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# Leveraging Public–Private Partnerships for Technical Skills Development in Nigeria: A Policy and comparative Analysis of BOI and TVET Initiatives

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## ABSTRACT

This study examines the role of public–private partnerships (PPPs) in enhancing Technical and Vocational Education and Training (TVET) in Nigeria, motivated by persistent youth unemployment and skills mismatches. Using Human Capital Theory, Public Choice Theory, Institutions Theory, and Stakeholder Theory, the study analyzes data from major Nigerian initiatives, including ITF–NECA Technical Skills Development Project, Dangote Academy, NCDMB's Oil & Gas Content Program, BOI–ITF Graduate Entrepreneurship Fund, Lagos State Employment Trust Fund, Nigerian Breweries Technical Schools, and UNDP-supported vocational projects. Empirical review of reports, program evaluations, and field data reveals that PPPs improve employability, sectoral relevance, and capacity building, particularly where employers are deeply engaged. However, challenges remain: sectoral concentration, regional inequities, fragile financing, and weak monitoring. Policy analysis shows that sustainable levy-based financing, structured employer engagement, quality assurance, and deliberate inclusion of women, rural youth, and SMEs are key to scaling impact. Recommendations emphasize expanding outcome-based financing via the Bank of Industry, modernizing levies, strengthening sector skills councils, and scaling hub-and-spoke training models to underserved regions. The study concludes that while Nigerian PPP-driven TVET initiatives have demonstrated measurable impact, systemic reforms are necessary to ensure equity, scalability, and resilience in skills development.

## INTRODUCTION

Technical and vocational education and training (TVET) is widely recognised as a critical driver of skill development, employability, and sustainable economic growth in both developed and developing economies (UNESCO, 2022). In many African countries, including Nigeria, TVET has gained renewed attention due to its potential to address youth unemployment, reduce poverty, and bridge the mismatch between school curricula and labour market demands (Okolie *et al.*, 2023). However, the sector remains underfunded, fragmented, and poorly aligned with industry needs.

Against this backdrop, Public-Private Partnerships (PPPs) have emerged as a strategic mechanism to strengthen TVET systems. PPPs are collaborative arrangements in which government agencies, private firms, and sometimes non-governmental organisations share responsibilities, risks, and resources for designing, funding, and delivering skills development initiatives (World Bank, 2021).

The appeal of PPPs lies in leveraging the comparative advantages of each partner: governments provide policy and regulatory frameworks, while private actors contribute expertise, innovation, and labour market intelligence (ILO, 2022).

Globally, countries such as Germany, Singapore, and South Korea have demonstrated the transformative impact of PPPs on vocational education through dual training systems and industry-linked apprenticeships (CEDEFOP, 2021). In Africa, Ethiopia, Ghana, and South Africa have piloted similar arrangements, albeit with varying levels of success.

In Nigeria, PPPs in TVET are increasingly visible through collaborations between government institutions like the Industrial Training Fund (ITF), parastatals such as the Nigerian Content Development and Monitoring Board (NCDMB), and private conglomerates such as Dangote Group. These initiatives have trained thousands of young people, yet the scale remains insufficient relative to Nigeria's youth bulge and unemployment crisis (National Bureau of Statistics [NBS], 2022).

This paper critically reviews the role of PPPs in TVET, drawing insights from global experiences and situating them within the Nigerian context. By doing so, it identifies gaps, highlights promising practices, and suggests pathways for strengthening PPP frameworks as a tool for economic diversification and human capital development.

### Purpose of the Study

The objectives of this study are to:

1. Examine global practices of public–private partnerships in TVET, highlighting key models and lessons that could be adapted to Nigeria.
2. This study analysed the Nigerian experience of PPPs in TVET, with a focus on major initiatives, achievements, and persistent challenges.
3. Explore the theoretical underpinnings of PPPs in skills development, linking practice with human capital, systems, and public choice theories.

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4. Recommend strategies for strengthening PPPs in TVET to promote sustainable skills development, reduce unemployment, and enhance Nigeria's competitiveness in the global economy.

**Significance of the Study**

This study is significant for several reasons:

1. Policy relevance: Provides evidence-based insights for policymakers, particularly in ministries of Education, Labour, and Industry, on designing PPPs that effectively address the skills gap.
2. Institutional strengthening: it highlights opportunities for technical institutions, polytechnics, and vocational centres to forge stronger ties with industry.
3. Economic development: Emphasises the role of PPPs in equipping young Nigerians with employable skills, reducing unemployment, and fostering entrepreneurship in line with Nigeria's Economic Recovery and Growth Plan (ERGP) and the National Development Plan 2021–2025.
4. Comparative learning: Offers lessons from global best practices for adapting dual training, apprenticeship, and work-integrated learning systems.
5. Development finance insights: For institutions like the Bank of Industry (BOI), the review highlights how PPPs can be leveraged for industrial growth and SME development.

**Theoretical / Conceptual Framework**

Several theoretical lenses underpin the discussion of PPPs in TVET. These frameworks explain why collaboration between the public and private sectors matters and how it shapes outcomes in vocational training. This study draws upon recent theoretical perspectives to explain the dynamics of leveraging Public-Private Partnerships (PPPs) for technical skills development in Nigeria.

**Human Capital Development Theory**

Human capital development remains central to skills training and workforce readiness. Recent extensions of this theory emphasise the role of innovation, technology, and PPP in advancing employability (Okolie *et al.*, 2021). By investing in vocational education and training, both government and private institutions contribute to building a workforce capable of meeting the demands of modern industries.

**Case Evidence**

Germany's dual system, which combines classroom instruction with company-based apprenticeships, illustrates how public institutions and private employers co-invest in developing a skilled workforce (CEDEFOP, 2021). In Nigeria, the ITF–NECA Technical Skills Development Project reflects this principle by ensuring trainees acquire industry-relevant competencies that enhance employability (ITF, 2021).

**Public Choice Theory**

Public Choice Theory suggests that governments may face limitations—such as bureaucracy, inefficiency, and fiscal constraints—in delivering services. Collaboration with the private sector helps optimise resource allocation (Mueller, 2020).

**Case Evidence**

In Lagos State, the partnership between the Lagos State Employment Trust Fund (LSETF) and the United Nations Development Programme (UNDP) mobilised resources from both sectors to expand vocational training in ICT, solar energy, and fashion industries (UNDP, 2021).

**Public Value Theory**

Public Value Theory has gained traction in PPP research as it frames government–industry collaboration as a means of creating value beyond economic returns, including social equity and skills empowerment (Moore & Hartley, 2021). In Nigeria, PPP-driven skills initiatives can be understood as strategies to maximise social value by aligning private sector investment with national development goals.

**Institutional Theory**

Institutional theory has been recently applied to explain how formal structures, norms, and regulatory frameworks shape PPP effectiveness in education and skills development. Studies highlight that PPPs succeed when institutional arrangements foster trust, accountability, and sustainability (Ajonbadi & Ismail, 2022). This matter is particularly relevant in Nigeria, where weak institutional frameworks often constrain programme outcomes.

**Case Evidence**

In South Korea, industry-led councils work with government agencies to update TVET curricula in response to technological changes (OECD, 2020). In Nigeria, Dangote Academy integrates company-specific needs into a structured dual training framework, producing graduates who transition seamlessly into the labour market (Okolie & Igwe, 2020).

**Blended Finance and Development Finance Theory**

Emerging finance theories underscore blended finance and development finance mechanisms as pivotal in addressing funding gaps in technical and vocational education (OECD, 2020; AfDB, 2023). By pooling public resources with private capital, PPPs can reduce risks, attract investors, and ensure scalable training initiatives that align with Nigeria's industrial policies.

**Case Evidence**

The Nigerian Content Development and Monitoring Board (NCDMB) vocational training centres involve oil companies, government, and host communities to co-design programmes that address both industrial needs and community empowerment (NCDMB, 2021).

**Summary of Framework Application**

In summary, these contemporary theoretical perspectives provide a robust lens for understanding how PPPs contribute to technical skills development. Human capital development emphasises workforce readiness; public value theory highlights social impact; institutional theory accounts for governance structures; and developmental finance perspectives explain innovative funding models. Together, they offer a comprehensive explanation of the Nigerian PPP experience in technical skills training and justify the role of PPPs in TVET as more than a pragmatic funding arrangement; they represent a strategic alignment of interests, resources, and outcomes. PPPs grounded in sound theoretical principles are more likely to deliver scalable and sustainable results, as demonstrated by cases from both Nigeria and abroad.

## MATERIALS AND METHODS

This study adopts a qualitative research design based on documentary analysis and comparative case evaluation. Rather than conducting primary surveys or experiments, the study synthesizes secondary data drawn from official reports, policy documents, institutional publications, programme evaluations, and peer-reviewed literature on public–private partnerships (PPPs) in Technical and Vocational Education and Training (TVET).

### Research Design

The research employs an exploratory and analytical design to examine how PPP models function in skills development. The approach enables systematic comparison of global experiences with Nigerian initiatives to identify patterns, strengths, weaknesses, and policy implications.

### Data Sources

Data were drawn from:

- Annual reports of the Bank of Industry (BOI)
- Industrial Training Fund (ITF) programme reports
- Nigerian Content Development and Monitoring Board (NCDMB) publications
- Lagos State Employment Trust Fund (LSETF) reports
- United Nations Development Programme (UNDP) project documents
- UNESCO, ILO, OECD, and World Bank policy papers
- Peer-reviewed journal articles on TVET and PPP models

### Case Selection Criteria

Cases were selected based on:

- Institutional relevance to Nigeria's skills ecosystem
- Demonstrated employer participation
- Evidence of measurable outcomes (employment, absorption, training volume)
- Policy relevance to development finance and industrial growth

Global cases (Germany, Singapore, South Korea, Brazil, South Africa, etc.) were selected to provide comparative benchmarks.

### Analytical Framework

The analysis applies thematic coding to identify recurring dimensions:

- Financing architecture
- Industry engagement
- Governance structure
- Regional inclusion
- Employment outcomes
- Scalability and sustainability

Comparative synthesis was then conducted to map global lessons to Nigerian policy levers.
This methodology allows the study to generate policy-relevant insights grounded in documented programme evidence and comparative institutional analysis.

## RESULTS AND DISCUSSION

### Global Comparative Findings on PPP-Driven TVET Models

This section presents comparative evidence from advanced and emerging economies on the structure, financing, governance, and outcomes of public–private partnerships (PPPs) in technical and vocational education and training (TVET).

**Table 1:** Global Comparative Finding of Public–Private Partnerships (PPPs) in TVET Model

| Country | PPP Model | Key Focus Areas | Outcomes | Challenges | Sources |
|---|---|---|---|---|---|
| Germany DE | Dual apprenticeship system co-financed by firms and government; industry associations regulate standards | Manufacturing, engineering, ICT, services | Strong linkage between training and labor market demand; high youth employment rates | High cost to SMEs; adapting curriculum to Industry 4.0 | Deissinger, 2020 |
| Singapore SG | SkillsFuture initiative; state–industry–polytechnic collaboration | ICT, finance, logistics, green economy | Flexible lifelong learning pathways; industry-relevant curricula | Heavy state financing; risk of overspecialization | Tan & Low, 2021; World Bank, 2021 |
| South Korea KR | Public–industry partnerships in Meister Schools and corporate-led academies | ICT, electronics, robotics, smart manufacturing | Strong industry alignment; export-oriented skills base | Rural–urban skills gap; limited SME participation | Lee, 2020; OECD, 2020 |

| | | | | | |
|---|---|---|---|---|---|
| Australia AU | VET supported by employer groups and state governments | Mining, construction, aged care, hospitality | Widespread employer engagement; competency-based qualifications | Inconsistent quality across states; funding sustainability | Smith & Brennan Kemmis, 2020 |
| India IN | NSDC links private providers with state agencies | ICT, agriculture, construction, services | Rapid scale-up; industry-led sector skill councils | Quality assurance and dropout issues | Mehrotra, 2021; NSDC, 2023 |
| Ethiopia ET | Demand-driven PPP with industry advisory boards | Agriculture, construction, textiles | Improved urban employability; donor-supported programs | Weak rural coverage; underfunded institutions | Hailu & Mohammed, 2020 |
| Ghana GH | Skills Development Fund co-financed by government, World Bank, and industry | Construction, ICT, oil & gas, agriculture | Industry demand–driven reforms; increased SME involvement | Limited funding sustainability; rural mismatch | UNESCO, 2021 |
| South Africa ZA | SETAs with industry levies | Mining, finance, ICT, manufacturing | Expanded workplace learning; black economic empowerment | Bureaucracy; mismanagement of levy funds | Wedekind, 2022 |
| Rwanda RW | Workforce Development Authority with donor–private partnerships | ICT, hospitality, construction | Strong ICT focus; growing private training providers | Donor dependence; limited rural capacity | UNESCO, 2021; Ndayambaje, 2022 |
| Brazil BR | SENAI & SENAC: employer-financed training networks | Industrial skills, services, entrepreneurship | Large-scale employer-financed TVET; innovation hubs | Regional inequalities; informal labor market | Alves, 2021; ILO, 2022 |

*Sources: Authors' compilation from secondary sources, 2025 work*

The comparative evidence indicates that high-performing systems are characterised by structured employer participation, co-financing arrangements, clear occupational standards, and strong monitoring frameworks.

**Narrative Analysis from Table 1**

**Lessons from Advanced Economies**

• Germany: A dual system co-financed by industry fosters alignment between skilled labour and labour market needs (Deissinger, 2020).

• Singapore: SkillsFemphasisesasises lifelong learning and industry-shaped curricula (Tan & Low, 2021).

• South Korea: Meister Schools provide export-driven, technologically advanced skills (Lee, 2020).

• Australia: Competency-based VET ensures inclusivity but faces quality disparities (Smith & Brennan Kemmis, 2020).

**Insights from Emerging Economies**

• India's NSDC: Achieved large-scale skill training, but quality and dropout remain concerns (Mehrotra, 2021).

• Brazil's SENAI/SENAC: Employer-financed training expands access while supporting innovation hubs (Alves, 2021).

• South Africa's SETAs: Levy-funded training expanded workplace learning but faced governance challenges (Wedekind, 2022).

**African Perspectives**

• Ghana: Skills Development Fund leveraged PPPs to align training with labour market needs (UNESCO, 2021).

• Ethiopia: Demand-driven reforms improved urban employability, but rural reach remains limited (Hailu & Mohammed, 2020).

• Rwanda: PPPs focused on ICT and knowledge-intensive sectors, though donor dependence threatens sustainability (UNESCO, 2021).

**Common Themes and Challenges**

• Industry engagement is essential.
• Sustainable financing determines success.
• Governance and accountability are critical.
• Inclusivity and equity remain challenges.
• Continuous technology adaptation is required.

**Implications for Nigeria**

• Adopt a dual-system model for structured apprenticeships with industry financing.

• Emphasises lifelong learning and employer-influenced curricula.

• Learn from levy-funded systems like South Africa and Brazil, while avoiding governance pitfalls.

• Leverage donor–industry–government partnerships for scaling TVET access.

**Evidence from Nigerian PPP-TVET Initiatives**

This subsection analyses major Nigerian PPP-TVET initiatives, examining programme design, sectoral focus, employment outcomes, and implementation constraints. Table 2 presents a structured overview of key initiatives involving the Industrial Training Fund (ITF), the Nigerian Content Development and Monitoring Board (NCDMB), the Lagos State Employment Trust Fund (LSETF), and the Bank of Industry (BOI), among others.

**Table 2:** Major Nigerian PPP-TVET Initiatives, Outcomes, and Challenges

| PPP Initiative | **Key Actors** | **Focus Areas** | **Outcomes** | **Challenges** | **Sources** |
|---|---|---|---|---|---|
| ITF–NECA Technical Skills Development Project (TSDP) | ITF, NECA, private firms | Manufacturing, construction, ICT, oil & gas | 50,000+ youths trained (2008–2022); 70% employability | Funding limitations; uneven geographical coverage | ITF, 2022; NECA, 2023 |
| Dangote Academy | Dangote Group, foreign partners, government | Cement, engineering, welding, mechanical & electrical maintenance | Specialized technical skills; 80% graduates absorbed | Sector-specific; limited scalability | Adeyemi, 2021; Dangote Group, 2023 |
| NCDMB–NOGICD Initiative | NCDMB, Shell, Chevron, Total | Oil & gas, marine engineering, welding, fabrication | Skilled thousands of youths; improved local content | Concentration in Niger Delta; funding sustainability | NCDMB, 2022; Okonkwo, 2023 |
| BOI–ITF Graduate Entrepreneurship Fund (GEF) | BOI, ITF, MSMEs | Entrepreneurship, ICT, agro-processing | 3,000+ graduates trained; startup loans | Loan repayment challenges; limited monitoring | BOI, 2021; Ojo, 2022 |
| Lagos State Employment Trust Fund (LSETF) | Lagos State Gov., private providers, tech companies | ICT, creative industry, fashion, hospitality | 200,000+ youths trained | Limited to Lagos; rural exclusion | LSETF, 2022; Akinyemi, 2023 |
| Nigerian Breweries/ Heineken Technical Schools | Nigerian Breweries, Heineken, ITF | Mechatronics, electrical engineering, brewing technology | High absorption into brewery sector | Sector-specific; low public visibility | Nigerian Breweries, 2022 |
| UNDP–FGN–Private Sector Vocational Project | UNDP, FG of Nigeria, SMEs | ICT, renewable energy, fashion, construction | Skills for women & youths in Northern Nigeria | Security challenges; donor dependence | UNDP, 2021; Musa, 2022 |

*Source: Authors' compilation from secondary sources, 2025*

The findings reveal measurable gains in employability and sector-specific skills acquisition, particularly in programmes with strong employer integration. However, limitations related to financing sustainability, geographic concentration, and monitoring gaps persist.

**Narrative Case-Based Evidence from Table 2**

**ITF–NECA Technical Skills Development Project (TSDP)**

Launched in 2008, the TSDP is one of Nigeria's most comprehensive PPP-driven TVET initiatives. It connects industrial employers with TVET institutions to provide competency-based training. Co-financed by ITF and NECA, firms like Dangote, Julius Berger, and Nigerian Breweries host trainees. Outcomes include 70% employability rates and reduced industry–skills mismatch (ITF, 2022). However, coverage remains skewed toward urban centres, leaving rural areas underserved.

**Dangote Academy**

Established in 2010, the Dangote Academy provides in-house technical training for the cement and manufacturing industries. It partners with foreign technical firms to train Nigerians in mechanical, electrical, and welding skills, with over 80% of graduates absorbed into Dangote Group and allied industries (Adeyemi, 2021). While effective, its sector-specific focus limits nationwide TVET impact.

**NCDMB – Oil & Gas Content Development Initiative**

The Nigerian Content Development and Monitoring Board (NCDMB) collaborates with IOCs like Shell, Chevron, and Total to strengthen local participation in the oil & gas value chain.Centres in Yenagoa and Port Harcourt provide advanced welding, marine engineering, and fabrication training. While successful in boosting local content, initiatives remain concentrated in the Niger Delta, raising regional imbalance concerns (Okonkwo, 2023).

**BOI–ITF Graduate Entrepreneurship Fund (GEF)**
The GEF combines training with access to single-digit loans for startups. Since 2015, over 3,000 graduates have received entrepreneurial training and funding (BOI, 2021). However, loan repayment defaults and limited post-training mentorship have affected the program's impact (BOI, 2018).

**Lagos State Employment Trust Fund (LSETF)**
The LSETF exemplifies a state-level PPP model, collaborating with tech giants (Google, Microsoft, and Andela) and local providers to offer digital and vocational training. Since 2016, it has trained over 200,000 youths in ICT, creative arts, fashion, and hospitality (LSETF, 2022). Its geographic limitation to Lagos, however, constrains national scalability.

**Nigerian Breweries/Heineken Technical Schools**
Part of Heineken's global model, these schools in Ibadan and Kaduna provide mechatronics, electrical, and brewing technology training, producing highly employable graduates. The programme's low visibility outside the beverage sector limits broader relevance (Nigerian Breweries, 2022).

**UNDP–FGN–Private Sector Vocational Projects**
Focused on Northern Nigeria, this initiative trains women and unemployed youths in ICT, renewable energy, and tailoring. It highlights PPPs' potential to address gender and regional disparities in skills development, though sustainability is challenged by donor dependence and insecurity (Musa, 2022).

**Cross-Cutting Analytical Findings**
The thematic analysis generated six major findings:

**Sectorial Concentration**
Nigerian PPP-TVET initiatives are predominantly sector-specific, concentrating in oil & gas, cement, ICT, and brewing industries. While this ensures technical depth, it constrains horizontal scalability.

**Financing Architecture Constraints**
Unlike employer-levy models such as Brazil's SENAI and South Africa's SETAs, Nigeria relies largely on project-based or corporate-led funding mechanisms, limiting national scale.

**Regional Inequalities**
PPP initiatives are heavily concentrated in Lagos and the Niger Delta, leaving rural and Northern regions comparatively underserved.

**Demonstrable Employability Impact**
Programmes such as ITF–NECA and state-level initiatives demonstrate high absorption rates, indicating that employer-embedded models effectively reduce skills mismatches.

**Monitoring and Evaluation Gaps**
Weak tracer systems and fragmented occupational standards undermine long-term assessment of programme outcomes.

**Limited Policy Synchronisation**
Coordination between PPP initiatives and Nigeria's National Policy on Education remains inconsistent, resulting in duplication and inefficiencies.

**Policy Mapping and Strategic Reform Levers**
Building on the empirical findings, this subsection maps global best practices onto actionable Nigerian reform pathways.

**Discussion & Policy Implications**
**Evidence Overview**
Engaging industry actively enhances the relevance of PPPs in the labour market. High-performing models, from Germany's dual system to Singapore's SkillsFuture, rely on structured employer roles—co-designing standards, co-financing delivery, and providing workplaces for learning. In Nigeria, ITF–NECA and Dangote Academy show superior outcomes where employers are deeply embedded in training design.
Sustainable financing is critical. Models like SENAI/SENAC (Brazil) and South Africa's SETAs illustrate that employer-levy financing can scale TVET nationally, provided governance and transparency are strong. Nigeria's ITF levy exists, but most PPPs still rely on project-based funding.
Quality assurance and credential signals matter. National occupational standards and rigorous assessments (Germany, Korea) enhance employability recognition. Nigeria's PPPs would benefit from sharper standards, assessments, and tracer studies linked to labour market outcomes.
Inclusion requires intentional design. High-performing PPPs explicitly include women, rural youth, and SMEs. Nigerian initiatives such as LSETF-UNDP reflect inclusive design at the state level, but national replication is necessary.

**Strengths and Gaps in Nigeria's PPPs**
**Strengths**
ITF–NECA's industry alignment; NCDMB's technical capacity in oil & gas; LSETF's digital and creative orientation; Dangote Academy's high absorption.

**Gaps**
Project-based financing, rural reach, weak M&E, fragmented standards, and limited diffusion beyond mega-firms and oil sectors.

**Policy Implications (BOI–JDF Lens)**
**Financing Architecture & Incentives**
1. Modernises levy-based financing: Ring-fence ITF levy funds for PPP-TVET programs are conditional on

placement and retention outcomes (SENAI/SENAC and SETA analogues).

2. Outcome-based BOI concessional credit: Low-interest finance for firms hosting apprentices, co-investing in labs, or meeting placement/retention targets.

3. SME participation vouchers subsidises training for SMEs through accredited providers, with BOI guaranteeing stipends for first-time apprentices.

**Governance & Quality Assurance**

1. National PPP-TVET Compact: Define occupational standards, WBL ratios, stipends, mentor ratios, and M&E frameworks (benchmark: CEDEFOP dual-system standards).

2. Tiered provider accreditation & micro-credentials: Implement stackable micro-credentials with digital badges to enhance employability signalling (Singapore model).

3. Transparent levy dashboard: Quarterly online reports on inflows, disbursements, KPIs, and audit flags (SETA's lesson).

**Labour-Market Alignment & Foresight**

1. Revamped Sector Skills Councils with forecasting: Conduct annual skills foresight exercises to inform curricula and BOI priority pipelines.

2. Mandatory employer input in curriculum review: Tie public funding to documented employer participation in curricula and assessment.

**Inclusion & Spatial Equity**

1. Rural TVET access via mobile & hub-and-spoke models. Co-locate training hubs with polytechnics and technology parks; replicate NCDMB-style centres.

2. Women's participation targets & support: Programme-level female targets (e.g., 40%), childcare stipends, safe transport, and coaching support.

**Measurement, Learning, and Scale**

1. National tracer studies & earnings panels: Track graduate employment outcomes at 6, 12, and 24 months; publish earnings mobility and employer satisfaction.

2. What-Works TVET Lab: BOI-hosted rapid evaluations to identify cost-effective, scalable models.

**Policy Mapping and Strategic Levers**

Table 3 links international lessons from Germany, Singapore, Brazil, and South Africa to practical Nigerian policy levers within a 12–24 month implementation horizon

**Table 3:** Mapping Global Lessons to Nigerian Reform Levers

| Global Lesson | Nigeria's Lever | Practical Move (12–24 months) |
|---|---|---|
| Co-financed, co-regulated apprenticeship (Germany) | ITF levy + NECA firms + NBTE | Launch 10 dual-track pilots with 70–80% WBL; chambers co-assess |
| Lifelong learning & micro-credentials (Singapore) | NBTE/NUC + private providers | Skills Credit pilots; stackable micro-credentials with employer anchors |
| Employer-levy scaling (Brazil, South Africa) | ITF levy modernization | Ring-fence performance window; publish dashboards; independent audits |
| Skills foresight embedded in councils (Brazil/SENAI) | Sector Skills Councils | Annual skills foresight reports to update curricula & BOI financing |
| Regional hubs & donor-private blends (Rwanda, Ghana) | State TVET boards + BOI + donors | Hub-and-spoke centers in North-West/North-East; mobile units; SME match grants |

*Source: Authors' compilation from secondary sources, 2025*

This mapping exercise highlights that structured apprenticeship models, levy-modernisation reforms, micro-credential frameworks, and sector skills forecasting mechanisms are adaptable to Nigeria's institutional context, particularly through the catalytic role of the Bank of Industry.

**Role of BOI in PPP-TVET Transformation**

- Concessional PPP Facility: Low-cost finance for firms hosting apprentices or retrofitting public polytechnic labs.
- Results-Based Financing (RBF): Pay providers based on employment and retention milestones.
- Blended Finance with Donors: De-risk SME entry in underserved regions.
- Data Infrastructure: National tracer studies and dashboards to strengthen lender confidence and policy targeting.

**Risk Analysis and Implementation Constraints**

While PPP-TVET expansion presents significant opportunities, implementation risks must be proactively managed.

Table 4 outlines key risks—including governance drift, credential inflation, regional inequity, and donor dependence—and proposes mitigation strategies based on international experience.

**Table 4:** Risks & Management Strategies of PPP- TVET Reform

| Risk | Mitigation |
|---|---|
| Governance drift/fund misuse | Transparent dashboards, independent audits, public scorecards (SETA model) |
| | Vouchers, shared training centers, simplified contracts |

| | |
|---|---|
| Credential inflation/weak signalling | External assessments with employer co-assessors; employer satisfaction indices |
| Regional inequity | Northern/rural hubs; mobile units; state-level quotas for BOI facilities |
| Donor dependence | Levy-plus-public budget model to sustain operations post-grant |

*Source: Authors' compilation from secondary sources, 2025*

The analysis underscores that transparent governance dashboards, independent audits, employer co-assessment mechanisms, and sustainable levy-plus-budget financing are critical to long-term system resilience.

## CONCLUSION

The review of Nigeria's Public–Private Partnership (PPP) Technical and Vocational Education and Training (TVET) initiatives shows that industry-driven collaborations significantly enhance technical skill acquisition and youth employability. Programmes such as the ITF–NECA Technical Skills Development Project and Dangote Academy demonstrate that strong employer participation in curriculum development, work-based learning, and job placement improves labour market absorption. Partnerships supported by LSETF and UNDP further highlight the potential for inclusive and ICT-oriented skill development.

Despite these achievements, major structural challenges remain. Financing mechanisms are largely project-based and dependent on donor or corporate funding, while programme coverage is uneven and concentrated in urban centres. Weak monitoring systems, fragmented occupational standards, and governance limitations restrict the national scalability and long-term sustainability of PPP-TVET initiatives. International experiences indicate that performance-based financing, standardized occupational frameworks, and labour market forecasting mechanisms are essential for strengthening the effectiveness and sustainability of PPP-driven TVET systems.

Policy actions should focus on modernising ITF levy financing to support employer-led apprenticeships and work-based learning. Government and development finance institutions should expand dual apprenticeship models across priority sectors such as manufacturing, ICT, and logistics. Integrating micro-credentials and stackable qualifications will enhance flexibility and lifelong learning opportunities. Efforts should also promote gender inclusion and rural access through regional training hubs and targeted participation policies. Strengthening governance through transparent monitoring systems, independent audits, and labour market data tracking is necessary to ensure accountability and programme effectiveness. Finally, blended financing and SME training incentives should be introduced to broaden industry participation and ensure sustainable PPP-TVET development beyond donor dependence.

## REFERENCES

Adeyemi, T. (2021). *Technical skills training and industrial absorption: The case of Dangote Academy*. Nigerian Institute of Industrial Development.

African Development Bank. (2023). *Blended finance in Africa: Unlocking sustainable development through partnerships*. https://www.afdb.org

African Development Bank Group. (2020). *Jobs for youth in Africa strategy 2016–2025*. AfDB.

Ajonbadi, H. A., & Ismail, N. A. (2022). Institutional theory and public–private partnerships in African education reforms. *Journal of African Business, 23*(4), 512–530. https://doi.org/10.1080/15228916.2021.1968734

Akinyemi, O. (2023). *Skills development through Lagos State Employment Trust Fund: Achievements and challenges*. Lagos State Government Publication.

Alves, F. (2021). Employer-financed vocational training and innovation in Brazil: SENAI and SENAC models. *International Journal of Vocational Education, 15*(2), 45–62.

Bank of Industry. (2018). *Annual report 2018: SME programmes and youth enterprise support (Graduate Entrepreneurship Fund statistics)*. https://www.boi.ng/wp-content/uploads/2022/11/2018-BOI-Annual-Report-for-web-Final.pdf

Bank of Industry. (2021). *Annual report 2021*. https://www.boi.ng/2021-annual-report/

CEDEFOP. (2021). *Vocational education and training in Europe: Dual system case studies*. *European Centre for the Development of Vocational Training*. https://www.cedefop.europa.eu/

Dangote Group. (2023). *Technical training and capacity development initiatives*. Dangote Industries Limited. https://dangote.com

Deissinger, T. (2020). Germany's dual vocational education system: Historical development and contemporary challenges. *Journal of Vocational Education & Training, 72*(3), 1–20. https://doi.org/10.1080/13636820.2019.1620911

Federal Government of Nigeria. (2020). *National policy on education* (6th ed.). Nigerian Educational Research and Development Council.

Hailu, D., & Mohammed, S. (2020). Public–private partnerships in Ethiopian TVET: Opportunities and constraints. *Ethiopian Journal of Vocational Training, 5*(1), 50–67.

Industrial Training Fund. (2021). *Technical skills development project: Annual report*. https://itf.gov.ng

Industrial Training Fund. (2022). *TSDP achievements and reports (2008–2022)*. https://itf.gov.ng

International Labour Organization. (2022). *Private sector engagement in skills development: A global perspective*. https://www.ilo.org

Lagos State Employment Trust Fund. (2022). *Financial report 2022*. https://lsetf.ng/content/2022-financial-report

Lee, J. (2020). Industry-aligned vocational education in South Korea: Meister schools and corporate academies. *Asia-Pacific Journal of Education, 40*(3), 345–362.

Mehrotra, S. (2021). National Skill Development Corporation (NSDC) and vocational training in India. *Indian Journal of Skills Development, 12*(1), 15–31.

Moore, M., & Hartley, J. (2021). Innovations in governance and the creation of public value: Rethinking public administration. *Public Management Review, 23*(2), 256–272. https://doi.org/10.1080/14719037.2020.1725781

Mueller, D. C. (2020). *Public choice III*. Cambridge University Press.

Musa, A. (2022). *PPP-driven vocational initiatives for women and youth in Northern Nigeria*. Northern Skills Development Institute.

National Bureau of Statistics. (2022). *Labour force statistics: Unemployment and underemployment report*. https://www.nigerianstat.gov.ng

Nigerian Content Development and Monitoring Board. (2021). *Oil & gas content development initiatives*. https://www.ncdmb.gov.ng

Nigerian Content Development and Monitoring Board. (2022). *Annual report on local content and skills development*. https://www.ncdmb.gov.ng

Nigerian Employers' Consultative Association. (2023). *Technical skills development project: Outcomes and partnerships*. https://neca.org.ng

Nigerian Breweries Plc. (2022). *Technical schools and workforce development report*. Nigerian Breweries Plc.

National Skill Development Corporation. (2023). *Annual report: India's vocational training initiatives*. https://www.nsdcindia.org

OECD. (2020). *Unlocking the potential of youth entrepreneurship in developing countries*. OECD Publishing. https://doi.org/10.1787/9789264311299-en

Okolie, A., & Igwe, P. (2020). Private sector participation in Nigerian TVET: Case of Dangote Academy. *African Journal of Technical Education, 5*(1), 12–27.

Okolie, A., Musa, L., & Eze, K. (2023). TVET and youth employability in Nigeria: Challenges and prospects. *Nigerian Journal of Vocational Studies, 10*(1), 33–55.

Okolie, U. C., Igwe, P. A., Nwajiuba, C. A., & Yasin, F. (2021). Human capital development and employability in the digital economy: Implications for technical and vocational education and training (TVET). *Education + Training, 63*(5), 744–760. https://doi.org/10.1108/ET-11-2020-0344

Okonkwo, C. (2023). *Local content development in Nigeria's oil and gas sector: Skills training outcomes*. Nigerian Content Development and Monitoring Board.

Oluwafemi, B., & Adebayo, S. (2022). PPP models in African vocational education. *African Education Review, 19*(3), 201–220.

Organisation for Economic Co-operation and Development. (2020). *Blended finance principles for sustainable development: Implementation guidance*. https://doi.org/10.1787/9789264311299-en

Smith, E., & Brennan Kemmis, R. (2020). Competency-based vocational education in Australia: Lessons and challenges. *Australian Journal of Education, 64*(2), 110–128.

Tan, C., & Low, M. (2021). Singapore SkillsFuture initiative: Lifelong learning and industry collaboration. *Asia Education Review, 23*(1), 15–32.

Tusiime, M., Ndayambaje, I., & Ndihokubwayo, K. (2022). Graduates' and schools' managers' perceptions of the role of industrial-based training in technical vocational education and training, Rwanda. *The African Journal of Governance and Development, 11*(1.2), 351–366. https://doi.org/10.36369/2616-9045/2022/v11si2a8

UNESCO. (2021). *Building better formal TVET systems: Principles and practice in low- and middle-income countries*. UNESCO.

UNESCO. (2021). *Technical and vocational education and training in Africa: Trends and policy guidelines*. UNESCO.

UNESCO. (2022). *Global report on TVET: Skills for sustainable economic growth*. UNESCO.

United Nations Development Programme. (2021). *Human development report 2021/2022: Uncertain times, unsettled lives*. United Nations Development Programme.

United Nations Development Programme. (2021). *Public–private partnerships for skills development in Northern Nigeria*. https://www.undp.org/nigeria/projects

Wedekind, V. (2022). Partnerships for skills development in the context of South Africa's skills crisis. *International Journal of Training Research, 20*(3), 281–296. https://doi.org/10.1080/14480220.2022.2098395

Wedekind, V. (2022). Sector education and training authorities (SETAs) in South Africa: Lessons for PPPs. *South African Journal of Education, 42*(1), 1–16.

World Bank. (2021). *Learning and skills for the digital era*. World Bank.

World Bank. (2021). P*ublic–private partnerships in education: Global lessons*. World Bank.