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# ICT UTILISATION AND INFOPRENEURSHIP IN LIS FOR SUSTAINABLE SOLUTIONS TO DEVELOPMENTAL CHALLENGES

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**ABSTRACT**

Academic libraries in many institutions today such as polytechnics operate at a critical convergence of knowledge management and institutional development, but many of these libraries have striven to keep pace with rapid digital transformation. This study investigated how ICT utilisation and infopreneurial practices within the academic library especially that of Federal Polytechnic Ngodo-Isuochi, Abia State, can serve as sustainable responses to the developmental challenges facing the institution and the wider society at large. The research adopted qualitative case study methodology involving in-depth interviews with library staff, faculty, and institutional administrators, researchers. The research revealed ways of ICT adoption, identified lacuna in digital infrastructure, and explores emerging ICT entrepreneurial information services that address real-life community needs. Also, findings revealed that while awareness of ICT tools are growing among library personnel, the depth of practical utilisation remain constrained by unreliable power supply, limited staff digital competence and inadequate funding. Infopreneurial consciousness, though embryonic, is observable in select service innovations such as Current Awareness Services (CAS) bulletins, online document delivery, and digital literacy sessions. The study posited that intentional embedding ICT-driven infopreneurship into the operational modules of polytechnic libraries can reposition these institutions as dynamic hubs for knowledge creation and national development. A practical framework for achieving this transformation is proposed, and implications for library policy, staff capacity building, and interinstitutional collaboration are discussed.

**Keywords:** ICT Utilisation, Infopreneurship, Sustainable Development, Digital Transformation

## Introduction

The library is a product of highly developed society, which expected to be increasingly proactive partnership with institutional development, an incubator of ICT skills, and a bridge between knowledge organization and community action. Moreso, library have long functioned as the intellectual backbone of academic institutions, serving as custodians of knowledge and facilitators of learning. Still the role of the academic library is no longer simply custodial. In the 21st century, this expectation is particularly pressing within Nigerian polytechnic institutions, where libraries serve students and staff whose professional training must align with real-world occupational demands and values.

Consequently, Federal Polytechnic Ngodo-Isuochi Abia State, located in Ununneochi L.G.A, one of the boundary communities of Abia State, exemplifies the kind of institution where the library's transformative potential remains largely unrealised. The polytechnic trains students across various range of technical and vocational education disciplines skills for empowerment and productivity, but its library like many counterparts across the country continues to operate largely along conventional lines, with limited digital infrastructure and few deliberate strategies for leveraging information as a developmental resource. This situation reflects a broader pattern that scholars have observed across Nigeria and sub-Saharan Africa, where academic libraries often lag behind their institutional mandates due to long systemic resource constraints as portrayed as such. (Aina, 2021; Nwosu & Ezeani, 2022).

Despite growing theoretical interest in both ICT adoption and infopreneurship within Library and Information Science (LIS) scholarship, empirical investigations into how these concepts operate together within the specific context of Nigerian polytechnic libraries remain sparse (mesagan, F.O., Anyim, W.O., Ubogu, J.O., & Echezona, R.N. 2022). This study addresses that gap by conducting a detailed qualitative inquiry into the library of Federal Polytechnic Ngodo-Isuochi, Abia State, with the aim of uncovering how current ICT utilisation patterns and emergent infopreneurial practices can be understood, strengthened, and ultimately leveraged for sustainable institutional and community development.

## Objectives of the Study

The study was guided by the following specific objectives:

1. To assess the current state of ICT utilisation in the library of Federal Polytechnic Ngodo-Isuochi, Abia State.
2. To identify the challenges hampering effective ICT adoption in the library.
3. To explore the extent and nature of infopreneurial practices currently in place.
4. To proffer strategies for enhancing effective ICT adoption in the library

## Literature Review

### *1 ICT Utilisation in Academic Libraries*

The integration of ICT into academic library operations has been extensively documented in the literature. Scholarly consensus holds that effective ICT utilisation enhances Resource Description and Access (RDA), accelerates information retrieval, supports remote service delivery, and significantly improves user satisfaction (Ukwuoma, 2019; Adeyemo & Ladipo, 2021). In developed countries contexts, libraries have moved beyond basic digitisation to implementing sophisticated systems such as artificial intelligence-assisted cataloguing, machine learning-based recommendation engines, and blockchain-enabled digital rights management.

In the Nigerian context, however, the trajectory of ICT adoption in academic libraries has been considerably more uneven. While federal university libraries in major cities have made notable strides in digital service delivery, polytechnic and college of education libraries particularly those in semi-urban and rural locations continue to face foundational challenges. Nwosu and Ezeani (2022) found that fewer than 40% of polytechnic libraries surveyed in southeastern Nigeria had functional internet connectivity available to library users, and only a

quarter reported using any form of integrated library management software. These findings point to a structural divide that goes beyond individual institutional capacity and reflects broader patterns of regional underfunding and infrastructural neglect.

Power supply instability emerges consistently across studies as the single most significant barrier to ICT utilisation in Nigerian academic libraries. Eze and Obi (2023) documented that many libraries in Abia and Imo States operate without reliable electricity for an average of twelve to sixteen hours per day, rendering digital workstations effectively non-functional during those periods. Generator use, while common, is expensive and often rationed, further limiting the practical availability of digital services.

***2 Infopreneurship in LIS Contexts***

The concept of infopreneurship has gained increasing currency in LIS discourse over the past decade. It is rooted in the broader entrepreneurship literature, infopreneurship in LIS refers to the capacity of information professionals to create, package, and deliver information products and services in ways that are innovative, sustainable, and responsive to user needs (Adebayo, 2020). Infopreneurs do not merely manage collections; they actively identify information gaps in their communities and design targeted interventions to fill them.

Nwokocha and Igwe (2023) provided a comprehensive typology of infopreneurial activities in Nigerian academic libraries, ranging from fee-based research assistance and current awareness services to mobile library outreach and digital skills training for community members. Their work underscores the point that infopreneurship need not be profit-driven in the commercial sense; it can be oriented toward social value creation, institutional sustainability, and community empowerment. The recent growing body of literature, empirical studies that specifically examine infopreneurship within polytechnic library settings remain limited. Most existing work focuses on polytechnic libraries and university libraries, leaving a significant knowledge gap regarding the specific opportunities and problem that polytechnic environments present. This research study judicially contributes to filling that gap and can be used in the future.

**3 Sustainable Development, ICT and Infopreneurship,**

The linkage between ICT, infopreneurship, and sustainable development has been theorised most compellingly through the lens of the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 9 (Industry, Innovation and Infrastructure). Scholars such as Ogundimu and Fashola (2022) have argued that libraries that successfully harness ICT for infopreneurial purposes can function as local development hubs disseminating agricultural information, supporting small business development, facilitating e-government service access, and building community digital literacy. In the Nigerian polytechnic setting, where graduates are expected to possess both technical competence and entrepreneurial orientation, a library that models and supports infopreneurial practice contributes directly to the institution's developmental mandate. The library thus becomes not merely a service unit but a strategic institutional asset.

**Methodology**

**1 Research Design**

This study adopted a qualitative case study design, consistent with its aim of generating rich, contextualised insight into a complex, real-world phenomenon. The case study approach, as elaborated by Yin (2018), is particularly appropriate when the investigator seeks to understand the how and why of a contemporary situation within its natural context and when the boundaries between the phenomenon and its setting are not clearly demarcated. The library of Federal Polytechnic Ngodo-Isuochi Abia State, constituted the bounded case for this investigation.

**2 Participants and Sampling**

Purposive sampling was used to select 50 participants whose professional roles and practical experiences rendered them most informative for the study's objectives. The participant composition was as follows: thirty library staff members (including the chief librarian, twenty professional librarians, and ten para-professional library officers); four academic faculty members from departments with high library usage rates (Computer Science, Business Administration, Agricultural Technology, and Mass Communication); ten senior administrators; and ten Undergraduate students enrolled in the institution's programmes.

This composition was designed to capture substantial number multiple institutional vantage points service provider, institutional manager, academic user, and student user thereby ensuring triangulation of perspectives within the data.

**3 Data Collection**

Data were collected through semi-structured interviews conducted over a period of six weeks between February to April 2026. Each interview lasted between forty-five minutes and one hour and fifteen minutes. Interviews were conducted in English, audio-recorded with participant consent, and subsequently transcribed verbatim. In addition to interviews, the researcher conducted non-participant observation of library operations on six separate occasions and reviewed relevant institutional documents including annual reports, acquisition lists, staff training records, and correspondence with external digital service providers.

**4 Data Analysis**

Thematic analysis, following the six-phase framework proposed by Braun and Clarke (2006), was employed to analyse the interview transcripts. This involved familiarisation with the data, generation of initial codes, identification and refinement of themes, and interpretive write-up. Member checking was conducted with six participants to validate the emerging themes and ensure that interpretations accurately reflected participants' intentions. Negative case analysis was used to interrogate and refine themes where contradictory evidence emerged.

**5 Ethical Considerations**

Institutional ethical clearance was obtained from the Research Ethics Committee of Federal Polytechnic Ngodo-Isuochi, Abia State prior to data collection. All participants provided informed consent, and confidentiality was maintained by anonymising participant identities in the research outputs. Participants were informed of their right to withdraw from the study at any time without consequence.

**Results**

**1 Current State of ICT Utilisation**

The findings revealed a mixed and contextually constrained picture of ICT utilisation in the library. At the infrastructure level, the library possessed 26 desktop computers, of which 20 were functional at the time of the study. 16 of these functional computers were designated for public use, while the remaining 4 were used exclusively by library staff for administrative purposes. A single broadband internet connection from ICT center of 5 Mbps was shared across all connected devices, resulting in severely degraded user experience during peak hours.

The library had implemented the Koha Integrated Library Management System approximately three years prior to the study, though its deployment remained partial. The cataloguing and circulation modules were operational, but the Online Public Access Catalogue (OPAC) was not accessible to users beyond the library building due to server configuration issues that had not been resolved. The acquisitions and serials control modules had not been activated, and staff reported limited capacity to troubleshoot or maintain the system independently.

Among library staff, the most commonly used digital tools were email (used by five staff members), Microsoft Office applications (used by four), and social media platforms primarily WhatsApp for communicating service updates to library patrons (used by three).

Only one staff member, the chief librarian, reported regular engagement with professional digital databases, and this access was facilitated through a personal institutional login rather than a library-level subscription.

**Table 1: Summary of ICT Resources and Utilisation in the Federal Polytechnic Ngodo-Isuochi Central Library**

| Resource/Tool | Status / Level of Utilisation |
|---|---|
| Desktop computers | 26 units (20 functional; 16 for public use) |
| Internet connectivity | 5 Mbps broadband; frequently unavailable due to power outages |
| Library management system | Koha (partial implementation; cataloguing and circulation only) |
| Email use | 5 library staff; primarily for administrative communication |
| Social media (WhatsApp) | 3 staff members; used for patron notifications |
| Digital databases | Accessed by 1 staff member via personal institutional login |
| OPAC | Functional within library only; not accessible remotely |
| Power supply | Unreliable use of Solar; generator use rationed due to fuel costs |

***2 Impeding ICT Utilisation Challenges***

Four primary challenges emerged from the data as consistently and significantly impeding effective ICT utilisation: Power supply instability was identified as the most debilitating challenge by all fourteen participants without exception. The library was estimated to experience approximately ten to fourteen hours of grid power failure daily, and generator operation was restricted to a maximum of four hours per day due to fuel budget constraints. As one senior librarian explained: "There are days when we cannot offer any digital service at all. The computers are off, the internet is off, and we just manage with what we can do manually. It is demoralising."

Limited staff digital competency was the second most cited challenge. While all staff members demonstrated basic computer literacy, deeper competencies related to database management, system administration, digital resource curation, and online service design were largely absent. Three of the five library staff members had received no formal ICT training within the past three years, and professional development resources specifically oriented toward digital librarianship were not available within the institution.

Inadequate and irregular funding emerged as a structural constraint underpinning many other challenges. The library's annual budget allocation had remained largely stagnant in nominal terms for the preceding five years, with no dedicated provision for ICT infrastructure maintenance or expansion. School participants corroborated this finding, noting that requests for e-resource subscriptions routinely went unfulfilled due to budgetary constraints. Institutional inertia and low prioritisation of the library in institutional development planning was identified by administrators themselves as a systemic issue. A participant acknowledged a that the library was frequently overlooked in capital expenditure proposals, partly due to a perception among some decision-makers that digital library development was a luxury rather than a core institutional priority.

### *3 Emergent Infopreneurial Practices in LIS*

Despite these setbacks, the study identified several noteworthy instances of infopreneurial practice within the library, suggesting an embryonic but meaningful entrepreneurial orientation among library personnel.

Abinitio, Current Awareness Service (CAS) bulletin, produced monthly by the library, represented the most structured and institutionally recognised infopreneurial initiative. The monthly bulletin compiled newly acquired titles and relevant journal articles accessed through open-access channels, and summaries of government policy documents pertaining to polytechnic education and technical vocational training. It was distributed digitally via social media platform, such as WhatsApp to subscribers list of approximately one to two hundred faculty and staff members. Several faculty participants described the bulletin as genuinely useful, Collaboration among lecturers in Library and Information Science and Agricultural Technology played an important role in keeping them informed about current developments. Through regular interaction and knowledge sharing, lecturers were able to access relevant policy information. For instance, one lecturer noted that he became aware of a recently issued government circular on smallholder farmer support through such collaboration. He subsequently integrated this information into his teaching, thereby improving the relevance and practical value of his instructional content, Wenger, E., McDermott, R., & Snyder, W. M. (2016).

Online document delivery, facilitated informally through email and social media platform, had emerged effectively service for faculty members who were unable to physically access the library. Three library staff members described fielding regular requests from lecturers for specific chapters, journal articles, or policy documents, which they would locate through open-access repositories and deliver electronically. While this service was not formally institutionalised, it clearly demonstrated promptness to user needs and an entrepreneurial inclination toward problem-solving. Contemporary literacy sessions, conducted twice per semester in the library's seminar class room, represented a community-facing infopreneurial initiative. These sessions, facilitated by the chief librarian, senior librarian and one other professional librarian, introduced both students, staff to research databank, databases, citation management tools, and strategies for evaluating online information. feedback from participant indicated high levels of user satisfaction, and attendance had grown steadily since the sessions' inception eighteen months prior to the research study.

## Discussion

The findings of this study elucidate notion that is characteristic of many Nigerian polytechnic libraries, the coexistence of genuine entrepreneurial energy and structural constraint. Most library staff demonstrate awareness of digital tools, capacity for innovation, and a genuine desire to expand and improve service delivery. Meanwhile systemic challenges most notably power supply instability, funding inadequacy, and limited capacity building prevent these intentions from being fully realised. Clear observations made by Aina (2021) and Nwosu and Ezeani (2022), relate to who have characterised Nigerian academic libraries as institutions caught between expanding mandates and contracting resources. Moreso, the present findings add texture to this characterisation by demonstrating that even within significantly constrained environments, creative adaptation is possible. The CAS bulletin, online document delivery, and digital literacy sessions represent not mere workarounds but genuine infopreneurial responses to institutional and community needs responses that could be scaled and formalised with appropriate support.

The Study revealed that power supply instability constitutes the primary barrier to ICT utilisation is consistent with wider Nigerian infrastructure literature (Eze & Obi, 2023). A librarian who cannot reliably use a computer cannot realistically be expected to develop expertise in digital resource management or innovative service design. Alternatively,

distinctive about the library context is the compound nature of this barrier, and such power failure does not simply interrupt service delivery but actively prevents staff from developing and practicing the digital competencies they need to advance.

The limited institutionalisation of infopreneurial initiatives also warrants attention. The practices identified in this study, while genuinely valuable exist largely as informal adaptations driven by individual initiative rather than deliberate institutional strategy. This informality renders them fragile: they are dependent on the continued presence and motivation of specific individuals and are vulnerable to disruption by staff turnover, budget cuts, or shifting institutional priorities. For infopreneurship to function as a sustainable development strategy, it must be embedded in institutional policy, supported by dedicated resources, and recognised in staff performance evaluation frameworks.

The study suggests that library schools/departments in Nigeria must deliberately introduce entrepreneurial thinking and digital competency into their curricula, preparing graduates not merely to manage knowledge and information, but to maximize it as a developmental resource. This research has direct impact for LIS education and professional development Similarly, continuing professional development programmes must be expanded and made accessible to library staff in institutions like Federal Polytechnic Ngodo-Isuochi Abia State, where formal training opportunities are not easily harnessed.

**6. Infopreneurship Proposed Framework for ICT-Driven**

Eventually the findings from this study, frame up four-pillar framework for embedding ICT-driven infopreneurship in polytechnic, especially that of Ngodo-Isuochi library as follows:

a) Infrastructure Need: Investments in renewable energy (solar power systems), reliable internet connectivity, and modern computing equipment to provide a stable digital operating environment.
b) Capacity Development: Structured and continuous digital skills training for library staff, with competency levels mapped to specific service responsibilities and linked to career progression pathways.
c) Service Innovation: The formalisation and expansion of existing infopreneurial initiatives alongside the development of new ICT-enabled services such as institutional repository management, community e-extension services, and entrepreneurship information portals.
d) Institutional Embedding: The incorporation of infopreneurship into the library's strategic plan, with dedicated budget lines, performance indicators, and accountability mechanisms to ensure sustainability beyond individual staff initiative.

**8. Conclusion**

This study has examined the state of ICT utilisation and infopreneurial practice in the library of Federal Polytechnic Ngodo-Isuochi, Abia State, and has documented both the potential and the constraints associated with leveraging these capacities for sustainable institutional and community development. The library, despite operating under significant resource limitations, has demonstrated genuine entrepreneurial initiative through its CAS bulletin, online document delivery service, and digital literacy training sessions. These initiatives, while currently informal and small in scale, provide a foundation upon which a more deliberate and institutionally supported infopreneurial strategy can be built.

The barriers to progress chief among them power supply instability, limited staff digital competency, and inadequate funding are real and serious, but they are not insurmountable. With appropriate institutional will, targeted investment, and strategic professional development, the polytechnic library can be repositioned as a dynamic knowledge hub that contributes meaningfully not only to the institution's academic mission but also to the broader developmental agenda of its community and region. The time for treating the library as a

peripheral institutional concern has passed; it must be recognised as a strategic resource and invested in accordingly.

**7. Recommendations**

The findings and proposed framework inform the following recommendations as follows:

i. The stakeholders in charge of Federal Polytechnic Ngodo-Isuochi, Abia State should prioritise the installation of a High solar-powered capacity electricity system for the library to eliminate over dependence on the national grid and fuel generator respectively.

ii. A well-defined ICT budget line should be created within the library's annual budget allocation, with provision for infrastructure maintenance, e-resource subscriptions, and staff training.

iii. Most Library staff should be encouraged to engage in structured digital competency development programmes, particularly with regard to digital resource curation, system administration, and online service available.

iv. The library should develop a formal infopreneurship policy that institutionalises existing innovative practices and establishes a framework for the development of new services.

v. Partnerships should be explored with Polytechnic libraries, university libraries, the National Universities Commission, and private technology firms to access expertise, infrastructure support, and Real development initiatives.

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