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Innovative Financing in Tertiary Institutions in Nigeria: A Review of Seven Strategies for Sustainable Development

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Abstract:

Financing tertiary education remains a major challenge in Nigeria due to increasing student enrolment, rising operational costs, inadequate infrastructure, and competing demands on government revenue. Universities, polytechnics, and colleges of education require adequate financial resources to provide quality teaching, support research, maintain infrastructure, and promote innovation. However, excessive dependence on government allocations has made it difficult for many institutions to meet their growing financial needs. This paper examines innovative financing as an approach to improving the financial sustainability of tertiary institutions in Nigeria. It discusses alternative financing strategies, including internally generated revenue, public–private partnerships, alumni contributions and endowment funds, consultancy services, commercialisation of research outputs, competitive research grants, and digital education programmes. The paper highlights the importance of effective financial management, institutional accountability, and strategic planning in implementing these strategies. It argues that innovative financing should complement government funding rather than replace the government's responsibility for public tertiary education. The paper concludes that diversifying funding sources can strengthen institutional capacity, improve educational quality, and support sustainable development when appropriate management structures and accountability mechanisms are established.

Keywords: Innovative Financing, Tertiary Institutions, Internally Generated Revenue, Financial Sustainability

Introduction

Tertiary education plays a significant role in the social, economic, scientific and technological development of Nigeria. Universities, polytechnics and colleges of education are responsible for

producing skilled manpower, training teachers, conducting research, developing new technologies and preparing individuals for professional and leadership responsibilities. Through these activities, tertiary institutions contribute to national development, employment generation, poverty reduction and the improvement of citizens' living standards. However, the ability of these institutions to perform their responsibilities depends largely on the availability of adequate and sustainable financial resources.

The increasing cost of education, rising student enrolment, growing demand for modern technologies and the need to improve research capacity have placed considerable pressure on institutional finances. Tertiary institutions require substantial resources to construct and maintain classrooms, laboratories, libraries, hostels and lecture theatres, and studies of public universities have linked inadequate infrastructural facilities directly to insufficient funding [1]. Funding constraints also affect staffing, contributing to shortages of academic staff in public universities [2]. When financial resources are inadequate, institutional operations suffer, with consequences for teaching quality, research productivity, staff welfare and students' learning experiences.

Traditionally, government allocations have constituted the major source of funding for public tertiary institutions in Nigeria. However, government resources are limited and must be shared among competing sectors, including health, security, agriculture, infrastructure and social welfare. Analyses of the causes of inadequate funds in Nigerian public universities point to insufficient budgetary allocations, rising enrolment and weak internal revenue generation [3]. The resulting shortage of funds has been shown to affect teaching, research, infrastructure and staff welfare [4]. Earlier work examined alternative modes of financing higher education and highlighted the implications of funding arrangements for university governance [5]. Research funding has received specific attention, with conventional arrangements described as inadequate and irregular and a dual-support model proposed as an alternative [6]. Other authors have examined the models used to fund Nigerian universities and their implications for performance [7], as well as the policy issues that shape the administration of higher education [8].

Innovative financing provides an opportunity for tertiary institutions to address these challenges. It refers to the development and use of alternative, creative and diversified mechanisms for mobilising financial resources beyond conventional government budgetary allocations, and may include internally generated revenue (IGR), public–private partnerships (PPPs), alumni contributions, endowment funds, consultancy services, commercial ventures, competitive research grants, commercialisation of research outputs and digital education programmes. Evidence from Lagos State showed that the public universities examined had not fully utilised the alternative financing opportunities available to them [9]. Endowments, consultancy services and commercial ventures have been identified as pragmatic funding sources for higher education [10]. A recent review emphasised the need for institutions to diversify revenue beyond their proprietors' contributions [11]. Commercialisation of innovations, research funding, alumni contributions, donations and host-community support have also been proposed as supplements to conventional funding [12]. At the polytechnic level, PPPs have been examined as a means of supporting IGR at Yaba College of Technology [13].

Taken together, this literature recognises the limitations of excessive dependence on government funding and identifies several financing opportunities, but it also shows that revenue diversification raises questions about governance, financial accountability, affordability and the protection of academic priorities. Moreover, many studies discuss alternative financing opportunities without

comparable institution-wide evidence on net revenue, implementation costs and risks, and some are geographically or institutionally limited. Innovative financing should not be understood as a justification for government to withdraw from its responsibility to fund public tertiary education; rather, it should complement public funding. Against this background, the aim of this paper is to review innovative financing strategies for tertiary institutions in Nigeria, to examine their mechanisms, applications and risks, and to propose a framework for their sustainable implementation.

Methodology

The study adopted a qualitative narrative-review design. The evidence base comprised peer-reviewed journal articles, conference proceedings and other scholarly publications on the financing of Nigerian tertiary education published between 2002 and 2025. Sources were identified through Google Scholar and African Journals Online using combinations of the terms "innovative financing", "alternative sources of funding", "internally generated revenue", "public–private partnership", "endowment", "tertiary institutions", "universities" and "Nigeria", supplemented by reference tracking from the retrieved studies.

Studies were included if they examined the sources, management or adequacy of funding for Nigerian universities, polytechnics or colleges of education. The financing mechanisms reported in the included studies were extracted and grouped thematically into seven strategies. For each strategy, the review examined (i) the financing mechanism, (ii) the supporting Nigerian evidence, (iii) practical applications for different types of institutions, and (iv) the risks and preconditions for successful implementation. The findings were then synthesised into a summary table and a conceptual framework. As a narrative review, the study does not quantify the financial returns of the strategies; its conclusions are therefore analytical rather than statistical.

Results and Discussion

The review identified seven innovative financing strategies available to Nigerian tertiary institutions. They are discussed in turn below and summarised in Table 1.

Commercialisation of Research Outputs, Innovations and Intellectual Property

Commercialisation of research outputs is a strategy through which tertiary institutions generate revenue from the practical application of knowledge, inventions, technologies and innovations developed by their academic staff. Research in agriculture, medicine, engineering, information technology, education, environmental management and renewable energy can produce technologies, improved crop varieties, software applications, training packages, assessment instruments and industrial processes with commercial value. Instead of allowing these outputs to remain exclusively in academic publications, institutions can transform suitable findings into marketable products and services, generating revenue through patent licensing, technology-transfer agreements, royalties, spin-off companies and commercial partnerships. Olayiwola's analysis of the inadequacy and irregularity of conventional research funding provides a basis for treating commercialisation as part of a broader financing framework, and Opara et al. likewise identified commercialisation of innovations as a response to the financial difficulties of public universities.

For example, a university with expertise in agricultural science could collaborate with farmers, agricultural companies and food-processing industries to develop improved crop varieties, soil-management technologies or post-harvest preservation methods, receiving licensing fees, royalties

or contract payments where legally and commercially appropriate. A computer-science department could license software for school administration, student records or financial management to other institutions. Colleges of education could commercialise approved teacher-training materials and assessment instruments, while polytechnics could develop prototypes, fabrication technologies and industrial processes for manufacturing firms.

Public–Private Partnerships for Infrastructure and Institutional Services

A PPP is a structured arrangement through which a public institution and a private organisation cooperate to finance, develop, operate or maintain infrastructure and services. Depending on the contract, the private partner may provide investment capital, technical expertise, construction services or operational management in exchange for agreed payments or revenue over a specified period. In tertiary institutions, PPPs may be applied to student accommodation, solar energy, internet infrastructure, water supply, healthcare facilities, staff housing, commercial buildings and transport services. The Yaba College of Technology case illustrates how collaboration with private organisations can support institutional services and revenue generation, and Peretomode et al. identified engagement with external partners as an important consideration in addressing the financing challenges of Nigerian universities.

A university may contract a private company to construct and operate student accommodation, subject to agreed standards, affordability provisions and contractual safeguards. A polytechnic may partner with a manufacturing company to run a practical training centre that earns revenue from services to external clients. Universities may also collaborate with energy companies to install and operate solar power infrastructure, reducing dependence on diesel generators and potentially lowering long-term energy costs [14]. Several PPP models—including build–operate–transfer and joint-venture arrangements—have been proposed for funding Nigerian universities [15]. The main advantage of PPPs is access to capital and expertise not readily available through annual government allocations. Nevertheless, PPPs are not free money: they may create long-term financial obligations, expose institutions to contractual risks and lead to high service charges if agreements are poorly negotiated, and private-sector participation in university funding has remained limited where the incentives and safeguards for partners are unclear [16].

Alumni Fundraising, Endowment Funds and Philanthropic Contributions

Alumni fundraising, endowment funds and philanthropy mobilise resources from graduates, philanthropists, foundations, professional associations and corporations. An endowment fund is a pool of financial assets established to support an institution or a particular purpose over the long term; depending on the governing arrangement, the principal may be preserved while part of the investment returns finances designated activities. This differs from ordinary donations, which may be spent directly on an approved project. Aina identified endowments among the available non-governmental sources of funding, Akomolafe and Aremu found that such opportunities were not fully utilised, and Peretomode et al. and Opara et al. discussed alumni associations, endowment funds and donations as mechanisms for diversifying university financing. The wider literature on stakeholder roles emphasises that alumni, private organisations and host communities all share responsibility for funding university education [17].

In practice, an institution may establish an endowment for postgraduate research supported by former students, professional organisations and private donors; a faculty of education may run an alumni campaign to equip instructional-technology laboratories; and an engineering faculty may seek equipment donations from graduates working in industry. Philanthropists may also establish

named scholarships or academic chairs, provided that the arrangements comply with institutional policies and academic independence. The effectiveness of fundraising depends heavily on institutional trust; institutions should therefore maintain updated alumni databases, set clear targets, publish periodic financial reports and inform donors of the impact of their contributions. Endowment funds should be managed by qualified professionals under clear investment policies, with independent auditing and transparent reporting.

Consultancy Services and Professional Development Programmes

Consultancy involves providing specialised advice, technical services, research support and training to governments, companies, non-governmental organisations, schools and communities. By organising their expertise into professional services, institutions can generate revenue while strengthening their contribution to society. Lawal identified consultancy among the alternative sources encouraged for tertiary institutions. Faculties of education can offer services in school administration, curriculum development, teacher evaluation, educational planning and accreditation preparation, while academic planning units can provide programme evaluation, strategic planning, data management and quality-assurance services; such internally generated revenue has been associated with more effective university administration [18]. Faculties of agriculture can provide soil testing and extension services, engineering faculties can conduct materials testing and feasibility studies, and faculties of management and social sciences can offer organisational development and market research.

Professional development programmes—short courses, executive education, workshops, certification programmes and continuing education—can also generate income through physical, online or blended delivery. For example, an educational management department could offer a fee-paying course in institutional planning and management information systems for education officers, and a polytechnic could provide technical training in renewable-energy installation or equipment maintenance. To implement these activities, institutions should identify areas of expertise, conduct market assessments, establish consultancy units and develop clear policies on staff participation and revenue sharing, which are key to maximising internally generated revenue [19].

Commercial Ventures, Entrepreneurship and Institutional Investment Companies

Commercial ventures transform institutional assets, expertise and facilities into sources of revenue. They may include commercial agriculture, printing and publishing, bookshops, conference centres, guest houses, catering, commercial laboratories, production workshops and renewable-energy services that are consistent with institutional objectives and legal requirements. Aina examined commercial ventures as an alternative financing mechanism but also drew attention to concerns about accountability, profitability and sustainability, and Lawal likewise discussed commercial ventures as a supplementary source. A university in an agricultural area may operate a commercial farm, a polytechnic may run a production unit manufacturing furniture or building materials, and colleges of education may produce and sell teaching materials and educational publications.

An institutional investment company is a more formal arrangement through which an institution manages selected commercial investments, and investment in education requires overcoming barriers such as weak management capacity and policy inconsistency [20]. Where legally permissible, such a company should operate under a governance framework that separates commercial management from academic administration and defines investment objectives, acceptable risks, reporting requirements and rules for transferring profits to academic priorities. Evidence from public universities in the Niger Delta shows that the management of alternative

funding sources is decisive for their contribution to institutional finances [21]. Each venture should therefore be assessed according to local demand, available expertise, operating costs, competition and potential returns; a commercial farm, for example, requires an assessment of land suitability, market access, production costs, storage and transport [22].

Competitive Research Grants, Industry-Sponsored Research and International Collaboration

Research grants are awarded by government agencies, research councils, foundations, international organisations and development partners to support specified research activities, and fund diversification through such external sources has been documented in Nigerian universities [23]. Industry-sponsored research involves financial or material support from companies seeking solutions to technical, scientific, economic or organisational problems, while international collaboration enables participation in jointly funded projects. Olayiwola's dual-support approach, with separate mechanisms for allocating and administering research funds, emphasised competitive research support and collaboration among research groups.

Universities can establish research development offices to identify funding opportunities, support proposal writing, coordinate multidisciplinary teams and monitor grant implementation. Researchers can apply for grants in public health, renewable energy, agriculture, artificial intelligence, education, climate change and public policy. An agricultural research team may collaborate with agribusinesses to reduce post-harvest losses, while an engineering department may work with an energy company on renewable-energy systems. Industry partnerships can provide funds, equipment, practical research environments and industry experience for students, and institutions can negotiate contract research under which clients pay for defined research services and receive agreed deliverables.

Digital Education, Open and Distance Learning and Micro-Credential Programmes

Digital education uses online platforms, learning-management systems and digital content to deliver teaching and professional learning; open and distance learning (ODL) enables participation without continuous physical attendance; and micro-credentials are short, focused programmes that develop specific competencies with an assessment or certificate. This strategy is particularly relevant to Nigeria because it can reach learners constrained by employment, distance or family responsibilities. Institutions can develop online short courses in educational management, research methods, entrepreneurship, information technology, data analysis and digital teaching; polytechnics can offer short technical courses in computer networking or renewable-energy installation; and colleges of education can provide continuing professional development for teachers. Recorded lectures and reusable digital resources may allow institutions to serve larger groups without proportionate increases in delivery costs, as Peretomode et al. noted in their discussion of alternative funding mechanisms.

Nevertheless, digital education requires investment in learning platforms, cybersecurity, content development, technical support and staff training, and such investment in university education faces obstacles that must be planned for [24]. Programmes must be properly approved, academically credible and accessible; revenue-generating courses must not mislead learners about the status of their certificates; and programmes leading to formal awards must comply with the relevant accreditation requirements. Analyses of the cost of university education indicate that alternative sources such as fee-paying programmes must be balanced against affordability for students [25].

Table 1. Innovative financing strategies for Nigerian tertiary institutions: mechanisms, suitable institutions and key conditions

No.	Strategy	Revenue mechanism	Most suitable for	Key conditions for success
1	Commercialisation of research and IP	Patent licensing, royalties, spin-offs, technology transfer	Research-intensive universities	IP policy; technology-transfer office; industry links
2	Public–private partnerships	Private capital for hostels, energy, ICT, services	All types	Sound contracts; transparent procurement; affordability safeguards
3	Alumni, endowment and philanthropy	Donations, endowment returns, named chairs and scholarships	Established institutions with large alumni base	Donor trust; professional fund management; audited reporting
4	Consultancy and professional development	Fee-paying advisory services, short courses, executive education	All types; especially colleges of education	Consultancy units; market assessment; revenue-sharing rules
5	Commercial ventures and investment companies	Farms, guest houses, printing, workshops, laboratories	Polytechnics and asset-rich universities	Market research; separate commercial governance; financial controls
6	Competitive grants and industry-sponsored research	Research grants, contract research, international projects	Research-active universities	Research development office; proposal-writing capacity
7	Digital education, ODL and micro-credentials	Online programme fees, training contracts	All types	Platforms; quality assurance; accreditation compliance

Source: compiled by the author from the reviewed literature.

Discussion

The results show that the seven strategies are complementary rather than interchangeable. Their relative value depends on institutional capacity, market demand, management quality, regulatory requirements and implementation costs (Table 1). A university with strong research facilities may benefit considerably from commercialisation and competitive grants, while a polytechnic with established technical workshops may be better positioned to generate revenue through industry services and production. A college of education may find consultancy, professional development and online teacher-training programmes more practical than capital-intensive commercial ventures. Financing reform should therefore be adapted to the capacities and circumstances of individual institutions rather than implemented through a uniform model.

A second finding is that the generation of additional revenue does not by itself guarantee institutional improvement. Where commercial activities are poorly managed, financial accountability is weak or resources are diverted from teaching and research, diversification may create new liabilities. Innovative financing should therefore rest on strategic planning, professional financial management, institutional transparency and clear performance indicators, with each strategy assessed by its net financial contribution, educational benefits, implications for access and sustainability. These relationships are summarised in Figure 1, in which government allocations remain the primary and continuing source of funding, the seven strategies supplement them, and an

enabling foundation of governance and accountability determines whether diversification produces sustainable outcomes.

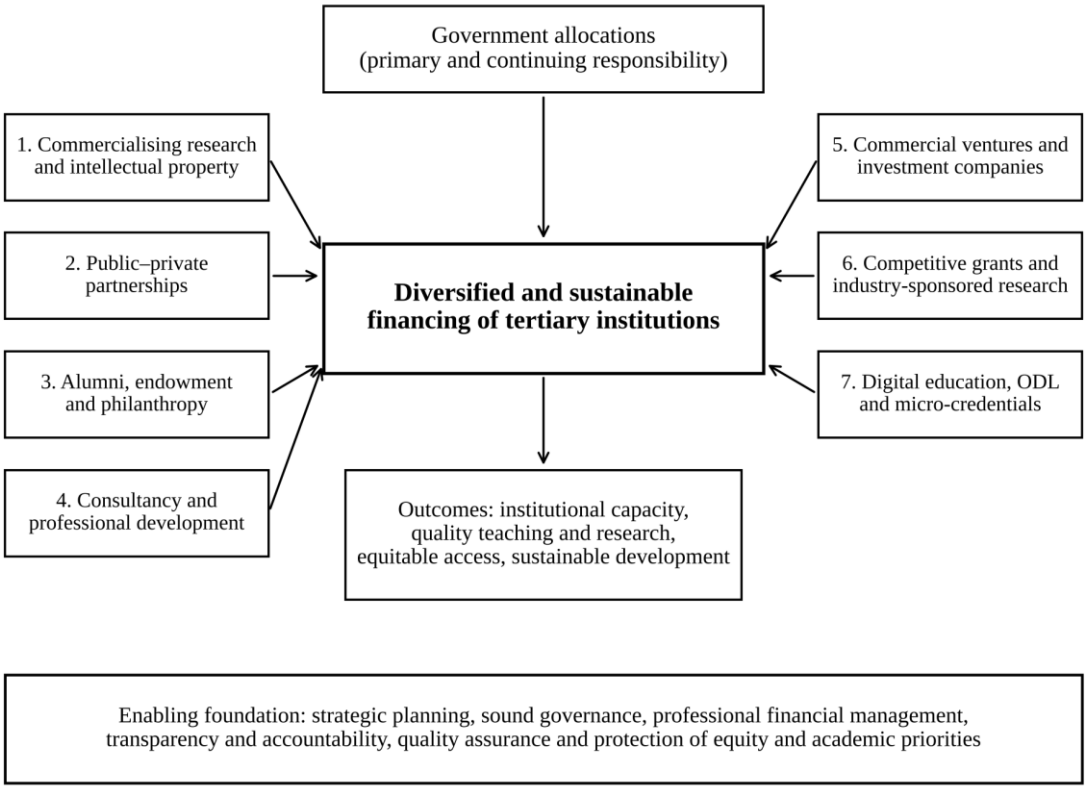


Figure 1. Framework for innovative and sustainable financing of tertiary institutions in Nigeria
Source: developed by the author.

Conclusion

Innovative financing provides Nigerian tertiary institutions with opportunities to mobilise additional resources, improve financial sustainability and strengthen their capacity to deliver quality teaching, research, innovation and community service. This review has discussed seven strategies: commercialisation of research outputs and intellectual property; public–private partnerships; alumni fundraising, endowment funds and philanthropy; consultancy and professional development; commercial ventures and institutional investment companies; competitive research grants and industry-sponsored research; and digital education, open and distance learning and micro-credential programmes.

The reviewed scholarship indicates that alternative financing opportunities exist but are not always fully utilised, and that successful diversification requires more than identifying potential sources of income. Institutions need appropriate governance structures, financial expertise, accountability mechanisms, market assessments and safeguards for academic quality and student welfare, and each institution should select the strategies that correspond to its mission, resources, expertise, location and financial circumstances. Innovative financing should complement government allocations rather than replace public responsibility for tertiary education. Future empirical research should measure the net revenue, costs and risks of each strategy across different categories of Nigerian tertiary institutions.

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