfara	N	4.2

Table 5: Regional rank (score) and geographical proximity

State	Region	Total Score (100)
Anambra	SE/SS	16.2
Enugu	SE/SS	15.8
Kaduna	N	45.2
Kebbi	N	14.6
Lagos	SW	83.5
Ogun	SW	36.7



Figure 2 Startup Cluster Mapping



Cluster Comparative Analysis

Anambra-Enugu Cluster

i. On the one hand, Anambra State provides a relatively easy business operating environment, evidenced by the State’s ranking of 7th on the Budget 2022 ease-of-doing-business index⁷. The State was earlier awarded as Top 5 Most Improved State in Nigeria in the World Bank Ease of Doing Business Index released in October 2018. One of the key initiatives of the Anambra State Government in this regard was the setting up of the Anambra State Investment Promotion and Protection Agency (ANSIPPA)⁸, as the one-stop shop for potential private investors wishing to operate in the State, providing the enabling environment for such businesses to thrive.

ii. On the other hand, Enugu State has positioned itself as the central digital hub within the South-East and South-South geopolitical zones for fostering knowledge dissemination and supportive collaboration between the digital ecosystem stakeholders. The Enugu State Technology Hub and Youth Innovation Centre⁹ was established by the Enugu State Government in March 2021 to provide next-generation technology learning, mentorship, and innovation for start-ups at different stages of their formation and evolution. The priority focus of the tech hub is on startup incubation and acceleration, leveraging strategic collaborations with tech players and enthusiasts, the local academia, and seed investors across the zone.

⁷<https://yourbudget.com/wp-content/uploads/2022/10/2022-State-of-States-Report.pdf>

⁸<https://etenders.com.ng/anambra-state-investment-promotion-protection-agency-ansippa-invitation-expression-interest-privatization-nnewi-shopping-mall-limited/>

⁹<https://enugutechhub.en.gov.ng/>

iii. However, a deficit that needs to be bridged within this proposed digital cluster is the absence of a technology development zone that encompasses support infrastructure for the large-scale production of digital products and services in the longer term (see Glavan, 2006; Ekesiobi, Kalu & Nwokolo, 2018). More so, the logistics infrastructure within the proposed cluster needs to be improved as a significant driver of startup

ecosystem growth in relation to bridging supply chain deficits, majorly with respect to transportation for enhanced speed-to-market of digital products and services (see Smeets, 2021; Kuteyi & Winkler, 2022). In this regard, a backbone logistics infrastructure that needs to be urgently rehabilitated is the currently deplorable Enugu-Onitsha Expressway - a road that links Anambra with Enugu, the North and some parts of the entire East.



Kaduna-Kebbi Cluster

- i. The proposed Kaduna-Kebbi digital startup cluster leverages the infrastructure backbone as espoused within the N20 trillion Kaduna State Infrastructure Masterplan (2018 – 2050)¹⁰ for the transformation of Kaduna into a digital economy. In particular, the proposed inter-modal transport infrastructure, encompassing Bus Rapid Transit (BRT) and Light Rail Transit (LRT) systems, earmarked to the tune of 650 million USD improves the logistical competitiveness of the proposed cluster. More so, the strategic location of Kaduna State in the northern urban corridor (comprising Abuja-Kaduna-Zaria-Kano) makes it a trade centre and a major transportation hub in the country, with a vast network of roads and an existing rail system that links it with other parts of Nigeria, such as the Kaduna – Abuja Road, the Kaduna – Zaria – Kano Road, and Kaduna – Saminaka – Jos – Bauchi Road. The robust logistics infrastructure will also be critical for the distribution linkages for products and services from agro-allied technology startups that will be based in Kebbi State.
- ii. Complementarily, Kebbi State provides a bastion for government-backed venture projects funding, a strategic parameter for innovation development and support (see Zemlyak et al., 2019; Bărbulescu, Nicolau & Munteanu, 2021; Pangarkar & Vandenberg, 2022). The critical interaction between state-owned financial institutions (such as the Bank of Industry (BoI), Bank of Agriculture (BoA) and the Central Bank of Nigeria (CBN)) and

venture investors in Kebbi State enhances its competitiveness for a digital startup cluster. Recent examples of this strategic partnership are the N20 billion tomato factory located in Kebbi State, which has helped to drive down post-harvest losses in the sector by up to 50 percent, and the N2 billion Entrepreneurship Development Loan Scheme set up in Kebbi State by the Bank of Industry (BoI). Furthermore, Kebbi State's ranking of 6th on the Budget 2022 Ease of Doing Business enhances the competitiveness of the cluster for startup registration and enforcement of contracts.

Lagos-Ogun Cluster

- i. The proposed startup cluster leverages the numerous relevant educational institutions for startup human capital development and innovation entrepreneurship based in Lagos State – already Nigeria's tech capital. This cluster's competitive advantage is relevant for facilitating university-industry partnerships and technology transfer. The advantage will also enable resourceful entrepreneurs to overcome digital talent constraints by recruiting good potential individuals from educational institutions. The University of Lagos established the Office of Research and Innovation in 2013 (now Innovation and Technology Management Office)¹¹ with a focus on developing technology research and forms a key institution that the proposed cluster should leverage for its innovative development, and a critical research partner as indicated in the Nigeria Startup Act. Another comparative strength of the proposed cluster is the availability of

¹⁰http://kasupda.kdsg.gov.ng/wp-content/uploads/2018/07/KADIMP-Book_email-2.pdf

¹¹<https://innovation.unilag.edu.ng/>

innovation funding for the ecosystem. A key player within this consideration is the Lagos Angel Network (LAN)¹² which should provide significant cluster support throughout deal processes, including taking an active role in deal sourcing, sharing investment agreement templates, contracting professionals to complete financial due diligence, and drafting final deal documents, especially for early-stage startups. LAN has recently launched a syndicated investment approach where they source additional capital from non-members to join member deals within co-investment partnerships. The network is thus recommended as a relevant funding organisation to partner in promoting startup development, as indicated in the Nigeria Startup Act in bridging financial access – a critical constraint for startup success.

- ii. Furthermore, the proposed cluster will leverage the availability of specialized technological support for startup incubation, from prototyping to the realization of product-market fit, as well as startup acceleration leveraging ecosystem access. A recommended key partner for the Startup Act's implementation in this regard is the Co-creation Hub (CcHub)¹³, which is domiciled within the proposed Yaba ICT cluster project¹⁴ of the Lagos State Government. On achieving scale, the startups within the cluster will also be positioned to leverage the large-scale production support that will be provided

within the Yaba Free Zone Industrial Estate to be located within the same axis as a collaborative project between the Lagos State Government, Facebook and Google. Concerning digital demand, the proposed cluster will leverage the relatively large size of the domestic market in Lagos to facilitate its entrepreneurial economies of scale – a critical requirement for attracting global investment flows. More so, the relatively high number of small- and medium-sized enterprises (SMEs) in Lagos provides a basis for enhancing the cluster productivity continuum with respect to the potential to evolve into innovation-driven enterprises (IDEs) via ecosystem interactions with the startup community¹⁵. Ogun State provides a competitive logistics edge to this proposed cluster with its Multi-Modern Transport Master Plan, being a gateway to and from Lagos. The road connections from Sagamu to Ikorodu also pass through another industrial corridor, the road from Lekki to Ijebu-Ode, the Ijebu-Ode -Epe Expressway, the Abeokuta-Sango Ota-Lagos Expressway, as well the Lagos-Ibadan rail links comprise critical logistics access to Lagos. There is also the proposed extension of the Lagos Red and Blue train lines by the Lagos/Ogun Joint Development Corporation from Alagbado to Kajola and from Okokomaiko to Agbara which will further enhance the logistics access for the proposed cluster.

¹²<http://lagosangelnetwork.net/>

¹³<https://cchubnigeria.com/>

¹⁴<https://lagosstate.gov.ng/blog/2021/07/15/yaba-tech-cluster-will-promote-rapid-innovation-technology-special-adviser/>

¹⁵See Budden, P., Murray, F., & Ukuku, O. (2021). Differentiating Small Enterprises in the Innovation Economy: Start-ups, new SMEs & other Growth Ventures. https://innovation.mit.edu/assets/BuddenMurrayUkuku_SME-IDE_WorkingPaper_Jan2021.pdf; ILO Report (2021). Small goes digital How digitalization can bring about productive growth for micro and small enterprises. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_seed/documents/publication/wcms_808632.pdf

Conclusion and Policy Recommendations

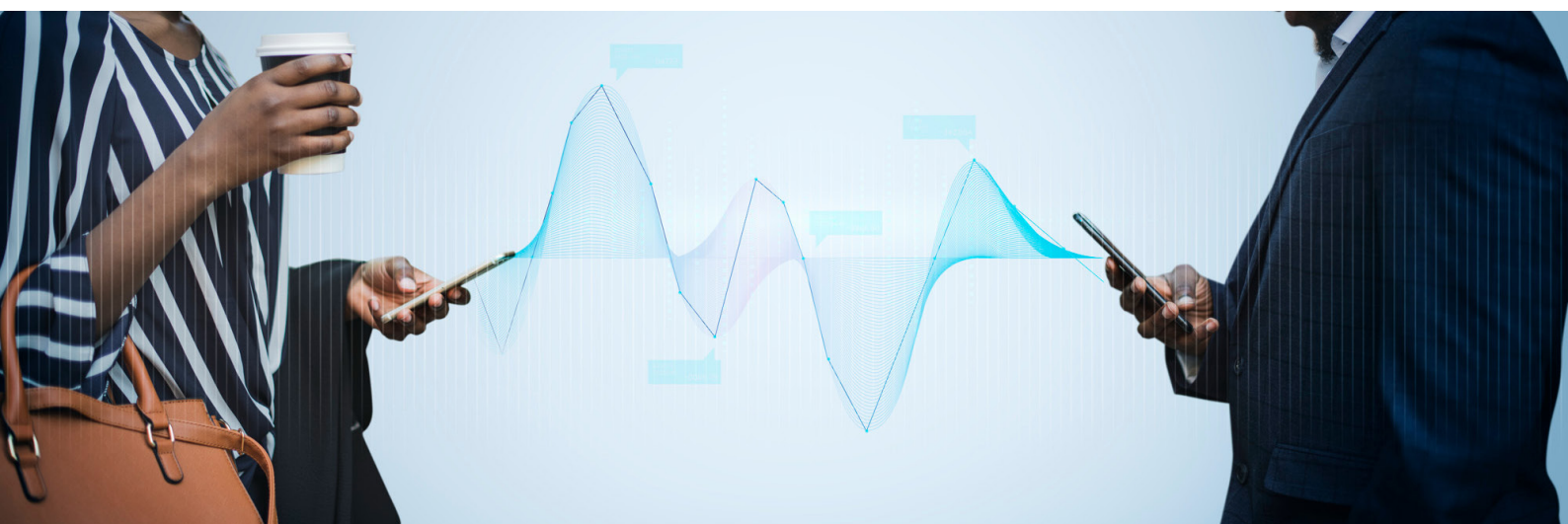
This cluster assessment of the Nigerian digital economy sought to map the country's startup ecosystem at the States level to identify emerging local hubs for startup scaling via policy intervention, particularly the Nigerian Startup Act 2022. Based on this key objective, the study highlighted the requirements for the ecosystem in catalyzing market innovation within Nigeria's digital economy, examining the innovation limitations of the ecosystem, and exploring mutually reinforcing structural characteristics that can be leveraged to engender socially valuable innovations in Nigeria via the instrumentality of the Nigerian Startup Act.

The approach to assessing the comparative advantages of the select digital clusters at the regional level is grounded in a systematic framework in which a range of inputs are combined, on the bedrock of complementary institutional foundations, with respect to the challenges (constraints) – or opportunities (benefits) – they provide in relation to both entrepreneurship and innovation capacities (see Huang, Ma, Li & Liu, 2020). Implementing the Nigerian Startup Act on the above-detailed basis provides regulatory clarity that

can catalyse market innovation and drive investments within the startup ecosystem. Startups within the fledgling digital ecosystem can plan their growth and expansion across the ecosystem more effectively without regulatory ambiguity.

Recommendations

- » Implement the Nigerian Startup Act 2022 on a regional cluster basis dimensioned on the above-highlighted comparative advantages so that limited input resources are focused instead of stretched across states, which will lead to better policy impact and outcomes, in particular, a higher chance of startup success within the proposed clusters, rather than in silos or less competitive market environments¹⁶.
- » The development of the identified clusters over time should be captured through a series of higher-level impact measures that are appropriate for the regional contexts, based on the parameters assessed, to ascertain the long and short-term impacts of the Nigerian Startup Act (see Murray & Budden, 2017).



¹⁶See Ekekwe, N. (2015). *The Geography of Science and Technology Innovation in Nigeria*. Africapitalism Institute. https://issuu.com/tonyelumelufoundation/docs/the_geography_of_s_t_innovation_clu

References

- Abayomi-Olukunle, O. (2022). Nigeria: Setting Up A Venture Capital Fund In Nigeria – A Primer. https://www.mondaq.com/nigeria/securities/1189446/setting-up-a-venture-capital-fund-in-nigeria-a-primer#_ftn1
- Adonu, G. (2020). Catalyzing digital economy in Africa: The role of African sovereign wealth funds. NYLS Legal Studies Research Paper, (3631165). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3631165
- AfDB (2021). Africa's Catalysts for a New Era of Economic Prosperity. Entrepreneurship and Free TradeWhite Paper. Vol. 1. https://www.afdb.org/sites/default/files/2021/06/28/entrepreneurship_in_africa_-_may_2021_abridged_version_06_28.pdf
- AVCA (2020). Venture Capital in Africa: Mapping Africa's start-up investment landscape. <https://www.avca-africa.org/research-publications/data-reports/venture-capital-in-africa-mapping-africa-start-up-investment-landscape/>
- AVCA (2022). Venture Capital in Africa Report. <https://www.avca-africa.org/media/2967/62644-avca-avca-venture-capital-in-africa-report-v13.pdf>
- Bărbulescu, O., Nicolau, C., & Munteanu, D. (2021). Within the Entrepreneurship Ecosystem: Is Innovation Clusters' Strategic Approach Boosting Businesses' Sustainable Development?. *Sustainability*, 13(21), 11762.
- Murray, F., & Budden, P. (2017). A systematic MIT approach for assessing 'innovation-driven entrepreneurship' in ecosystems (iEcosystems). Working paper Published by MIT's Laboratory for Innovation Science & Policy. Retrieved August 17, 2021, from https://innovation.mit.edu/assets/BuddenMurray_Assessing-iEcosystems-Working-Paper_FINAL.pdf
- Budden, P., & Murray, F. (2019). MIT's stakeholder framework for building & accelerating innovation ecosystems. <https://innovation.mit.edu/assets/Innovation-Stakeholder-Framework.pdf>
- Carayannis, E. G., & Campbell, D. F. (2009). 'Mode 3'and'Quadruple Helix': toward a 21st century fractal innovation ecosystem. *International journal of technology management*, 46(3-4), 201-234.
- Carayannis, E. G., Meissner, D., & Edelkina, A. (2017). Targeted innovation policy and practice intelligence (TIP2E): concepts and implications for theory, policy and practice. *The Journal of Technology Transfer*, 42(3), 460-484.
- Carraro, M. (2020). Catalyst Fund is expanding inclusive-tech acceleration to new sectors. <https://bfaaglobal.com/catalyst-fund/insights/catalyst-fund-is-expanding-inclusive-tech-acceleration-to-new-sectors/>
- Dalberg Report. (2020). Catalysing Growth in Nigeria through Regional Innovation: Opportunities and challenges for developing ICT-led innovation hubs across Nigeria. https://www.pdfnigeria.org/rc/wp-content/uploads/2020/01/34_PDFII_Report_Innovation-hubs.pdf

De Vasconcelos Gomes, L. A., Facin, A. L. F., Salerno, M. S., & Ikenami, R. K. (2018). Unpacking the innovation ecosystem construct: Evolution, gaps and trends. *Technological Forecasting and Social Change*, 136, 30-48.

Ekesiobi, C., Kalu, U. D., & Nwokolo, C. (2018). Industrial Clusters and Industrialisation in Nigeria: A Micro-Assessment of the Nnewi Automotive Component Industrial Cluster, Anambra State. *The Nigerian Journal of Economic and Social Studies*, 60(3).

Ellas, G. (2022). Venture capital financing in Nigeria. <https://www.standardmedia.co.ke/branding-voice/article/2001444400/venture-capital-financing-in-nigeria>

Etzkowitz, H., & Leydesdorff, L. (1995). The Triple Helix--University-industry-government relations: A laboratory for knowledge based economic development. *EASST review*, 14(1), 14-19.

Falat-Kilijanska, I. (2018). The history of private equity market. The story based on USA, Great Britain, Germany and Poland cases. In *BH ekonomski forum* (Vol. 9, No. 2, pp. 9-27). <http://www.ef.unze.ba/OJS/index.php/BHF/article/download/2/1>

Gamidullaeva, L. (2018). Towards combining the innovation ecosystem concept with intermediary approach to regional innovation development. In *MATEC Web of Conferences* (Vol. 212, p. 09017). EDP Sciences. https://www.matec-conferences.org/articles/mateconf/pdf/2018/71/mateconf_icre2018_09017.pdf

Glavan, B. (2006). Clusters, industrial policy and entrepreneurship: a critical view. *Romanian Economic and Business Review*, 1(1), 39.

Gretschmann, K., & Schepers, S. (2016). Revisiting Innovation: Revolutionising European Innovation Policy by Means of an Innovation Ecosystem. In *Revolutionising EU Innovation Policy* (pp. 1-25). Palgrave Macmillan, London.

Huang, X., Ma, L., Li, R., & Liu, Z. (2020). Determinants of innovation ecosystem in underdeveloped areas—take nanning high-tech zone in western China as an example. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 135.

ICReport (2021). Startup Acts: an emerging instrument to foster the development of innovative high-growth firms. https://www.icr-facility.eu/fileadmin/files/downloads/icreports/icreport_startupacts.pdf

IDIA (The International Development Innovation Alliance) and the Ecosystem Strengthening Working Group Report. (November 2021). *Strengthening Innovation Ecosystems*. <https://www.idiainnovation.org/s/IDIA-Insight-Guide-Strengthening-Innovation-Ecosystems.pdf>

Kuteyi, D., & Winkler, H. (2022). Logistics Challenges in Sub-Saharan Africa and Opportunities for Digitalization. *Sustainability*, 14(4), 2399.

Leamon, A., Garcia-Robles, M. S., & Lerner, J. (2013). Best Practices in Creating a Venture Capital Ecosystem (No. 81839). Inter-American Development Bank. https://www.researchgate.net/profile/Arvind-Singh-21/post/Can_someone_help_me_by_providing_studies_about_theory_of_the_venture_capital_ecosystem/attachment/59d62e1d79197b807798c57c/AS%3A352983771566082%401461169297785/download/2.pdf

- Lee, P. (2022). Enhancing the Innovative Capacity of Venture Capital. Yale J.L. & Tech. (Forthcoming). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4005801
- Lee, S. M., Olson, D. L., & Trimi, S. (2012). Co-innovation: convergenomics, collaboration, and co-creation for organizational values. *Management decision*. https://www.researchgate.net/profile/Silvana-Trimmi/publication/242338170_Co-innovation_Convergenomics_collaboration_and_co-creation_for_organizational_values/links/57c8512508aec24de044f0d7/Co-innovation-Convergenomics-collaboration-and-co-creation-for-organizational-values.pdf
- Manya, V. O. (2020). Dynamics of a Start-up Ecosystem in Africa: A Case Study of Yabacon in Nigeria. https://thesis.eur.nl/pub/55896/RP-Manya_Victoria.pdf
- Murray, F., & Budden, P. (2017). A systematic MIT approach for assessing 'innovation-driven entrepreneurship' in ecosystems (iEcosystems). Working paper Published by MIT's Laboratory for Innovation Science & Policy. https://innovation.mit.edu/assets/BuddenMurray_Assessing-iEcosystems-Working-Paper_FINAL.pdf
- ODI (2018). Africa's Economic Growth in a New Global Context. <https://www.odi.org/events/4592-africaseconomic-growth-new-global-context>
- OECD (2015). New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments. <https://www.oecd.org/cfe/smes/New-Approaches-SME-full-report.pdf>
- Pangarkar, N., & Vandenberg, P. (2022). Singapore's Ecosystem for Technology Startups and Lessons for Its Neighbors. <https://www.adb.org/sites/default/files/publication/804956/singapore-ecosystem-technology-startups.pdf>
- Sant, T. D., de Souza Bermejo, P. H., Moreira, M. F., & de Souza, W. V. B. (2020). The structure of an innovation ecosystem: foundations for future research. *Management Decision*.
- Sheriff, M., & Muffatto, M. (2015). The present state of entrepreneurship ecosystems in selected countries in Africa. *African Journal of Economic and Management Studies*. <https://www.emerald.com/insight/content/doi/10.1108/AJEMS-10-2012-0064/full/pdf>
- Smeets, M. (Ed.). (2021). Adapting to the Digital Trade Era: Challenges and Opportunities. World Trade Organization. https://www.wto.org/english/res_e/publications_e/adtera_e.htm
- Stam, E. (2015). Entrepreneurial ecosystems and regional policy: a sympathetic critique. *European planning studies*, 23(9), 1759-1769.
- Wallner, T., & Menrad, M. (2011, June). Extending the innovation ecosystem framework. In Proceedings of XXII ISPIM Conference. Hamburg, Germania: ISPIM. https://www.researchgate.net/profile/Thomas-Wallner-3/publication/268006642_Extending_the_Innovation_Ecosystem_Framework/links/546f5d4f0cf2d67fc0310f6f/Extending-the-Innovation-Ecosystem-Framework.pdf
- Wolken, J. (2020). Startup Acts are the next form of policy innovation in Africa. <https://www.atlanticcouncil.org/blogs/africasource/startup-acts-are-the-next-form-of-policy-innovation-in-africa/>

World Bank (2019). Nigeria Digital Economy Diagnostic Report. Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO. <https://documents1.worldbank.org/curated/en/387871574812599817/pdf/Nigeria-Digital-Economy-Diagnostic-Report.pdf>






World Bank (2020). Building Early Stage Funds in Emerging Markets and Developing Countries: Insights and Learnings from the Market Place. <http://documents1.worldbank.org/curated/en/752791585031387319/pdf/Building-Early-Stage-Funds-in-Emerging-Markets-and-Developing-Countries-Insights-and-Learnings-from-the-Market-Place.pdf>

Yawson, R. M. (2021). The ecological system of innovation: A new architectural framework for a functional evidence-based platform for science and innovation policy. arXiv preprint arXiv:2106.15479.

Zemlyak, S. V., Sivakova, S. Y., Shelomentseva, M. V., & Popova, V. V. (2019). Contemporary models of government-backed venture project funding. In External Challenges and Risks for Russia in the Context of the World Community's Transition to Polycentrism: Economics, Finance and Business (ICEFB 2019) (pp. 150-153). Atlantis Press. file:///C:/Users/ronuoha/Downloads/125925189.pdf



The NESG Radio is a weekly syndicated podcast that keeps Nigerians informed through curated localised content on economic policies and issues across sectors of the Nigerian economy. The NESG podcast helps to effectively communicate the activities of the Group to a younger audience and extend research-based advocacy in a distillable localised format to all Nigerians. The radio had guests from the private sector, public sector, civil societies, and donor communities speak on issues of national interest. In 2022, NESG Radio recorded 30 episodes, with several episodes translated into local languages for the mass audience. To listen, please visit <https://nesgroup.org/podcast>

info@nesgroup.org | +234-01-295 2849 |      OfficialNESG

Available on



**Episodes are syndicated to radio stations across local communities in Nigeria*



ABOUT THE NRFP

The NESG Non-Residential Fellowship Programme (NRFP) is a knowledge hub that bridges the gap between socio-economic research and public policy and promotes evidence-based policymaking in Nigeria. The programme brings together outstanding high-level intellectuals in academia, research-based institutions, the public sector and the private sector to collaborate, share ideas and ensure that findings from its research are applied in practice.

ABOUT THE NESG

The NESG is an independent, non-partisan, non-sectarian organisation committed to fostering open and continuous dialogue on Nigeria's economic development. The NESG strives to forge a mutual understanding between leaders of thought to explore, discover and support initiatives to improve Nigeria's economic policies, institutions and management.

CONTACT

For more information about the content of this report and other research services, please contact:

NESG RESEARCH TEAM

THE SUMMIT HOUSE

6 Oba Elegushi Street, Off Oba Adeyinka Oyekan Avenue, Ikoyi, Lagos.

P.M.B 71347, Victoria Island, Lagos.

ABUJA LIAISON OFFICE:

4th Floor, Unity Bank Tower, Beside Reinsurance building Plot 785, Herbert Macaulay Way, Central Business District, Abuja

🌐 www.nesgroup.org

✉ research@nesgroup.org

☎ +234-01-295 2849 | +234-01-295 2003

🐦 📘 📷 🌐 📺 officialNESG