Rethinking 'Best Practice' For Innovation Hubs: Lessons from Global Models and Localised Adaptations in Nigerian Slum Settlements

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ABSTRACT

This paper interrogates the idea of "best practice" for innovation hubs through evidence from a slum settlement in Abuja, Nigeria. Drawing on a convergent mixed-methods design, it combines two focus group discussions with 16 residents and a household survey of 83 respondents to examine how global hub models are interpreted, adapted and contested in contexts of multidimensional poverty. The analysis focuses on perceptions of international best practices and localised adaptations, and how these shape current innovation hub usage. Qualitative findings show that residents are keenly aware of global examples from India, Kenya and South Africa, but insist that any hub in Tudunwada must be tailored to local livelihoods, infrastructure constraints and community priorities. Multiple regression results indicate that stronger endorsement of international best-practice models is associated with lower likelihood of current hub use, while perceived localised adaptations are not a significant predictor. The paper argues for rethinking best practice around context-responsive, poverty-oriented hub design

Keywords: Innovation hubs; Best practice; Localised adaptations; Slum settlements; Urban poverty; Inclusive innovation

INTRODUCTION

Over the past two decades, innovation has become a central trope in development policy, with cities framed as key sites for experimentation with digital technologies, entrepreneurship, and new forms of service delivery. In Africa this urban turn is unfolding within a context of exceptionally rapid urbanisation, persistent informality, and deep spatial inequality. Recent reviews show that Africa is now the fastest urbanising region globally, with urban growth concentrated in small and intermediate cities and accompanied by the rapid expansion of informal settlements and slums (Henriques et al., 2025). Emerging work on infrastructure and informal settlements across sub-Saharan Africa shows that many urban neighbourhoods combine limited access to basic services with weak connectivity to markets and state institutions, conditions which reinforce urban poverty instead of dispersing it (Bettencourt & Marchio, 2025). Nigerian cities exemplify these dynamics: more than half of the urban population is estimated to live in slum-like conditions, with overcrowding, insecure tenure, and chronic infrastructure deficits shaping everyday life (Essien & Jesse, 2024). This has led to growing interest in instruments that can address poverty in place, rather than assuming that growth in formal cores will eventually trickle into informal settlements.

Innovation hubs have emerged as one of the most visible institutional forms within this broader innovation agenda. Defined broadly as co-located spaces that provide physical infrastructure, mentoring, networks, and other forms of support to entrepreneurs and innovators, hubs are now widely seen as anchors within national and regional innovation ecosystems (Friederici, 2019). Recent work has documented their rapid proliferation across Africa, including incubators, accelerators, co-working spaces, fabrication labs, and hybrid models that all claim the "hub" label (Züfle & Bickenbach, 2025). Estimates suggest that over one thousand innovation hubs were operating across more than fifty African countries by 2021, with Nigeria hosting the largest absolute number (Züfle & Bickenbach, 2025). At the same time, detailed qualitative research shows that hubs vary widely in their missions, governance, and everyday practices, ranging from elite tech accelerators to small, community-oriented spaces that blend social services, training, and advocacy (Abrahams, 2021). This conceptual and organisational diversity complicates attempts to generalise about what "works" and for whom.

Despite this complexity, the language of "best practice" has become central to how governments, donors, and ecosystem actors talk about innovation hubs. Cross-national reviews of innovation ecosystems often distil experiences from Europe, North America, and a small number of middle-income countries into standardised models that foreground university–industry partnerships, start-up pipelines, and digital infrastructure as core ingredients of success (Li, et al., 2022). Studies of innovation ecosystems consistently highlight clusters, public–private partnerships, and structured accelerator programmes as transferable levers for competitiveness and growth (Friederici, 2019). In parallel, the policy transfer literature on smart cities and urban innovation shows how "best practices" travel as seemingly neutral technical solutions but are often adopted with limited attention to institutional capacity, informal governance, or the lived realities of low-income residents (Li et al., 2022). These dynamics risk turning best practice into a form of policy orthodoxy, where technologies, governance templates, and performance metrics are transplanted into very different social and spatial contexts.

The disconnect between these global models and conditions in informal settlements is increasingly visible in empirical work on slums, digitalisation, and infrastructure. Large-scale spatial analyses show that slums across sub-Saharan Africa are characterised by severe infrastructure deficits, environmental risks, and constrained access to formal labour markets, even when located close to dynamic urban cores (Bettencourt & Marchio, 2025). Studies of slum online commerce and digital participation underscore how unreliable electricity, limited broadband, and weak last-mile logistics shape how residents can use technology for livelihoods (Armah et al., 2025; Corburn & Sverdlik, 2018). At the household level, research from urban slums in Africa and Asia documents complex patterns of digital use, where mobile phones and social media are widely present but mediated by gender norms, precarious incomes, and dense lay referral networks (Karacuka et al., 2024). These findings suggest that simply colocating a hub in or near a slum, without addressing the underlying infrastructural and social conditions, is unlikely to deliver transformative poverty reduction.

At the same time, informal settlements are not only spaces of deprivation; they are also spaces of experimentation, ingenuity, and everyday innovation. Scholarship on urban slums has begun to move beyond deficit narratives, highlighting community-driven upgrading, grassroots innovation, and local organising as crucial to resilience (Peter, 2021). Case studies from fragile and low-income urban contexts show how community organisations, social enterprises, and local leaders co-produce solutions such as neighbourhood data hubs, micro-infrastructure, and livelihood innovations that often sit outside formal policy frameworks (Hati, 2025). In some African countries, research on inclusive innovation hubs illustrates how spaces oriented towards marginalised groups can support social learning, collective problem-solving, and more equitable participation in innovation processes (Adewusi et al., 2020). This body of work points to the importance of understanding innovation hubs not only as economic infrastructure but also as social and political institutions embedded in particular communities.

Nigeria offers a particularly important setting for interrogating these tensions between global models and local realities. The country is home to one of Africa's largest networks of innovation and tech hubs and has become a reference point in debates about the continent's digital economy (Züfle & Bickenbach, 2025). Yet recent reviews show that slums and informal settlements in Nigerian cities are expanding, with over half of the urban population living in conditions marked by insecure tenure, environmental hazards, and limited access to basic services (Akinde, 2024). Emerging research on urban expansion and informal settlements in Abuja argues that these areas can function as testing grounds for innovative approaches to urban sustainability and equity rather than being treated solely as symptoms of governance failure (Ebofin, 2025). Against this backdrop, innovation hubs positioned in or around slum settlements face the dual challenge of engaging households experiencing multidimensional poverty while navigating broader national narratives about tech-led growth and competitiveness.

Recent Nigerian work has begun to explore how innovation hubs intersect with urban poverty, including studies of slum communities in Abuja (Mshelia & Eke, 2025). That research shows that income levels, market access, and social trust significantly shape which households can use hub services and how they convert these opportunities into tangible livelihood gains. It also highlights the importance of cultural sensitivity, local leadership, and affordable service models in making hubs relevant to slum residents rather than only to more affluent youth or entrepreneurs (Mshelia & Eke, 2025). However, even in this emerging literature, global "best practice" is often referenced as a distant benchmark, with limited systematic analysis of how lessons from international hub models are interpreted, adapted, or resisted in slum contexts. There is also little empirical work on how capacity-building and localised design choices reconfigure the roles hubs play within the everyday economies of slum settlements.

This paper responds to these gaps by interrogating the notion of best practice for innovation hubs through the lens of Nigerian slum settlements. Building on recent conceptual work that calls for greater clarity about what counts as an innovation hub and for whom (Aniche et al., 2024; Fauth et al., 2024), the article integrates insights from international experiences with grounded evidence from slum-based hubs in Nigeria. First, it reviews global models of innovation hubs and related initiatives such as living labs and urban innovation ecosystems, highlighting how these have been codified into best practice narratives centred on particular organisational forms, services, and performance metrics. Second, it examines how hubs operating in Nigerian slum settlements localise these models through adaptations in governance, programming, and capacity-building, and how these adaptations mediate their effectiveness in addressing urban poverty. Finally, it reflects on the conditions under which imported best practices reinforce existing exclusions, and when context-responsive approaches open up more inclusive pathways for innovation and development in slum communities.

LITERATURE REVIEW

The Rise of "Best Practice" in Innovation and Urban Policy

The language of "best practice" emerged strongly in development and innovation debates from the 1990s, alongside broader shifts toward neoliberal governance, policy transfer and evidence-based reform. Urban and development policy networks began to circulate exemplary cases as models that other cities and countries should emulate, often through conferences, international organisations and consultancy circuits (da Cruz et al., 2018). Instead of treating innovation or urban reform as context-specific processes, best practice discourse framed certain institutional arrangements and policy instruments as universally desirable templates that could be replicated with minor adjustments. In the digital and innovation policy field, this logic has been reinforced by the turn to "knowledge economies" and the search for organisational forms that seem to deliver growth and competitiveness across different settings (Avgerou, 2010; Cirera et al., 2020).

Over time, the notion of "best practice" has been formalized into toolkits, playbooks, and benchmarking frameworks that shape how innovation and urban policy are conceived and implemented. Multilateral institutions and donors increasingly publish practitioner guides that classify policy instruments, recommend design features considered "good practice," and highlight exemplary programmes in selected countries (Cirera et al., 2020). Within the urban field, global reports and transnational networks identify model cities and flagship initiatives, encouraging replication of governance innovations, public–private partnerships, and digital platforms (UN Habitat, 2020; Quan & Solheim, 2022). These artefacts are reinforced by rankings and ecosystem benchmarks that compare cities and regions on indicators such as start up density, innovation capacity, or smart city readiness, thereby entrenching the idea that success can be defined by a relatively stable set of practices (Acuto et al., 2021; Tomadon et al., 2024). Recent critiques of smart city indices further show how such benchmarking exercises privilege technological and economic metrics while overlooking social equity and livability, raising questions about the transferability of these models across diverse urban contexts (Bove & Ghiraldelli, 2025).

A growing body of critical scholarship questions the assumptions behind these best practice narratives. Research on healthy urban development and smart city programmes shows that best practices often circulate as simplified stories that strip away political conflict, institutional complexity, and historical trajectories in their original sites (McCann & Ward, 2012; Söderström et al., 2014). When imported into new contexts, these models frequently become technocratic solutions that marginalise local knowledge and downplay structural inequalities, particularly in the global South (Watson, 2015). Recent work on "peripheral best practices" argues that visibility in global circulation is itself a form of power: cities or initiatives that align with dominant policy agendas gain recognition as best practice, while more experimental or community driven approaches in marginalised settings remain invisible (da Cruz et al., 2018; Acuto et al., 2021). These critiques are directly relevant for innovation hubs, where standardised models of ecosystem building risk overshadowing the situated challenges of informal settlements and low income communities.

Innovation Hubs in the Global South and Informal Urban Contexts

Innovation hubs have proliferated rapidly across the global South as governments and donors turn to entrepreneurship and digitalisation as levers for development. Recent mappings suggest that there are now

several hundred tech and innovation hubs across Africa alone, with numbers rising from 314 hubs in 2016 to over 440 by 2018 and continuing to grow (Bayen & Giuliani, 2018; Züfle & Bickenbach, 2025). More recent ecosystem diagnostics report around 600 to 650 active hubs across the continent, including incubators, accelerators, co working spaces and hybrid models that support start ups and digital enterprises (GSMA, 2024; Abebe, 2024). These hubs are often positioned as anchors of local innovation ecosystems that can stimulate job creation, attract investment and accelerate digital transformation in cities and regions (Friederici, 2019; Atiase et al., 2017).

However, the environments in which hubs operate in the global South are marked by deep inequalities, informality and infrastructure deficits. In many African and Asian cities, large shares of the urban population live in informal settlements with limited access to secure housing, basic services, reliable electricity and affordable connectivity (UN Habitat, 2020; UN Habitat, 2021). Policy analyses estimate that around one in four urban residents globally, and up to 60 percent in parts of sub Saharan Africa, reside in slums or informal settlements where tenure insecurity, overcrowding and environmental risks are common (Azunre et al., 2025; Somorija, 2025). These conditions shape who can use innovation hubs, how often and for what purposes. Research on digital participation shows that infrastructure gaps, income constraints and gendered norms all limit how marginalised groups engage with digital services and training programmes (Nirmani, 2025).

Emerging studies connect innovation hubs more explicitly to informal and low income urban contexts. Züfle & Bickenbach (2025) note that many African hubs function less as high growth venture builders and more as safe spaces where young people experiment, build networks and access basic digital infrastructure. Case studies on community innovation hubs in Kenya, for example, describe centres that provide free internet, shared devices and training to low income youth, often located close to informal settlements (Muchiri & Opiyo, 2022; Nyagaya & Mwau, 2024). Efforts to build digital skills in Nairobi's slums often highlight the importance of tailoring programmes to local realities. When training content, schedules, and support structures are adapted to the everyday circumstances of women and girls, such initiatives are more likely to open pathways into ICT employment. Recent research on innovation hubs and urban poverty in an Abuja slum further illustrates how income, market access and social trust shape hub accessibility and use among residents facing multidimensional deprivation (Mshelia & Eke, 2025). Although still limited, this body of work underscores that hubs in informal urban environments operate under different constraints and opportunities than their counterparts in more affluent districts, raising questions about how global hub models should be adapted to these settings.

Localised Adaptations of Global Hub Models in Slum Settlements

As innovation hub models circulate globally, scholars increasingly emphasise the need for localised adaptation and context-responsiveness, particularly in marginalised urban settings. Policy studies on regional and urban innovation argue that instruments successful in one type of region or city often perform very differently in peripheral or institutionally "thin" environments, which calls for design attuned to local structures, actors and constraints (Cirera et al., 2020). Work on learning from informality similarly stresses that interventions in informal settlements must start from local practices, networks and priorities rather than treating informality as a residual category to be fixed (Aernouts et al., 2022). In this literature, localised adaptation is not a minor implementation detail but a process of co-producing solutions with residents, recognising their agency and knowledge while reworking imported models to fit place-specific realities.

Governance is a central arena where such adaptations occur. Studies of community-led initiatives in informal settlements highlight how local leaders, savings groups, youth associations and civil society organisations act as brokers between external actors and residents, shaping the legitimacy and direction of projects (Fransen, 2023). Urban living labs and socially oriented innovation platforms in the global South often establish multi-stakeholder governance structures in which community representatives and local authorities share decision-making over priorities, resources and implementation (Aernouts et al., 2022). Evidence from slum-adjacent hubs in African cities indicates that hubs perceived as externally driven or elite-oriented struggle to attract and retain low-income users, whereas those that incorporate community representatives into boards, employ staff from the neighbourhood and collaborate with local organisations are better able to build trust and maintain engagement (Abebe, 2024; Mshelia & Eke, 2025). These hybrid governance arrangements illustrate how hub models are reworked to fit social and political dynamics in informal settlements.

Design and service adaptation is another crucial dimension. Research on hubs and living labs in disadvantaged areas documents adjustments in pricing models, programme content, language and scheduling to accommodate residents whose income is irregular, working hours are long and literacy levels vary (Primo & Paiva, 2024; Stojanova et al., 2022). Tech hubs that serve low-income communities often prioritise short, modular training in basic digital skills, entrepreneurship and livelihood-relevant applications rather than long, intensive accelerator programmes tailored to high-growth start-ups (Primo & Paiva, 2024; Abebe, 2024). Programmes that offer childcare, flexible scheduling and instruction in local languages have been found to increase participation among women and other marginalised groups in informal settlements. Spatial and infrastructural adaptations are equally significant. Locating hubs within or immediately adjacent to slums, ensuring safe and accessible routes, providing reliable power and connectivity, and designing safe communal spaces can shift hubs from being distant, aspirational institutions to everyday resources embedded in neighbourhood life (Chakraborty et al., 2015). These examples illustrate that global hub templates are constantly re-negotiated on the ground, with local actors adapting governance, services and infrastructure to align with the lived realities of slum residents.

Despite growing literature on innovation hubs and informal urban contexts, there remains limited empirical work examining how residents of slum settlements interpret global best-practice narratives and how these perceptions shape their actual engagement with hubs. In particular, few studies combine qualitative insights with quantitative analysis to examine how perceptions of international models and localised adaptations influence hub usage. Most existing studies focus either on ecosystem-level analyses of hubs or on descriptive accounts of community innovation initiatives, leaving limited systematic evidence on how slum residents themselves understand and evaluate global hub models in relation to their everyday socio-economic realities. This study addresses this gap by analysing both dimensions through a mixed-methods design in Tudunwada, Abuja. By integrating qualitative insights from focus group discussions with quantitative analysis of survey data, the research provides empirical evidence on how global best-practice narratives are interpreted, adapted, and sometimes contested within the context of an informal settlement. In doing so, the study contributes to ongoing debates about the transferability of innovation hub models and the conditions under which they can support more inclusive urban innovation ecosystems in low-income urban environments.

METHODOLOGY

This study was grounded in a pragmatic research philosophy, which views qualitative and quantitative methods as complementary tools for understanding complex social problems and for generating actionable evidence for policy and practice (Creswell & Clark, 2018). Data were collected concurrently through two focus group discussions and a structured household survey with residents of Tudunwada. The focus groups brought together 16 purposively selected participants with variation in age, gender, socio-economic status, and familiarity with digital technologies, in order to capture diverse experiences with innovation hubs and local livelihood strategies. Discussions followed a semi-structured guide that covered international experiences of hubs, perceptions of "what works" in other countries, and how such models might be adapted to the realities of life in the slum, as well as experiences with existing training and capacity-building initiatives. In parallel, a survey questionnaire was administered to approximately 100 adult residents, of which 83 valid responses were returned, providing an 83% response rate and an adequate sample for exploratory analysis in a hard-to-enumerate population. Although the resulting sample size is relatively modest, it is consistent with exploratory studies in informal settlements where household enumeration and survey access can be difficult due to mobility, informal housing arrangements and limited household records. The questionnaire captured socio-demographic characteristics, exposure to innovation hubs, perceptions of international best practices, views on localised adaptations and capacity-building, and self-reported use of hub services.

The analysis for this paper focuses specifically on the components of the dataset related to international "best practice" and local adaptation of hub models. Qualitative data from the focus groups were transcribed and analysed thematically, following Braun and Clarke's (2006) six-phase approach to identify patterns in how participants understood global hub models, judged their relevance for slum residents, and described concrete adaptations in governance, programming and infrastructure that would make hubs more effective in their context. Quantitative data were entered into a statistical package and analysed using descriptive statistics and multiple linear regression to examine the association between indices capturing perceived alignment with international best practices, perceived local adaptation and capacity-building, and the dependent variable of

innovation hub usage, while controlling for key economic and socio-demographic factors. The convergent design allowed qualitative insights on the meaning and practice of "best practice" and localisation to be contrasted with, and used to interpret, the statistical patterns in hub usage, thereby providing a more nuanced understanding of how global models are translated, reworked or resisted in a slum settlement context.

To operationalise the key concepts used in the quantitative analysis, the survey instrument included several Likert-scale items capturing respondents' perceptions of innovation hubs. The Best Practices index measured respondents' agreement with statements related to internationally recognised hub models, including access to digital infrastructure, mentorship, structured training programmes and entrepreneurial networking. The Localised Adaptations index captured perceptions of how well hubs were adapted to the local context, including affordability, accessibility, relevance to local livelihoods, and the use of local languages in training programmes. Responses were recorded on a five-point Likert scale ranging from strongly disagree to strongly agree and aggregated to form composite indices used in the regression analysis. The indices were constructed by averaging responses across the relevant items for each construct, producing continuous variables ranging from 1 to 5, where higher scores indicate stronger endorsement of international best practices or stronger perceptions of local adaptation. Innovation hub usage was measured as a binary self-reported variable indicating whether respondents currently use an innovation hub. To ensure internal consistency of the constructed indices, reliability testing was conducted using Cronbach's alpha, which is commonly used to assess the coherence of multi-item survey measures in social science research.

FINDINGS AND DISCUSSION

Demographic Profile of Participants

Figure 1 presents the demographic characteristics of the focus group participants, ensuring diverse representation across gender, age, education, employment, and income levels. The sample was evenly split by gender, with 50 percent male and 50 percent female respondents. Participants were predominantly young, as 31.3 percent were aged 18–25 years and 37.5 percent were 26–35 years, meaning more than two-thirds were under 36. Educational attainment ranged from primary to tertiary level: 25 percent had completed only primary education, while 37.5 percent had secondary education and 37.5 percent reported tertiary qualifications.

In terms of livelihoods, 43.8 percent were self-employed, 25 percent were in formal employment and 31.3 percent were unemployed, reflecting a labour market dominated by informal and own-account work. Income levels were generally low, with 43.8 percent earning below ₦30,000 per month and another 43.8 percent between ₦30,000 and ₦50,000; only 12.5 percent reported incomes above ₦50,000. Household sizes were mostly moderate to large: 43.8 percent lived in 4–6 person households, 31.3 percent in 1–3 person households and 25 percent in households with seven or more members, consistent with dense, low-income urban living conditions.

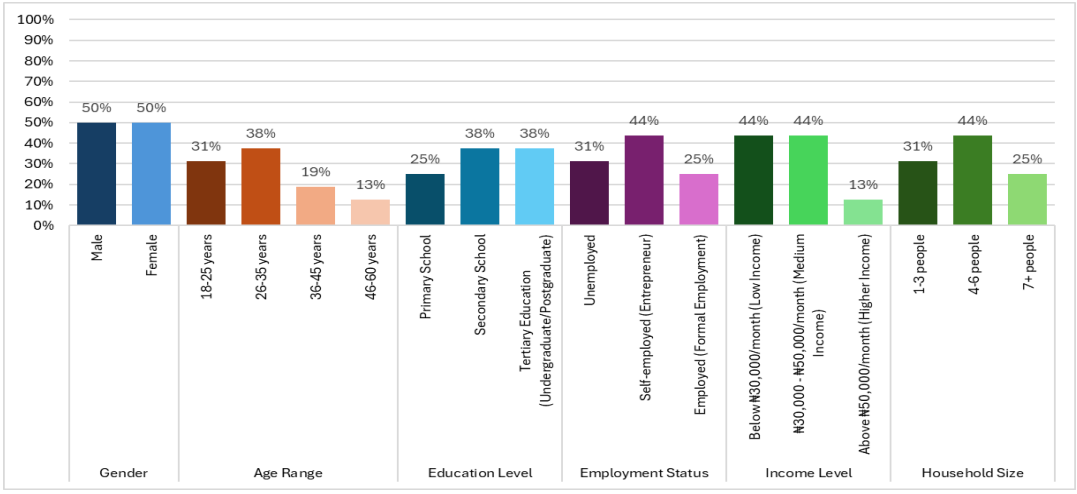

Figure 1: Demographic characteristics of FGD participants

Source: Authors' field survey (2025)

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Figure 2 presents the demographic characteristics of the quantitative survey participants, highlighting diversity across gender, age, education, employment and income. In terms of gender, 31.3 percent identified as male and 30.1 percent as female, while a relatively large share (38.6 percent) preferred not to disclose their gender. The age profile is broadly distributed: 27.7 percent were aged 18–25 years, 20.5 percent were 26–35 years, 21.7 percent were 36–45 years, 19.3 percent were 46–60 years and 10.8 percent were above 60, indicating participation from both younger and older adults. Educational attainment varied widely, with 26.5 percent reporting no formal education, 18.1 percent having primary schooling, 16.9 percent secondary education, and 19.3 percent each holding tertiary or vocational qualifications.

Employment status was mixed: 28.9 percent were unemployed, 27.7 percent were in informal employment, 22.9 percent in formal employment and 20.5 percent self-employed as entrepreneurs, reflecting the importance of both informal and precarious work. Income levels were generally modest, with 26.5 percent earning below ₦20,000 per month, 27.7 percent between ₦20,001 and ₦50,000, 20.5 percent between ₦50,001 and ₦100,000, and 25.3 percent above ₦100,000, pointing to substantial variation in economic conditions among respondents.

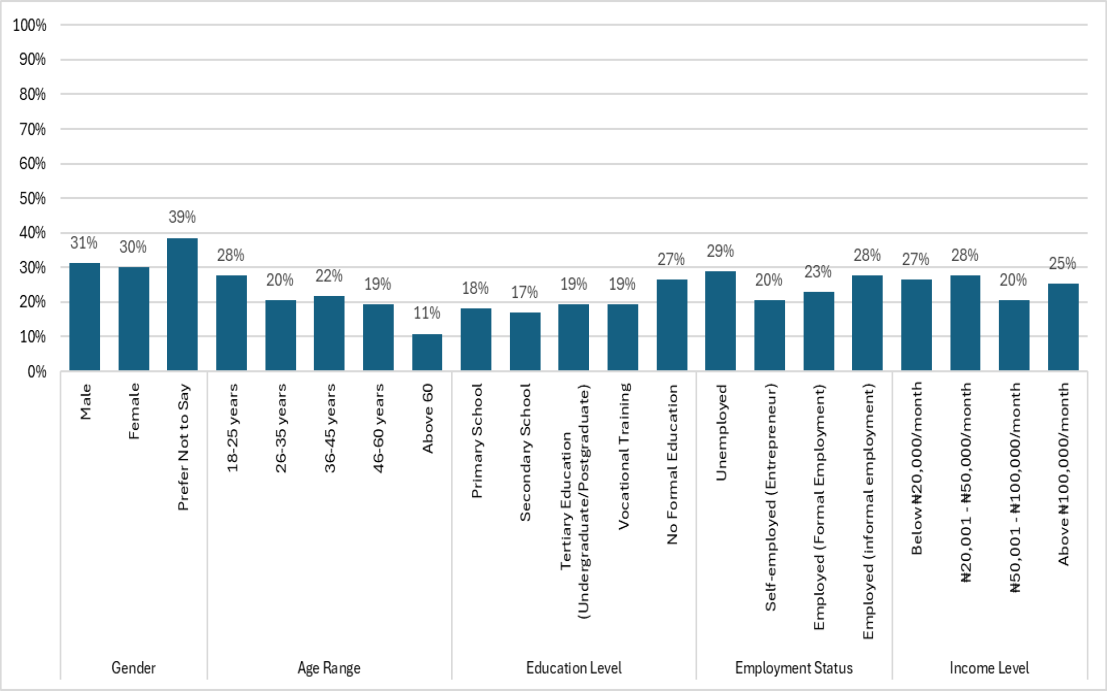

Figure 2: Demographic Characteristics of Quantitative Survey Participants

Source: Authors' field survey (2025)

International Experiences and Best Practices in Establishing Innovation Hubs in Slum Communities

The first objective of this study was to investigate international experiences and best practices in establishing and utilising innovation hubs as mechanisms for addressing urban poverty in slum areas. This section's discussion explored how global case studies, experiences from various countries, and lessons learned can inform the establishment and operation of innovation hubs in slum communities, particularly in Abuja, Nigeria. The focus group discussions provided valuable perspectives on what participants perceived as successful strategies from other parts of the world and how these strategies might be adapted to suit the unique socio-cultural and economic dynamics of slum communities in Abuja.

The key themes from the FGDs regarding international experiences and best practices include successful global case studies, the adaptation of innovation hub models to local contexts, the role of international collaborations, and challenges faced by global models in slum areas. Participants were eager to learn from successful models abroad, yet they expressed skepticism about whether such models would work in their specific circumstances without significant adaptations.

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Theme 1: Successful Global Case Studies

A key theme identified in the discussions was the interest in successful international case studies where innovation hubs have notably alleviated urban poverty. Participants referenced models from countries like India, Kenya, and South Africa, where innovation hubs have successfully fostered entrepreneurship, provided digital skills, and facilitated economic opportunities for underserved populations. One male participant, aged 18-25, highlighted:

"I've heard about these hubs in India where young people learn skills and start businesses. Something like that could work here too, especially if it helps us learn skills to improve our businesses or get jobs."

The reference to India's success with innovation hubs reflects a broader understanding among participants that these models can be transformative if well-designed. Participants pointed to initiatives like those in India, where innovation hubs have been implemented, focusing on skills training, mentorship, and entrepreneurship development. These hubs have enabled individuals to start businesses, generate income, and escape poverty.

Another participant from the 46-60 age group noted:

"In South Africa, there are places where people come together to work on tech and create businesses. If we had something like that, focusing on local needs, it could help us too."

This response underscores the importance of both technology-driven and locally relevant solutions. Participants emphasized the need for innovation hubs specifically designed to address the unique challenges faced by slum communities. The South African model, in particular, resonated with some participants due to its emphasis on community involvement, which enabled the creation of businesses that met local needs and contributed to poverty alleviation.

A female participant in the second FGD shared:

"I saw on TV how in Kenya, they have hubs where young people learn digital skills and start businesses online. Something like that could help us too."

Theme 2: Adapting International Models to Local Contexts

Despite recognising successful international models, participants firmly believed that any innovation hub model introduced in Abuja's slum communities must be carefully adapted to the local socio-economic and cultural context. Participants emphasised that solutions that worked in countries with different socio-political environments might not directly translate to success in Nigeria without considering the specific dynamics of slum communities.

A female participant in the 26-35 age group explained:

"We can learn a lot from what others have done, but it has to be something that works for us here. We have different needs, challenges, and ways of doing things."

This quote highlights the importance of contextualising global models to ensure they are relevant to the community's needs. The concerns raised by participants about adaptation suggest that importing models without tailoring them to local conditions could lead to failure. For example, participants emphasised the need for innovation hubs to provide digital skills training and incorporate locally relevant practices such as agriculture, small-scale trade, or local craftsmanship.

A male participant in the second FGD suggested:

"They should give free or low-cost training in digital skills, business management, and financial literacy. Also, they need to connect us to real job opportunities."

Theme 3: Role of International Collaboration and Support

A recurring theme in the FGDs was the role of international collaborations and partnerships in ensuring the success and sustainability of innovation hubs. Participants expressed optimism about the potential for global organisations, development agencies, and foreign investors to play a crucial role in supporting the development and sustainability of innovation hubs in slum communities. Several participants expressed that external funding and expertise could help overcome some of the challenges faced by slum communities, such as limited resources, inadequate infrastructure, and a lack of technical expertise.

A male participant in the 36-45 age group remarked:

"Having international partners could help us get the right equipment and training. Partnering with organizations that know how to set up these hubs will work better for us."

Others echoed this sentiment, believing that international expertise could provide the technical support and capacity-building that local hubs often lack. Furthermore, international collaborations were viewed as a means to attract the latest technological advancements, enhance training quality, and increase the credibility of innovation hubs within the local community.

A female participant in the second FGD added:

"Some people can't read and write well, so they should also have training in our local languages."

Theme 4: Challenges of Global Models in Slum Areas

Despite the enthusiasm for international models, participants also expressed concerns about the applicability of these models in slum settings. Some raised issues, such as the lack of infrastructure, limited access to electricity, and internet connectivity, which could pose significant barriers to the successful operation of innovation hubs in these communities. Additionally, participants were aware that the global success of innovation hubs often relies on factors such as stable governance, effective policy frameworks, and financial stability - conditions that may not always be present in slum areas.

A participant in the 46-60 age group summarized the concerns:

"These hubs work well in places with infrastructure, electricity, and support from the government. But in our slums, we don't always have these things, so it might be hard for us to have a successful hub."

This response underscores the challenges faced in implementing innovation hubs in areas with inadequate infrastructure and governance. Innovation hubs may struggle to achieve long-term success without addressing these structural issues. Participants expressed concerns about the reliability of electricity and internet services, which are critical for the functioning of many innovation hubs.

A male participant in the second FGD suggested:

"Hubs in other countries offer online freelancing courses. We need that so we can work for international clients."

Table 1: Summary of Responses by Theme

Theme	Key Insights
Successful Global Case Studies	International models from countries like India, South Africa, and Kenya demonstrate the potential of innovation hubs to foster entrepreneurship and digital skills.
Adapting International Models to Local Contexts	Successful global models must be adapted to the local context, taking into account the unique socio-economic, cultural, and infrastructural challenges of slum areas.
Role of International Collaboration and Support	External partnerships and funding can provide the

	necessary resources, expertise, and credibility for innovation hubs in slum communities.
Challenges of Global Models in Slum Areas	The lack of infrastructure, unreliable utilities, and governance challenges in slum areas could hinder the effectiveness of global innovation hub models.

Impact of Localised Adaptations and Capacity-Building Initiatives

The second objective of this study evaluates how localised adaptations and capacity-building initiatives influence the effectiveness of innovation hubs in slum settlements. Given the unique socio-economic challenges in these communities, innovation hubs must be designed to meet the specific needs of residents rather than applying generic models. The FGDs revealed critical themes, including the need for contextualised training programs, community participation in capacity building, localised resources and infrastructure, and the balance between addressing immediate and long-term challenges. Participants emphasised that innovation hubs must be inclusive, practical, and aligned with the realities of slum residents to have a sustainable impact.

Theme 1: Contextualized Training Programs

A prominent theme that emerged from the discussions was the importance of designing training programs tailored to the specific needs of slum residents. Many participants emphasized that while digital skills training is valuable, innovation hubs should also incorporate practical skills, such as financial literacy, small business management, and market strategies, to make their programs more impactful. Some participants expressed frustration that existing innovation hubs primarily focus on advanced digital skills, which are not immediately beneficial for those engaged in informal economic activities.

A female participant from the second FGD, aged 26–35, shared:

"I went to one once, but they were teaching things that didn't seem useful for small business owners like me. They should focus on things that help us immediately."

This sentiment highlights the importance of innovation hubs in offering training that directly contributes to economic empowerment by focusing on practical, income-generating skills. Another participant from the first FGD in the 26–35 age group reinforced this idea:

"It's good to learn about computers and the internet, but we also need to know how to run our businesses better, save money, and improve what we are already doing. If the hub only teaches digital stuff, it's not enough."

Additionally, participants suggested that training programs should be offered in local languages and structured to accommodate individuals with limited formal education. A female participant in the second FGD, aged 36–45, noted:

"If they bring trainers who understand our struggles, it would be better. Some of us don't even have smartphones, so we need help from the basics."

This highlights the necessity of adapting training content to cater to different literacy levels and technological familiarity, ensuring that no one is excluded from the opportunities provided by innovation hubs.

Theme 2: Community Participation in Capacity Building

Another major theme was the significance of involving community members in designing and delivering training programs. Participants emphasized that innovation hubs should not be imposed externally but instead developed in collaboration with residents to ensure relevance and acceptance. Many participants expressed that community engagement in planning innovation hubs would help foster trust, improve participation, and create programs better aligned with local needs.

A male participant from the second FGD, aged 18–25, explained:

"Not really. Some of them focus only on young people who are already educated. They don't think about people who sell in the market or those who don't know technology."

This response suggests that the perception of exclusivity discourages specific demographics from engaging with innovation hubs. Similarly, a male participant in the first FGD, aged 36–45, stated:

"If we are involved in planning these hubs, we can tell you what will work for us. Without local people's input, it's hard for these things to succeed."

These responses reinforce the idea that local participation in decision-making ensures that innovation hubs serve the entire community rather than just specific groups. Some participants suggested that having local community leaders manage or oversee hub activities would increase participation. A participant in the second FGD, aged 46–60, commented:

"They should also allow young people from this area to work in the hubs. If we see familiar faces, we'll trust them more."

This statement indicates that residents may feel more comfortable engaging with innovation hubs if they are staffed and operated by people they know and trust.

Theme 3: Localized Resources and Infrastructure

A recurring concern among participants was the accessibility and physical placement of innovation hubs. Many expressed that hubs must be established in locations that are easily accessible and integrated with other essential services, such as markets and transportation. Participants also highlighted infrastructural barriers, including poor electricity supply and unreliable internet, which limit the effectiveness of innovation hubs in slum areas.

A female participant in the first FGD, aged 36–45, explained:

"If the hubs are set up in places far from us or without good transport links, it will be hard for people to access them. It should be easy for us to go there, and it should be where we can get other things we need, like food or a market."

This response illustrates the importance of convenience and accessibility in determining the success of innovation hubs. A male participant in the second FGD, aged 46–60, added:

"They should offer practical training that helps people earn money quickly, like teaching how to use mobile banking or how to sell online."

These insights suggest that innovation hubs should not only provide skill-building but also support immediate economic activities, such as mobile banking, digital sales, and business marketing.

Theme 4: Addressing Both Immediate and Long-term Challenges

While many participants agreed on the need for immediate economic relief, they also recognised the necessity of long-term solutions that address the structural causes of poverty. Participants acknowledged that training and skill-building initiatives must be supplemented with job creation opportunities, networking platforms, and business financing options to have a lasting impact.

A male participant in the first FGD, aged 46–60, summarised this issue:
"We need both. There should be immediate help for those who need money to survive now, but there should also be a long-term plan that looks at the bigger problems, like lack of jobs or education."

Similarly, a male participant in the second FGD, aged 26–35, commented:
"They should give free or low-cost training in digital skills, business management, and financial literacy. Also, they need to connect us to real job opportunities."

These responses highlight the dual need for short-term economic solutions and long-term development strategies. While immediate relief is essential for struggling households, innovation hubs must also focus on sustainable economic growth by linking residents to employment and business opportunities.

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Table 2: Summary of Responses by Theme

Theme	Key Insights
Contextualised Training Programs	Training programs must be tailored to local needs, focusing on digital skills and practical skills such as business development, financial literacy, and market strategies.
Community Participation in Capacity Building	Involving community members in the planning and delivery of training ensures that the programs are culturally relevant, locally appropriate, and more likely to succeed.
Localised Resources and Infrastructure	Innovation hubs should be built around community infrastructure, ensuring easy access and integration with other essential services such as markets and transportation.
Addressing Both Immediate and Long-term Challenges	Effective innovation hubs must strike a balance between short-term economic relief and long-term solutions to structural problems, such as a lack of education and employment opportunities.

Test of Hypothesis

This section presents the results of the multiple linear regression analysis examining the relationship between perceived international best practices, localised adaptations, and the dependent variable: current innovation hub usage ("Do you currently use an innovation hub?"). The model assessed whether respondents' perceptions of how closely hubs align with global best practice and how well they are adapted to local conditions help to explain variation in current hub use among Tudunwada residents.

The model produced an R value of 0.296 and an R^2 of 0.087, indicating that perceived best practices and localised adaptations jointly explain about 8.7% of the variance in current hub usage. The adjusted R^2 of 0.065 suggests that, after adjusting for model complexity, the explanatory power remains modest but non-trivial. The standard error of the estimate (0.486) points to a fair amount of unexplained variation, which is expected in a small, heterogeneous slum population where many unobserved factors may influence hub use.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.296[a]	.087	.065	.486

a. Predictors: (Constant), Localised Adaptations, Best Practices

The ANOVA results show that the overall regression model is statistically significant ($F(2, 80) = 3.832$, $p = 0.026$). This means that, taken together, perceived international best practices and localised adaptations have a statistically significant combined association with current hub usage. In other words, the null hypothesis that both predictors have no joint effect on hub use is rejected at the 5 percent level.

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.812	2	.906	3.832	.026[b]
	Residual	18.911	80	.236		
	Total	20.723	82			

a. Dependent Variable: Innovation Hub Usage

b. Predictors: (Constant), Localised Adaptations, Best Practices

However, the pattern of individual coefficients is more nuanced. The coefficient for best practices is negative and statistically significant ($B = -0.089$, $t = -2.586$, $p = 0.012$), indicating that higher scores on the best-practices scale are associated with a lower likelihood of currently using an innovation hub. Substantively, this

counter-intuitive result may suggest that respondents who are more aware of, or strongly endorse, international hub standards are also more critical of the hubs available to them, or that existing hubs in or around Tudunwada fall short of those expectations, reducing their willingness to use them. By contrast, localised adaptations have a small, negative and non-significant coefficient (B = -0.018, t = -0.780, p = 0.438), implying no statistically detectable association between perceived adaptation to local conditions and current hub usage in this sample.

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.290	.305		7.517	.000
	Best Practices	-.089	.034	-.277	-2.586	.012
	Localised Adaptations	-.018	.024	-.084	-.780	.438

a. Dependent Variable: Innovation Hub Usage

DISCUSSION

The findings on international experiences and best practices show that slum residents are not passive recipients of imported models but active interpreters of what "works" elsewhere. Across both focus groups, participants repeatedly referenced examples from India, Kenya, and South Africa where innovation hubs have provided digital skills, mentoring, and entrepreneurial support to marginalised groups, often under initiatives such as Digital India or precinct style hubs like Tshimologong (Meena, 2015; Abrahams, 2020; Sharma et al., 2025). These narratives closely mirror the literature, which documents how hubs can bridge digital divides and open pathways into new labour markets when linked to skills development and incubation. Participants' enthusiasm for these models reflects a clear aspiration for similar opportunities in Abuja's slums, especially for young people seeking skills, start up support, and online work. At the same time, the emphasis on community involvement and locally driven problem solving in the South African examples resonated strongly, reinforcing arguments that hubs are most effective where they are embedded in local socio economic realities rather than functioning as generic tech spaces (Abrahams, 2020; Friederici, 2019).

However, both the qualitative data and the wider literature caution against treating these international models as ready-made solutions. Participants consistently stressed that innovation hubs in Abuja's slum communities must be adapted to local livelihoods, educational levels and cultural norms, which mirrors critical work on ICT-for-development and African tech hubs that warns against one-size-fits-all transfers in low-income settings (Avgerou, 2010; Friederici, 2019). They argued that while digital skills are important, hubs will only be meaningful if programmes also address everyday economic activities such as small-scale trade, agriculture and local crafts, and if they integrate business management, financial literacy and market-access support alongside technical training. Evidence from agricultural innovation platforms and digital agriculture in Africa similarly shows that combining technical tools with business support and market linkages is more effective for improving livelihoods than stand-alone digital training (Davies et al., 2017; Abate et al., 2023). Participants also highlighted the need for hubs to respond to both immediate and long-term challenges: providing short-term income opportunities while simultaneously building capabilities that address deeper constraints such as low education and systemic unemployment. This dual focus resonates with capability-oriented and urban poverty scholarship, which argues that effective interventions must connect short-term livelihood gains with longer-term structural change in assets, agency and urban services (Kabeer, 2016; Natarajan et al., 2022; Hossain et al., 2024).

International collaboration emerged as a double edged but necessary condition in the discussions. On one hand, participants saw partnerships with international organisations, development agencies, and foreign investors as essential for accessing funding, equipment, technical expertise, and credible models for hub design. Their views echo experiences from India and Kenya, where collaborations with actors such as the World Bank and DFID have supported the establishment of digital entrepreneurship hubs and incubation programmes (Hakizimana & Muathe, 2023; Soluk et al., 2021). On the other hand, participants were acutely aware of the structural constraints that distinguish Abuja's slum settlements from many celebrated international cases. They pointed to unreliable electricity, weak internet connectivity, and poor transport links as core barriers, aligning

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with evidence that inadequate infrastructure can severely undermine the operation of hubs in low income areas (Mano, 2021; Züfle & Bickenbach, 2025). Concerns about unstable governance, limited policy support, and broader economic precarity also surfaced, reinforcing studies that identify governance quality and political stability as critical for the long term sustainability of innovation hubs in developing countries (Mansuri & Rao, 2012; Züfle & Bickenbach, 2025). For participants, international models and collaborations are valuable, but only if they are mediated through local leadership, community participation, and realistic assessments of infrastructural constraints (Caprotti et al., 2025).

The regression analysis provides an additional dimension that enriches the qualitative findings. The model shows that perceptions of international best practices and localised adaptations jointly explain a modest but statistically significant share of variation in current hub usage ($R^2 = 0.087$; $F(2, 80) = 3.832$, $p = 0.026$). However, only the best-practices variable is individually significant, and its negative coefficient ($B = -0.089$, $p = 0.012$) indicates that higher endorsement of international best-practice models is associated with a lower likelihood of currently using a hub, while localised adaptations are not statistically significant predictors of usage ($B = -0.018$, $p = 0.438$). This counter-intuitive pattern suggests that residents who are most aware of, or most strongly believe in, international hub standards may also be the most critical of the hubs actually available to them, perceiving a gap between global narratives and local realities. This pattern can also be interpreted through the lens of policy transfer theory, which highlights how policy ideas and institutional models circulate globally as simplified "best practice" templates that are often detached from the institutional, infrastructural and socio-economic conditions in which they originally emerged. When these models are introduced into markedly different contexts such as informal settlements, they may generate expectations that local implementations struggle to meet. As a result, residents who are more familiar with global hub narratives may compare local hubs against these international benchmarks and perceive them as inadequate or incomplete versions of the promoted models. This expectation gap between global discourse and local implementation can therefore discourage participation, even when residents broadly support the idea of innovation hubs.

At the same time, the non-significant effect of localised adaptations and the low overall R^2 indicate that, although contextualisation and capacity-building are central to how participants define a "good" hub, they do not by themselves determine current usage in a context where affordability, proximity, social trust, awareness and access to complementary resources such as finance and markets likely play a larger role (Abate et al., 2023; Kabeer, 2016). This finding suggests that while adapting global hub models to local contexts is necessary, it may not be sufficient to drive widespread engagement unless these initiatives are also embedded within broader support systems that address structural barriers faced by slum residents. In other words, hub design must be complemented by improvements in infrastructure, access to finance, labour market linkages and community trust in order to translate positive perceptions into sustained participation. These findings, therefore, point to a critical tension: international experiences and best practices clearly shape residents' expectations and policy discourse, but unless they are matched by concrete, locally grounded adaptations and supportive structural conditions, they may raise aspirations without translating into widespread, sustained use of innovation hubs in slum settlements.

CONCLUSION

This study provides crucial insights into the role of innovation hubs in addressing urban poverty within slum communities in Abuja. It investigates global models of innovation hubs and related initiatives such as living labs and urban innovation ecosystems, highlighting how these have been codified into best practice narratives centred on particular organisational forms, services, and performance metrics. Also, the study examined how hubs operating in Nigerian slum settlements localise these models through adaptations in governance, programming, and capacity-building, and how these adaptations mediate their effectiveness in addressing urban poverty. The study concludes that innovation hubs represent a transformative opportunity for addressing urban poverty in slum communities, particularly in Abuja's Tudunwada slum. By fostering entrepreneurship, providing access to digital resources, and facilitating community collaboration, these hubs have the potential to bridge socio-economic divides and integrate marginalised populations into the digital economy.

The research highlights the need for locally tailored solutions that draw on international best practices. Successful models from India and South Africa demonstrate that innovation hubs can be powerful tools for alleviating urban poverty when they align with the unique challenges and opportunities of local contexts.

Localised capacity-building initiatives and community engagement are pivotal for sustainability. Innovation hubs can foster ownership and relevance by engaging community members in the planning and management process. The study found that collective action and social cohesion, supported by these hubs, can drive significant progress in reducing poverty and enhancing socio-economic outcomes.

This study has several limitations that should be acknowledged. First, the quantitative analysis is based on a relatively small sample of 83 respondents drawn from a single informal settlement. While this sample size is acceptable for exploratory analysis in hard-to-enumerate populations, it limits the statistical power of the regression model and the generalisability of the findings beyond the study area. Future studies could build on this research by employing larger samples across multiple settlements and cities in order to test the robustness of the relationships identified here.

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