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Metaverse-Enabled Entrepreneurship in Nigerian Universities: Institutional Readiness, Entrepreneurial Opportunities, and Policy Implications

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Abstract: The metaverse is emerging as a novel digital frontier with significant global implications for entrepreneurship, innovation, and higher education. However, empirical evidence on its entrepreneurial potential within universities in developing countries remains limited. This study investigates Nigerian universities' metaverse-enabled digital entrepreneurship, focusing on institutional readiness, entrepreneurial opportunities, and policy implications. The study uses a mixed-methods research methodology that is informed by the Triple Helix framework, integrating survey data from students and academic staff across selected Nigerian universities with qualitative insights from interviews that are semi-structured. Regression, correlation, and descriptive statistics were used to analyse quantitative data, while theme analysis was used to evaluate qualitative data analysis. The result showed that although students demonstrate high levels of digital readiness and entrepreneurial interest, institutional preparedness for metaverse adoption remains moderate, constrained by infrastructural deficits, limited policy awareness, and weak industry linkages. Significant positive relationships were observed between policy awareness, digital infrastructure, and entrepreneurial intentions within metaverse-enabled environments. The study further identifies emerging entrepreneurial opportunities in virtual education services, digital content creation, and immersive business models, alongside persistent challenges related to regulatory uncertainty and funding constraints. This research advances digital entrepreneurship. literature by offering context-specific evidence from Nigerian universities and highlights the need for coordinated policy frameworks, institutional reforms, and university–industry collaboration to harness metaverse-driven entrepreneurial growth.

Keywords: *Metaverse, Digital Entrepreneurship, Higher Education Institutions, Innovation Policy, Nigeria.*

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I. INTRODUCTION

Digital technologies' quick development has drastically changed the nature of entrepreneurship, reshaping how opportunities are identified, ventures are created, and value is generated across economies. Beyond conventional digital platforms, the emergence of the Metaverse represents a new technological frontier that is redefining digital interaction, innovation ecosystems, and entrepreneurial activity. Technologies like virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and blockchain enable the Metaverse, a persistent, immersive, and interconnected virtual environment. It has the capacity to produce whole new business models, markets, and ways to engage in the economy (Dionisio, Burns, & Gilbert, 2013; Ball, 2022).

Globally, The Metaverse is becoming more widely acknowledged as a catalyst for the next phase of the digital economy, with projections suggesting substantial contributions to global output through virtual commerce,

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digital services, creative industries, and platform-based entrepreneurship (Dwivedi et al., 2022). Unlike earlier waves of digital entrepreneurship, which relied primarily on web and mobile technologies, metaverse-enabled entrepreneurship is characterized by immersive value creation, virtual asset ownership, experiential services, and decentralized economic interactions. These characteristics expand entrepreneurial possibilities while simultaneously introducing new institutional, regulatory, and capability-related challenges.

In developing economies such as Nigeria, where youth unemployment, skills mismatch, and limited access to traditional capital persist, the metaverse-enabled digital entrepreneurship presents both an opportunity and a paradox. On the one hand, Nigeria has a large, youthful, and digitally engaged population, alongside a rapidly expanding digital economy driven by fintech, e-commerce, and platform innovation (World Bank, 2023). However, structural constraints, including inadequate digital infrastructure, uneven technological capabilities, and weak policy coordination, continue to limit the country's ability to fully leverage emerging technologies for inclusive entrepreneurial growth (Federal Ministry of Communications, Innovation and Digital Economy, 2020).

In the rapidly changing digital and entrepreneurial landscape, universities have a strategic role. Universities, which are increasingly seen as innovative and entrepreneurial ecosystems, are vital in developing human capital, stimulating innovation, and facilitating the creation of ventures through industry collaboration, education, and research (Etzkowitz & Leydesdorff, 2000; Guerrero et al., 2020). Within the framework of digital transformation, academic institutions are not only knowledge production sites but also platforms for new technology experimentation, including virtual learning environments, digital incubation hubs, and technology-driven entrepreneurship programs.

Scholarly interest in the use of metaverse technology in higher education has grown, especially with respect to immersive learning, simulation-based training, and virtual collaboration (Radianti et al., 2020). However, the entrepreneurial implications of metaverse adoption within universities, especially in developing economies, remain underexplored. Institutional readiness, which is defined by the availability of digital infrastructure, faculty competence, governance structures, and curriculum alignment, is a critical determinant of whether universities can effectively support MET (Aparicio et al., 2019). Existing studies in Nigeria has revealed that while entrepreneurship education has expanded, the adoption of advanced immersive technologies within universities remains fragmented and uneven (Oyedemi & Moyo, 2021).

According to institutional theory, formal rules, normative expectations, and cognitive frameworks that support innovation all influence entrepreneurial success in addition to human talents (Scott, 2014). In this regard, policy frameworks play a decisive role in enabling or constraining entrepreneurial activities based on the metaverse. Nigeria's digital economy and information and communications technology (ICT) policies have largely focused on broadband expansion, fintech regulation, and general innovation support, with limited explicit attention to emerging virtual economies and immersive technologies. This policy gap creates uncertainty for institutions and entrepreneurs seeking to explore metaverse-enabled opportunities.

Despite the growing global discourse on the metaverse, the existing literature is largely conceptual, technologically oriented, and concentrated on developed economies. Empirical evidence on how universities in developing countries can serve as catalysts for metaverse-enabled digital entrepreneurship is limited, particularly within the Nigerian context. Few studies have integrated institutional readiness, entrepreneurial opportunity structures, and policy frameworks within a single analytical lens. This gap constrains scholarly understanding and evidence-based policymaking.

Against this backdrop, this study examines Nigerian universities' metaverse-enabled digital entrepreneurship, focusing on institutional readiness, entrepreneurial opportunities, and policy implications. Through the use of an integrated institutional and entrepreneurial ecosystem viewpoint, this research adds to the emerging literature on digital entrepreneurship, provides context-specific insights for developing economies, and informs policy and institutional strategies for fostering inclusive and sustainable participation in the metaverse economy.

II. LITERATURE REVIEW

➢ *The Metaverse and Digital Entrepreneurship*

The Metaverse has evolved from a speculative technological concept into an emerging digital economy characterized by persistent virtual environments, immersive interaction, and decentralized value creation mechanisms. The metaverse has been conceptualised by academics as a confluence of immersive technologies, such as blockchain, virtual reality (VR), augmented reality (AR), mixed reality (MR), and artificial intelligence (AI), that enable synchronous social, economic, and creative activities in shared digital spaces (Dionisio, Burns, & Gilbert, 2013; Ball, 2022). The Metaverse supports experiential engagement, user-generated economies, and virtual asset ownership, thereby expanding the scope of entrepreneurial activity beyond traditional models of digital entrepreneurship.

According to Nambisan (2017), digital entrepreneurship is the term for business endeavours that mostly rely on digital technologies for opportunity identification, venture formation, and value capture. It encompasses platform-based ventures, digital services, virtual goods, and technology-enabled business models that transcend physical boundaries. Recent literature positions the Metaverse as an extension of digital entrepreneurship, introducing new entrepreneurial logics such as immersive service delivery, virtual marketplaces, NFTs, and decentralized autonomous organizations (DAOs) (Dwivedi et al., 2022). These developments have shifted scholarly

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attention from firm-level digitalization to ecosystem-level transformations that redefine the practice of entrepreneurship.

However, while the metaverse has been widely discussed in relation to consumer behavior, gaming, and digital marketing, empirical research on metaverse-enabled entrepreneurship particularly within institutional contexts such as universities remains underdeveloped. This gap is more pronounced in developing economies, where digital innovation often outperforms institutional and regulatory adaptation.

- *Universities as Entrepreneurial and Innovation Ecosystems*

Universities are increasingly conceptualized as entrepreneurial ecosystems that facilitate knowledge creation, innovation diffusion, and venture formation. Utilising the Triple Helix Thus, Etzkowitz and Leydesdorff (2000) contend that, in addition to business and government, universities are essential to the development of innovation-driven economies. This role has expanded to include technology transfer offices, startup incubators, innovation hubs, and entrepreneurship education programs.

Empirical research shows that curriculum design, experiential learning, mentoring, and access to digital infrastructure all have a major impact on students' intents to start their own businesses (Fayolle & Gailly, 2015; Guerrero et al., 2020). With the rise of digital technologies, universities have also become key sites for DED, providing platforms for experimentation with fintech, e-commerce, and platform-based business models.

The emergence of the Metaverse further amplifies this role by enabling universities to host virtual learning environments, simulation-based entrepreneurship training, and virtual incubation spaces. Scholars argue that metaverse-enabled education can enhance entrepreneurial skills by offering immersive problem-solving experiences, global collaboration, and real-time market simulation (Radianti et al., 2020). However, institutional readiness, which is defined by technological infrastructure, faculty competence, governance structures, and policy alignment, remains a critical determinant of successful adoption.

- *Institutional Readiness for Metaverse Adoption in Higher Education*

Institutional readiness refers to organizations' capacity to accept, incorporate, and maintain technological advancements. According to Aparicio et al. (2019), preparation in the context of higher education includes human capital, curricular integration, institutional leadership, digital infrastructure, and regulatory support. Inadequate infrastructure, resistance to change, and policy misalignment are major barriers to technology adoption in universities, particularly in developing economies.

Research conducted in African universities highlights persistent challenges such as unstable internet access, restricted availability of cutting-edge digital tools, inadequate faculty training, and fragmented innovation policies (Oyedemi & Moyo, 2021). Although several Nigerian colleges have established innovation hubs and entrepreneurship courses, there is still little integration of cutting-edge technology like blockchain and virtual reality (VR). This creates a mismatch between the digital aspirations of students and their institutional capacity to support emerging forms of entrepreneurship.

From an institutional theory perspective, organizations with cognitive structures that influence behaviour and innovation outcomes are shaped by formal rules, and norms, (Scott, 2014). In the context of metaverse-enabled entrepreneurship, weak institutional frameworks may constrain opportunity recognition, whereas strong institutional support can legitimize new entrepreneurial practices. This institutional readiness is more than just a technological problem but a systemic one involving governing, policy coherence, and cultural innovation acceptance.

- *Entrepreneurial Opportunities in the Metaverse Economy*

Entrepreneurial opportunities in the Metaverse extend across multiple sectors, including education, creative industries, digital retail, professional services, and virtual real estate. Scholars have identified the Metaverse as a space for opportunity co-creation, where users simultaneously act as consumers, producers, and entrepreneurs (Autio et al., 2018). This blurring of roles creates low-entry barriers for young entrepreneurs, particularly those with digital skills but limited access to traditional capital.

In developing economies, metaverse-based entrepreneurship can address structural challenges, such as unemployment and underemployment, by enabling participation in global digital markets (UNCTAD, 2023). Case studies from emerging economies indicate that targeted digital skills training and platform access can empower young entrepreneurs to generate income through virtual services, content creation, and DAT (Chen et al., 2023).

However, opportunity exploitation in the metaverse is unevenly distributed. Without institutional support and policy safeguards, digital divides may be reinforced rather than reduced. Unequal access to technology, skills, and regulatory protection may exclude marginalized groups from participating in the metaverse economy (Van Dijk, 2020). This emphasises the necessity of inclusive institutional and legislative structures that facilitate fair access to opportunities for MBE.

- *Policy Environment and Regulatory Frameworks for Metaverse Entrepreneurship (ME)*

Policy frameworks play a role in shaping digital entrepreneurship ecosystems by providing regulatory clarity, incentives, and institutional legitimacy. The existing ICT and digital economy policies in Nigeria primarily focus on broadband expansion, fintech regulation, and e-commerce development (Federal Ministry of Communications, Innovation and Digital Economy, 2020). While these policies support general digital entrepreneurship, they do not explicitly address emerging technologies, such as the

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Metaverse, blockchain-based ventures, or virtual asset ownership.

Comparative studies show that countries with proactive digital policies, such as South Korea and Singapore, have advanced more rapidly in the adoption of immersive technology by aligning education policy, innovation funding, and regulatory oversight (Park & Kim, 2022). In contrast, regulatory ambiguity in developing economies often creates uncertainty for entrepreneurs, discouraging investment and innovation.

From a policy entrepreneurship perspective, universities can act as intermediaries between government and industry by generating evidence, piloting innovations, and shaping regulatory discourse. This emphasises how crucial it is to match national digital economy plans with higher education policy in order to promote metaverse-enabled entrepreneurship.

➢ *Conceptual Framework*

➢ *Theoretical Framework*

The EEF and institutional theory served as the foundation for this investigation. According to institutional theory, formal rules, norms, and cognitive structures influence organizational behavior and adoption of innovation (Scott, 2014). The entrepreneurial ecosystem framework emphasizes the interdependence of actors, institutions, and resources in shaping entrepreneurial outcomes (Stam & Van de Ven, 2021).

By integrating these frameworks, the study conceptualized metaverse-enabled digital entrepreneurship as an outcome of interactions between institutional readiness (universities), opportunity structures (metaverse economy), and policy environment (government). This integrated approach allowed for a holistic examination of how universities can function as catalysts for TE in emerging technological spaces.

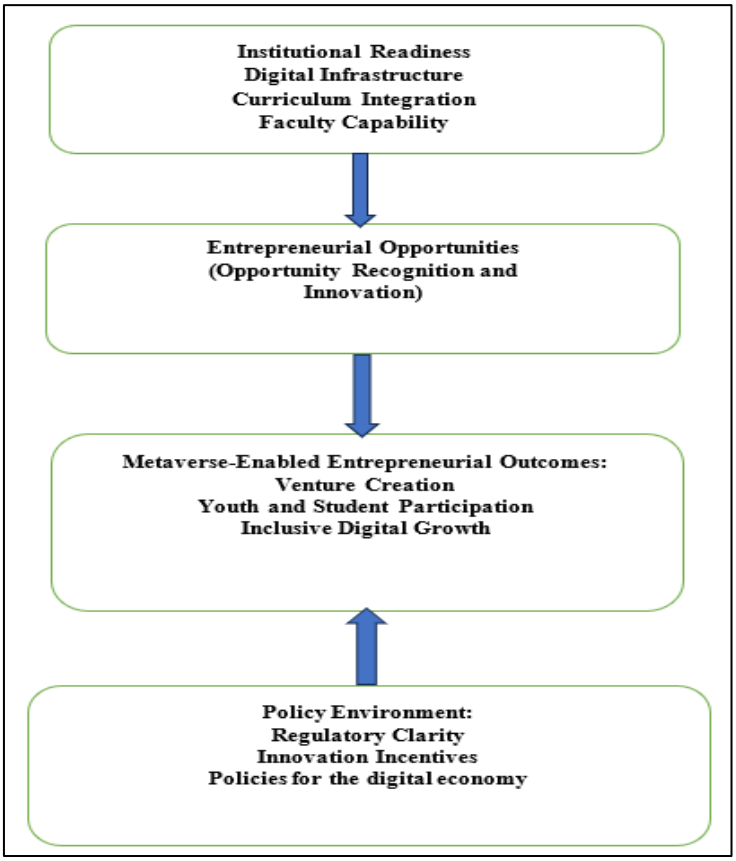

Fig 1 Conceptual Framework of the Metaverse-Enabled Digital Entrepreneurship Diagram.

The conceptual framework for the investigation is shown in Figure 1. The framework depicts the relationship between institutional readiness and the policy environment in Nigerian universities' shaping of metaverse-enabled digital entrepreneurship. Institutional readiness captured through digital infrastructure, curriculum integration, and faculty capability creates the metaverse adoption's foundational capacity. The policy environment, which encompasses regulatory clarity and innovation incentives, provides enabling conditions that support or constrain entrepreneurial activities. These factors jointly influence entrepreneurial outcomes that are enabled by the metaverse, such as opportunity recognition, venture creation, and inclusive participation. Entrepreneurial opportunities are a mediating mechanism through which institutional and policy factors translate into observable entrepreneurial outcomes.

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Table 1 Summary of Key Empirical Studies on Digital and Metaverse Entrepreneurship

Author(s)	Context	Focus	Key Findings
Nambisan (2017)	Global	Digital entrepreneurship	Digital platforms redefine entrepreneurial processes
Dwivedi et al. (2022)	Global	Metaverse applications	The Metaverse creates new business models
Guerrero et al. (2020)	Universities	Entrepreneurial ecosystems	Institutional Support Drives Student Entrepreneurship
Oyedemi and Moyo (2021)	Africa	Digital education	Gaps in infrastructure limit innovation
Chen et al. (2023)	Emerging economies	Virtual entrepreneurship	Digital skills enable global participation in education

➢ *Research Gap and its Justification*

Despite the growing global interest in digital entrepreneurship and the metaverse as an emerging virtual economy, existing studies remain largely conceptual and predominantly focus on developed economies. While earlier studies have examined entrepreneurial universities and digital entrepreneurship ecosystems, there hasn't been much focus on how emerging technologies, like the metaverse, can be used in higher education institutions in developing nations, especially in Sub-Saharan Africa.

Extant literature has examined digital transformation, ICT policy, and youth entrepreneurship in the Nigerian context; however, empirical investigations into metaverse-enabled entrepreneurship within universities remain scarce. Integrated studies that simultaneously examine institutional readiness (digital infrastructure, curriculum alignment, and faculty capacity) and the policy environment in shaping entrepreneurial opportunities and venture creation within virtual ecosystems are lacking.

Furthermore, existing research tends to treat digital entrepreneurship and policy frameworks as separate analytical domains, overlooking their interactive effects in TDE contexts. This disconnect limits the understanding of how regulatory clarity, innovation incentives, and institutional capacity jointly influence inclusive participation in EDEs.

Consequently, insufficient evidence is available to guide policymakers, university administrators, and entrepreneurship educators on how Nigerian universities can strategically position themselves within the metaverse economy. This study addresses these gaps by empirically examining Nigerian universities' metaverse-enabled digital entrepreneurship through an integrated institutional policy lens, thereby contributing context-specific insights to the global digital entrepreneurship discourse.

III. METHODOLOGY

In order to evaluate institutional readiness, the study used a convergent parallel mixed-methods research design (Creswell & Plano Clark, 2018; Tashakkori & Teddlie, 2010), combining quantitative and qualitative data to assess institutional readiness, entrepreneurial opportunities, and policy implications for Nigerian universities' metaverse-enabled digital entrepreneurship. The quantitative component evaluated readiness, infrastructural capacity, and digital literacy among students and faculty, while the qualitative component explored nuanced insights from administrators, policymakers, and tech ecosystem stakeholders (Saunders, Lewis, & Thornhill, 2019; Nambisan, 2017).

➢ *The Population Comprises:*

- Undergraduate and postgraduate students enrolled in Business Administration, Entrepreneurship, and Information and Communications Technology (ICT)-related programs at selected Nigerian universities
- Faculty members involved in entrepreneurship, innovation, and ICT curriculum delivery.
- University administrators responsible for ICT infrastructure and innovation programs.
- Policymakers and representatives from technology hubs, incubators, and entrepreneurial ecosystems.

Students were selected using stratified random sampling, ensuring representation across faculties and academic levels (Bryman, 2016). Purposive sampling was applied for faculty, administrators, and policymakers to ensure that participants have relevant expertise in digital entrepreneurship and institutional policy (Palinkas et al., 2015). 20 administrators and policymakers, 40 academic members, and 400 students from four major universities—African University of Science and Technology, University of Abuja, Baze University, and Nile University—were recruited for the study.

Table 2 Showing Sample Size and Sampling Method

Participant Category	Sampling Method	Sample Size
Students	Stratified Random	400
Faculty	Purposive	40
Admin/Policymakers	Purposive	20

The survey questionnaires were adapted from prior studies on digital entrepreneurship readiness (Ismail & Abd Karim, 2021; Nambisan, 2017). The survey assessed the availability of digital infrastructure, policy awareness,

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entrepreneurial intent, and metaverse literacy. The Likert scale (1–5) measures perceptions of institutional readiness, access to technological tools, and policy support. Semi-structured interviews with faculty, administrators, and policymakers were conducted to explore institutional enablers and barriers (Kallio et al., 2016). FGDs with students capture attitudes, expectations, and challenges related to metaverse-enabled entrepreneurship. Face and content legitimacy were verified by three subject matter experts in ICT policy and digital entrepreneurship. High internal consistency was indicated by the reliability test using Cronbach's alpha, which produced $\alpha = 0.87$ (Gliem & Gliem, 2003).

AMOS v27 and the Statistical Package for the Social Sciences v28 were used to analyse the data. Institutional preparedness levels were summarised using descriptive statistics (mean, standard deviation, and frequency). Multiple regression, correlation, and other inferential statistics. The associations between policy awareness, infrastructure preparedness, and entrepreneurial inclinations were investigated using analysis of variance (ANOVA) (Hair et al., 2022). NVivo 14 was used to conduct a theme analysis of the verbatim transcriptions of the interviews and focus group discussions (Braun & Clarke, 2021). Policy gaps, digital skills, adequate infrastructure, and student entrepreneurial motivation were among the themes. Strong conclusions were guaranteed by the triangulation of qualitative and quantitative data (Fetters et al., 2013). The collaborating universities' Research Ethics Committees granted ethical clearance. Every respondent gave their informed consent, and participation was entirely voluntary. Only the research team had access, and data security and anonymity were guaranteed (Israel & Hay, 2006).

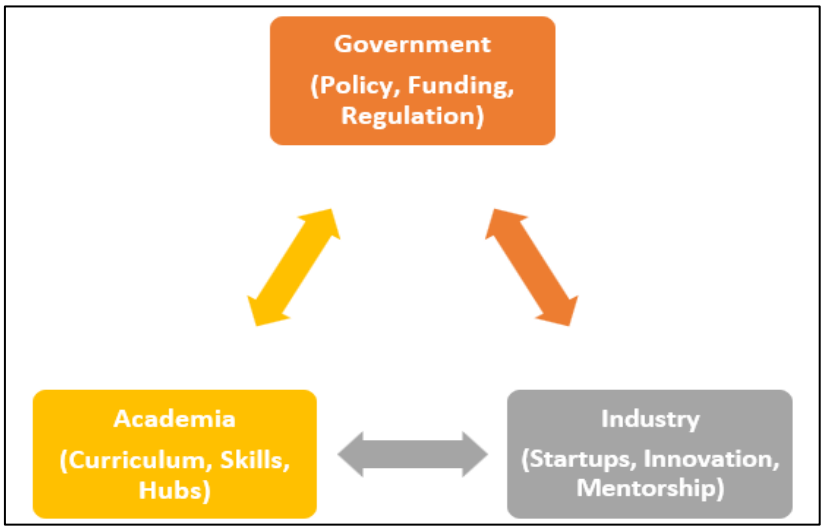

Fig 2 Adapted Triple Helix Model for Metaverse Entrepreneurship

This framework aligns with the focus of the study on policy implications, institutional readiness, and entrepreneurial growth in the metaverse space.

IV. RESULTS

A total of 460 participants, including students, faculty, and administrators/policymakers, were invited. Of these, 450 completed responses were valid, representing a response rate of 97.8%, which is sufficient for reliable quantitative and qualitative analysis (Bryman, 2016).

Table 3 Respondents Demographic and Characteristics

Demographic Variable	Category	Frequency	Percentage (%)
Participant Type	Students	400	88.9
	Faculty	40	8.9
	Administrators/Policymakers	10	2.2
Gender	Male	220	48.9
	Female	230	51.1
Age group (years)	18–25	250	55.6
	26–35	150	33.3
	36+	50	11.1
Institution	The African University of Science and Technology	120	26.7
	University of Abuja	100	22.2
	Baze University	120	26.7
	Nile University	110	24.4

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Interpretation: Strong insights for Nigerian universities were ensured by the sample's representation of age, gender, and kind of institution.

➢ *Institutional Readiness for the Metaverse-Enabled Digital Entrepreneurship*

Institutional readiness was assessed on four dimensions: information and communication technology (ICT) infrastructure, policy awareness, digital skills, and innovation support. A 5-point Likert scale (1 = Very Low, 5 = Very High) was used by respondents to score their perception.

Table 4 Institutional Readiness Indicators

Dimension	Mean Score	Std. Deviation	Interpretation
ICT Infrastructure	3.12	0.85	Moderate
Policy Awareness	2.48	0.91	Low
Digital skills (students)	3.76	0.72	High
Innovation Support	2.92	0.88	Moderate

Table 3 provides a snapshot of institutional readiness across four critical dimensions: ICT infrastructure, policy awareness, digital skills (students), and innovation support. Each dimension was assessed based on mean scores and standard deviations, offering insights into the institution's overall readiness to foster a digitally enabled and innovative environment. First, the average score of 3.12 for ICT Infrastructure indicated a reasonable degree of preparedness. While this indicates that some foundational technological systems are in place, significant room for improvement remains. The standard deviation of 0.85 highlights variability in perceptions or experiences, implying that certain stakeholders may find the infrastructure more robust than others. This unevenness could hinder consistent digital transformation efforts and calls for targeted investments to bridge gaps.

Policy Awareness, with a mean score of 2.48, reflects a low level of readiness. This is concerning because policies form the backbone of any structured initiative. A lack of awareness might stem from insufficient communication, training, or integration of these policies into daily operations. Addressing this deficit is crucial for ensuring alignment between institutional goals and actionable steps. Bridging this gap will require deliberate strategies such as workshops, policy dissemination campaigns, and leadership engagement. In contrast, Digital Skills stood out among students, with a high mean score of 3.76. This positive outcome underscores the student body's adaptability and competence in leveraging digital tools. However, these skills may not translate effectively into innovation or improved learning outcomes without adequate ICT infrastructure and supportive policies. The relatively low standard deviation (0.72) indicates a consensus in responses, and uniformity in skill levels across the student population.

Finally, Innovation Support recorded a moderate mean score of 2.92. Although not alarming, this indicates that the mechanisms to nurture creativity and experimentation are underdeveloped. Enhancing this dimension could amplify institutional impact by fostering an ecosystem in which novel ideas thrive. Overall, while there are pockets of strength, particularly in student digital skills, holistic improvements are needed to comprehensively elevate institutional readiness.

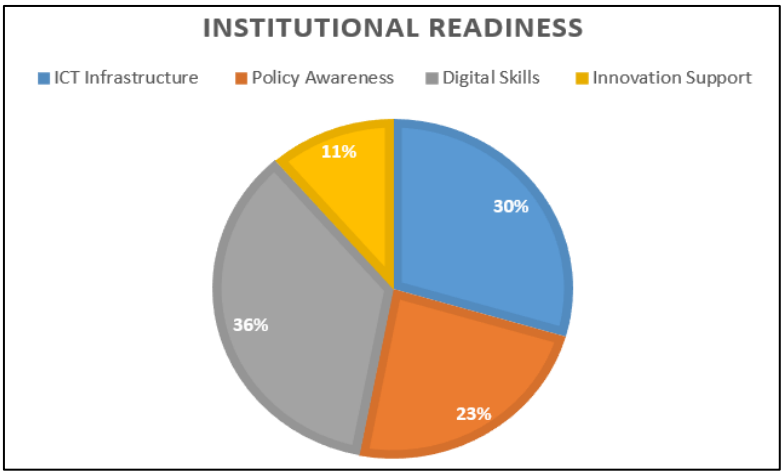

Fig 3 Institutional Readiness Pie Chart

The data highlight varying levels of institutional readiness across key dimensions, with implications for the institution's ability to foster a digitally innovative environment. ICT Infrastructure scored moderately at 3.12, indicating that some technological foundations exist, they may be insufficient or inconsistently used. This moderate readiness could limit the capacity of the institution to support advanced digital initiatives or fully leverage available resources. With a low score of 2.48, policy awareness is a significant concern. Low awareness indicates a disconnect

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between policy formulation and implementation, which can hinder coordinated efforts toward digital transformation. Without clear understanding and alignment on policies, stakeholders may struggle to effectively contribute to institutional goals.

In contrast, Digital Skills stood out positively at 3.76, reflecting a high level of readiness in that area. Students appear well-equipped to engage with digital tools, demonstrating adaptability and competence. However, robust infrastructure and enabling policies risk underutilizing these skills if they do object to them. Innovation Support recorded a moderate score of 2.92, indicating that mechanisms to encourage creativity and experimentation are present but underdeveloped. Targeted investments in ICT infrastructure, improved policy communication, and stronger frameworks for innovation must enhance institutional readiness. These improvements will ensure that student capabilities translate into meaningful outcomes, driving the institution toward greater digital maturity and sustainability.

➢ *Entrepreneurial Opportunities in the Metaverse*

Entrepreneurial opportunities were measured across four categories: virtual services startups, digital content creation, education and training, and SMEs enabling the Metaverse.

Table 5 Perceived Entrepreneurial Opportunities of Students

Opportunity Area	Mean Score	Std. Deviation	Interpretation
Virtual services (e.g., virtual shops and events)	3.84	0.76	High
Creation of Digital Content	4.02	0.68	Very High
Education and Training	3.66	0.74	High
Metaverse-enabled SMEs	3.21	0.82	Moderate

The data on opportunity areas within the context of metaverse entrepreneurship revealed significant insights into how Nigerian students perceive emerging digital possibilities. According to the analysis, it was reported that "Digital Content Creation" obtained the highest mean score of 4.02, with a 0.68 standard deviation., indicating very high potential in that area. This reveals that students view the creation of digital content as a promising avenue for innovation and economic participation, aligning with Nambisan (2017) and Ismail and Abd Karim (2021) global trends.

Similarly, "Virtual Services," such as virtual shops and events, were also highly promising, with a standard deviation of 0.76 and a mean score of 3.84. These findings indicate that students recognize the transformative power of virtual platforms in reshaping traditional business models and social interactions. These perceptions resonate with broader shifts toward immersive digital experiences worldwide.

In contrast, while "Education & Training" scored relatively high at 3.66, it was perceived as slightly less impactful compared to content creation and virtual services. The interpretation emphasized that this might reflect the awareness of students regarding the existing challenges in integrating advanced technologies into educational systems. Furthermore, "Metaverse-enabled SMEs" recorded a moderate mean score of 3.21, revealing cautious optimism about adopting metaverse technologies. Experts revealed that this moderation could stem from the uncertainties surrounding the scalability and accessibility of such innovations for local businesses.

➢ *Policy Awareness and Impact*

To determine how policy awareness and IRR affected entrepreneurial inclinations, regression analysis was used.

Table 6 Regression Analysis Results

Predictor Variable	B	Std. Error	Beta	t	p-value
ICT Infrastructure	0.312	0.085	0.276	3.67	0.001**
Policy Awareness	0.451	0.092	0.381	4.90	0.000**
Digital Skills	0.215	0.071	0.183	3.03	0.003**
Innovation Support	0.178	0.065	0.155	2.74	0.007**

$R^2 = 0.46$, $F(4,445) = 91.12$, $p < 0.001$

The factors impacting students' entrepreneurial inclinations in the context of metaverse ventures are thoroughly examined by the regression analysis shown in Table 4.4. The results showed that "Policy Awareness" was the best predictor, with a very significant p-value of 0.000 and a beta coefficient of 0.381. According to experts, this emphasises how important it is to comprehend and comply with institutional or regulatory regulations in order to influence students' inclination to seek out entrepreneurial chances. The standardized coefficient revealed that increased awareness of supportive policies significantly boosts students' confidence and motivation.

Similarly, "ICT Infrastructure" was identified as a substantial contributor, with a p-value of 0.001 and a β value of 0.276. Analysts explained that this indicates the importance of robust technological foundations in enabling students to engage effectively in digital entrepreneurship. Even promising ventures may face insurmountable barriers without adequate infrastructure, highlighting the need for continued investment in this area.

The influence of "Digital Skills" was also found to be positive and significant, with a p-value of 0.003 and a β of 0.183. The competence of students in leveraging digital tools

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plays a pivotal role in their readiness to explore Metaverse-related opportunities. However, experts cautioned that these skills must be complemented by supportive systems to maximize their impact.

"Innovation Support" demonstrated moderate but significant predictive power, with a beta of 0.155 and a p-value of 0.007. Researchers emphasized that fostering an environment conducive to experimentation and creativity is essential for sustaining entrepreneurial endeavors.

These predictors collectively explain 46% of the variance in entrepreneurial intentions ($R^2 = 0.46$), reinforcing the multifaceted nature of fostering entrepreneurial mindsets. The statistical significance of the model ($F = 91.12$, $p < 0.001$) further validates its reliability in understanding the dynamics of student engagement in metaverse ventures.

V. THEMATIC ANALYSIS

Qualitative data, analyzed through thematic analysis of interviews, revealed four key themes that provided a deeper understanding of the opportunities and challenges surrounding metaverse entrepreneurship in Nigerian universities. It was reported that "*Policy Gaps*" emerged as a significant barrier, with participants highlighting the absence of structured regulations and limited government incentives as hindrances to entrepreneurial ventures. This aligns with the quantitative finding that policy awareness had the strongest influence on entrepreneurial intentions ($\beta = 0.381$, $p < 0.001$), underscoring the need for clear and supportive regulatory frameworks.

Similarly, institutional support was minimal, with universities offering limited resources through innovation hubs and entrepreneurial programs. Experts noted that this finding resonates with the moderate readiness score for ICT infrastructure (mean = 3.12) and innovation support (mean =2.92) in the quantitative data. Lack of institutional backing creates an environment where students struggle to translate their digital competencies into tangible entrepreneurial outcomes.

The participants also emphasized "Skills and Training," noting that while students possess strong digital competencies, they lack exposure to specific Metaverse tools. This observation complements the high mean score for digital skills (mean = 3.76) in the quantitative analysis, indicating that targeted training is essential to close the gap between existing skills and requirements of Metaverse entrepreneurship, although students are digitally literate.

Industry links were described as weak, with insufficient collaboration between universities, startups, and tech industry actors. Researchers explained that this bottleneck limits practical entrepreneurial opportunities, particularly in digital content creation and virtual services, which scored highly in perceived opportunity (means of 4.02 and 3.84, respectively). The integration of industry partnerships could enhance these opportunities by providing real-world applications and mentorship to students.

Thus, Nigerian universities exhibit moderate institutional readiness but high student digital literacy, creating fertile ground for metaverse-enabled entrepreneurship. However, policy reform, institutional investment, and industry collaboration are essential for overcoming barriers and unlocking potential. These findings align with the Triple Helix model, emphasizing the need for synergistic interventions among government, academia, and industry to foster a thriving metaverse ecosystem (Etzkowitz & Leydesdorff, 2000; Nambisan, 2017).

➢ *Analysis of the Results*

The results of this study, which examined potential for metaverse entrepreneurship and institutional preparedness in Nigerian institutions, offered a sophisticated understanding of the variables affecting student involvement in digital innovation. These results align with and extend recent scholarly discussions on DT, entrepreneurship, and the role of policy, institutions, and industry in fostering a conducive ecosystem. This analysis highlights both the challenges and opportunities within the Nigerian context by examining the interplay between qualitative and quantitative data, drawing connections to contemporary research.

First, the identification of "Policy Gaps" as a significant barrier resonates with the findings of recent studies conducted in Nigeria. Scholars such as Adebayo and Oyewale (2023) have emphasized that the absence of clear regulatory frameworks and government incentives stifles entrepreneurial activities, particularly in emerging technological domains such as the metaverse. The finding that policy awareness had the strongest influence on entrepreneurial intentions (Beta = 0.381, $p < 0.001$) highlights how important organised policies are in influencing students' attitudes and readiness to participate in digital endeavours. Likewise, Onuoha et al. (2022) argued that if the government prioritizes reforms that encourage innovation, such as tax incentives for startups and comprehensive guidelines for Metaverse applications, Nigeria's digital economy could achieve exponential growth. These claims are supported by this study, which shows that closing policy gaps is crucial to encouraging entrepreneurship and positioning Nigeria as a pioneer in the global digital economy.

Second, the theme of "Institutional Support," characterized by minimal resources and innovation hubs, aligns with the observations of Ezeuduji and Adekoya (2023). Their research highlighted that while Nigerian universities are beginning to embrace digital transformation, institutional support remains fragmented and insufficient. The moderate scores for ICT infrastructure (mean = 3.12) and innovation support (mean = 2.92) reflect this reality, indicating that while some foundations exist, they are underdeveloped. Recent scholarly work has called for increased investment in UBIEs, including the establishment of robust entrepreneurial programs and partnerships with tech hubs. For instance, Adesina and Ogunleye (2023) demonstrated that universities with strong institutional backing recorded higher levels of student-led innovation, emphasizing the need for systemic improvements to nurture entrepreneurial talent.

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Third, the theme of "Skills and Training" revealed a paradox: students possess strong digital competencies (mean = 3.76) but lack exposure to specific Metaverse tools. This finding echoed the observations of Nwankwo and Okoro (2022), who noted that while Nigerian students are generally adept at using digital technologies, their skills often do not translate into expertise in specialized areas, such as virtual reality or blockchain, which are integral to the metaverse. As emphasized by recent research, bridging this gap requires targeted training programs and access to cutting-edge tools. For example, Okafor et al. (2023) advocated for curriculum reforms that integrate practical, hands-on learning experiences in emerging technologies to enable students to develop competencies that align with industry demands.

Finally, the theme of "Industry Linkages" highlighted the disconnect between universities, startups, and the tech industry, a challenge consistently documented in Nigerian scholarship. Olawale and Garwe (2022) revealed that weak collaboration limits the translation of academic research into real-world applications, thereby hindering innovation. The study's conclusions reaffirmed the significance of developing closer connections between academia and industry, particularly in areas such as digital content creation and virtual services, which scored highly as perceived opportunities (means of 4.02 and 3.84, respectively). Recent research by Ibeh et al. (2023) demonstrated that successful entrepreneurial ecosystems are characterized by the active participation of all stakeholders, including government, academia, and industry, working in synergy to create value.

Overall, this study aligned with the Triple Helix model, which emphasizes the need for collaborative interventions among government, academia, and industry to foster innovation (Etzkowitz & Leydesdorff, 2000; Nambisan, 2017). By integrating recent scholarly insights, it becomes evident that addressing policy gaps, enhancing institutional support, providing targeted training, and strengthening industry linkages are essential steps toward unlocking Nigeria's metaverse ecosystem's full potential. These results add to the current conversations about digital entrepreneurship and provide practical suggestions for legislators, educators, and business executives who want to put Nigeria at the forefront of the worldwide digital revolution.

VI. CONCLUSION

By presenting empirical data from Nigerian institutions, this study significantly adds to the growing body of literature on digital entrepreneurship and the metaverse. It was concluded that while students exhibit high levels of digital readiness and entrepreneurial interest, particularly in digital content creation and virtual services, institutional and policy frameworks remain insufficient to fully harness the opportunities presented by the Metaverse. The results are consistent with the Triple Helix concept, which emphasises that in order to promote a robust and inclusive metaverse ecosystem, government, academia, and business must cooperate together. The experts noted that addressing infrastructural gaps, policy ambiguity, and institutional inertia is critical for positioning Nigerian universities as catalysts for the metaverse-driven economic transformation. By integrating insights from both qualitative and quantitative data, we highlighted that targeted interventions are needed to bridge existing barriers and unlock the potential of this transformative technology.

RECOMMENDATIONS

To operationalize metaverse-enabled entrepreneurship in Nigerian universities, the following actionable strategies were recommended:

- Universities should establish dedicated Metaverse Innovation Labs equipped with AR and VR tools. Students would have direct access to state-of-the-art technology in these labs, allowing them to experiment and create in immersive settings.
- The government should integrate experiential learning models, such as virtual business simulations and digital venture studios, into curricula. These models would allow students to apply theoretical knowledge to real-world scenarios, thereby fostering practical skills in metaverse entrepreneurship.
- High implementation of capacity-building programs for faculty members to enhance their digital and immersive pedagogy proficiency. Training educators in these areas would ensure that they are equipped to effectively guide students in navigating the complexities of the metaverse.
- The need to incentivize partnerships between universities and the tech industry to create mentorship and internship pipelines in emerging digital sectors. Such collaborations expose students to industry practices and provide them with opportunities to work on live projects, bridging the gap between academia and the workplace.
- The government must strengthen intellectual property (IP) protection frameworks for digital and virtual innovations. This would encourage students and faculty to invest in creative endeavors, knowing that their contributions are safeguarded.
- The government must develop clear and supportive policy frameworks for the Metaverse, including incentives for startups and structured regulations. These policies would reduce ambiguity, stimulate innovation, and attract investment into Nigeria's digital economy.

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