Innovative Financing Models and Sustainability of Public Technical and Vocational Education and Training (TVET) Institutions in Kenya

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ABSTRACT

Technical and vocational education and training (TVET) has become central to Kenya's efforts to strengthen employability, industrial productivity, youth empowerment, and sustainable development. Globally, TVET systems are increasingly expected to respond to technological change, labour-market transformation, demographic pressure, climate change, and the demand for more flexible lifelong learning pathways (World Bank, International Labour Organization, & UNESCO, 2023). In Kenya, the TVET Act, 2013 established the legal and institutional basis for regulating TVET, promoting quality and relevance, enhancing access and equity, and creating mechanisms for financing technical and vocational education. The Technical and Vocational Education and Training Authority has also identified sustainable funding and financing as a strategic priority for the period 2023–2027, alongside quality, relevance, access, inclusivity, governance, and technology integration. However, public TVET institutions continue to face sustainability challenges linked to inadequate and delayed public funding, high infrastructure and equipment costs, weak industry co-financing, limited institutional income generation, and equity risks associated with student-centred financing. This desktop research article critically examines innovative financing models that can strengthen the sustainability of public TVET institutions in Kenya. Drawing on legal, policy, academic, and development-agency literature, the paper proposes an Integrated Sustainable TVET Financing Framework for Kenya. The framework combines predictable public financing, need-sensitive student support, industry co-financing, institutional enterprise, performance-based incentives, blended finance, green financing, and strengthened governance. Given its desktop-based design, the article presents the framework as a policy-oriented conceptual model that should be empirically tested through future field studies involving TVET institutions, policymakers, employers, and learners. The paper argues that sustainable TVET financing in Kenya requires not only more resources, but also a diversified, accountable, equity-sensitive, and labour-market-aligned financing ecosystem.

Keywords: TVET financing; public TVET institutions; Kenya; sustainability; innovative financing; student-centred funding; public-private partnerships; skills development

INTRODUCTION

Technical and vocational education and training (TVET) is increasingly recognised as a strategic driver of skills development, employability, productivity, entrepreneurship, and inclusive economic transformation. In low- and middle-income countries, TVET has become especially important because it is expected to respond to youth unemployment, skills mismatch, informality, technological disruption, demographic pressure, and the transition towards greener and more flexible labour markets. The World Bank, International Labour Organization, and UNESCO (2023) argue that formal TVET systems must adapt to globalisation, technological change, demographic shifts, and climate-related transitions if they are to remain relevant to labour-market and sustainable-development priorities. This positions TVET financing not merely as an education-sector concern, but as a broader development, employment, productivity, and social-equity issue.

In Kenya, TVET is central to national development ambitions, including Kenya Vision 2030, the Bottom-Up Economic Transformation Agenda, industrialisation, youth employment, and the transition from education to productive work. The *Technical and Vocational Education and Training Act, 2013* provides the legal foundation

for a coordinated TVET system, including governance, institutional management, quality assurance, assessment, certification, access, equity, and financing (Republic of Kenya, 2013). The Act also establishes the Technical and Vocational Education and Training Authority and provides for a TVET Funding Board, whose mandate includes supporting institutional financing using criteria such as output, efficiency, and alignment with government priorities (Republic of Kenya, 2013). More recently, the TVETA Strategic Plan 2023–2027 identifies sustainable funding and financing as a core strategic priority, alongside quality and relevance, access and inclusivity, governance and management, and technology integration (TVETA, 2024a). These policy developments indicate that Kenya's public TVET sector is expected to expand access and improve quality while also becoming more financially sustainable.

Despite this supportive policy architecture, the sustainability of public TVET institutions remains uncertain. TVET delivery requires continuous investment in workshops, laboratories, equipment, trainers, digital infrastructure, curriculum reform, assessment systems, and industry linkages. These requirements are costly because technical and vocational programmes are typically more equipment-intensive than general academic programmes. However, many public TVET institutions continue to depend heavily on government allocations, student fees, donor-supported projects, and limited local income-generating activities. This creates a sustainability-financing mismatch: public funding remains necessary for equity and public-interest goals, but it is not sufficient to meet expanding enrolment, infrastructure, quality-assurance, staffing, and technology needs. National education-sector planning documents identify inadequate infrastructure, human-capital shortages, limited programme resources, and the need to strengthen education financing as continuing challenges (National Treasury, 2023). Similarly, TVETA (2024b) emphasises resource mobilisation, increased budgetary allocation, collection of gazetted fees, proposal development, and improved financial accountability as priorities for the sector.

The introduction of Kenya's student-centred higher education funding model has further intensified debate on TVET financing. The model provides support to students in universities and TVET institutions through a combination of government scholarships, loans, and household contributions based on assessed need (Universities Fund, n.d.). In principle, this approach can improve targeting and equity by directing more support to learners from poorer households. However, concerns have been raised about transparency, classification of student need, affordability, loan conditions, and the possible exclusion of vulnerable learners who may struggle to navigate the application and appeals process (Kenya Human Rights Commission, 2024). Therefore, innovative financing in TVET cannot be reduced to cost-sharing or revenue diversification alone. It must be designed to protect affordability, equity, quality, accountability, and institutional viability.

The central problem addressed in this article is that Kenya's public TVET institutions require a more resilient, diversified, and accountable financing framework, yet existing policy and academic debates often treat public funding, student financing, industry partnerships, institutional income, and donor support as separate issues. There is limited integrated analysis of how these financing models can be combined to enhance the long-term sustainability of public TVET institutions. This article addresses that gap by critically examining innovative financing models and developing an Integrated Sustainable TVET Financing Framework for Kenya.

Research Aim and Objectives

The aim of this study is to critically examine innovative financing models that can enhance the sustainability of public TVET institutions in Kenya and to develop an integrated conceptual framework for policy and institutional application.

The specific objectives are:

1. To analyse the current financing architecture of public TVET institutions in Kenya.
2. To identify the main sustainability challenges affecting public TVET institutions.
3. To examine innovative financing models applicable to public TVET institutions in Kenya.
4. To evaluate the suitability of these models within Kenya's policy, institutional, and socio-economic context.
5. To develop an integrated financing framework for sustainable public TVET institutions in Kenya.

Contribution of the Study

The article contributes to knowledge and policy in four ways. First, it conceptualises public TVET sustainability as the outcome of a diversified financing ecosystem rather than dependence on a single public-budget source. Second, it links financing models directly to sustainability dimensions, including financial, institutional, social, quality-related, and labour-market sustainability. Third, it grounds the analysis in Kenya's legal and policy context, particularly the TVET Act, 2013, the TVETA Strategic Plan 2023–2027, and the student-centred higher education funding model (Republic of Kenya, 2013; TVETA, 2024a; Universities Fund, n.d.). Finally, it proposes a framework that integrates predictable public funding, targeted student support, industry co-financing, institutional income generation, performance-based incentives, blended development finance, green financing, and governance safeguards. The article argues that sustainable TVET financing in Kenya requires not only additional resources, but also a coherent financing ecosystem that protects equity, quality, affordability, accountability, and labour-market relevance.

Kenya's TVET Financing Policy Context

Kenya's public TVET financing landscape is shaped by a combination of legal mandates, government budgetary allocations, student-centred funding reforms, institutional income-generation efforts, employer-based financing mechanisms, and emerging industry-linked training models. The *Technical and Vocational Education and Training Act, 2013* provides the legal foundation for the governance, regulation, quality assurance, assessment, certification, and financing of the TVET sector (Republic of Kenya, 2013). For the purpose of this article, the most relevant provision is the establishment of the Technical and Vocational Education Fund and the TVET Funding Board. The Fund is intended to finance technical and vocational education institutions through monies appropriated by Parliament, donations, grants, gifts, investment income, and other designated sources (Republic of Kenya, 2013). This legal provision is important because it recognises that TVET financing should not depend solely on exchequer allocations but should draw from multiple sources.

The TVET Funding Board is also mandated to disburse funds to institutions according to criteria prescribed by the Cabinet Secretary, taking into account institutional output, efficiency, and alignment with government-priority areas (Republic of Kenya, 2013). This creates a legal basis for performance-sensitive and priority-based financing. However, the practical effectiveness of this arrangement depends on fiscal commitment, transparent allocation mechanisms, credible institutional data, and strong financial-management systems. In this sense, Kenya's legal framework already contains the foundation for diversified and performance-informed TVET financing, but implementation remains constrained by institutional capacity, budgetary pressure, and uneven resource mobilisation.

Recent sector planning confirms that financing is a central sustainability concern. The Technical and Vocational Education and Training Authority's Strategic Plan 2023–2027 identifies sustainable funding and financing as one of the major strategic priorities of the sector, alongside quality and relevance, access and inclusivity, governance and management, and technology integration (Technical and Vocational Education and Training Authority [TVETA], 2024a). The plan links sustainable financing to revenue diversification, engagement with national and county governments, industry participation, development-partner support, and improved financial management (TVETA, 2024b). This shows that Kenya's TVET policy direction has shifted from reliance on conventional public funding toward a more diversified financing ecosystem.

One of the most significant recent reforms is the introduction of the Variable Scholarship and Loan Funding model for students in universities and TVET institutions. Under this model, students apply individually for financial support through the Higher Education Financing portal, and assistance is provided through a combination of government scholarships, loans, and household contributions based on assessed need and programme cost (TVETA, 2024b; Universities Fund, n.d.). The model seeks to move from generalised institutional support toward student-centred financing, with the intention of targeting public resources more effectively and supporting vulnerable learners. This reform responds partly to the pressure created by rising enrolment and declining per-trainee capitation. TVETA (2024b) notes that increased enrolment reduced annual capitation per trainee from approximately KSh 30,000 to as low as KSh 17,000, creating financial pressure on institutions.

However, the new funding model has also generated debate over equity, transparency, and administrative fairness. The Kenya Human Rights Commission (2024) has raised concerns about the clarity of the means-testing method, transparency of loan terms, appeal mechanisms, and the possible exclusion of some learners, including those below 18 years. These concerns are important because student-centred financing can improve targeting only when assessment criteria are transparent, disbursements are timely, and vulnerable learners are protected from excessive loan burdens or administrative exclusion. For public TVET institutions, delayed scholarship and loan disbursement may also create cash-flow problems, especially where institutional income depends heavily on student financing.

Budgetary trends further illustrate the sustainability challenge. The National Treasury's *Education Sector Report 2025* shows that TVET enrolment increased across national polytechnics, technical and vocational colleges, and special-needs TVET institutions between FY 2022/23 and FY 2024/25 (National Treasury, 2025). This expansion reflects growing demand for technical and vocational skills but also intensifies pressure on facilities, trainers, equipment, quality assurance, and student support. The same report shows that several TVET targets were not achieved because of limited funding. For instance, targets related to Jitume digital skills training, scholarship uptake, implementation of memoranda of understanding, skills competitions, and co-curricular activities were missed or only partially achieved due to resource constraints (National Treasury, 2025). These trends demonstrate that TVET sustainability requires financing beyond tuition, capitation, and core instruction. It requires investment in digital infrastructure, institutional linkages, learner development, quality assurance, and labour-market engagement.

In response to declining public funding and rising costs, some TVET institutions are increasingly exploring income-generating activities. TVETA (2024b) presents institutional enterprises such as agricultural ventures, workshops, technical services, production units, and entrepreneurial projects as strategies for strengthening financial sustainability while supporting practical learning. These activities are important because they connect revenue mobilisation with the pedagogical mission of TVET. When properly governed, income-generating activities can serve as training laboratories where students apply technical knowledge, develop entrepreneurial skills, and interact with real market conditions. They can also provide institutions with supplementary income for infrastructure, equipment, and operations. However, income generation must be carefully managed to avoid mission drift, misuse of trainee labour, weak accounting, or prioritisation of commercial activity over learning. Its contribution to sustainability therefore depends on clear policies, transparent revenue management, student protection, trainer supervision, and reinvestment in training quality.

Kenya also has experience with employer-based training finance through the Industrial Training Levy Fund. Managed by the National Industrial Training Authority, the Fund requires employers to contribute a levy that supports industrial training and reimburses employer training costs (UNESCO, 2022). This model demonstrates the potential of ring-fenced financing for skills development. In principle, training levies can create a more stable financing stream than annual budget allocations and can strengthen employer participation in skills development. However, the Kenyan levy system faces challenges such as low compliance, weak enforcement, difficulty reaching informal-sector firms, and concerns among employers that the levy operates like an additional tax (UNESCO, 2022). These limitations suggest that any expanded skills development fund for public TVET institutions would require transparent governance, employer representation, independent audits, broad compliance mechanisms, and clear links between contributions and training outcomes.

Other policy instruments also influence financing sustainability. TVETA's quality assurance fees support regulatory oversight, but they may increase pressure on institutions if not balanced with adequate public support and efficient regulatory services (TVETA, 2024b). Kenya's expansion of dual training and Competency-Based Education and Training also has direct financing implications. Dual training strengthens workplace exposure and industry relevance by allowing trainees to combine classroom learning with industry-based experience, while CBET requires modern equipment, assessment systems, trained assessors, updated curricula, and strong institutional quality assurance (TVETA, 2024b). These reforms are pedagogically important, but they increase institutional costs unless matched with sustainable financing.

Overall, Kenya's TVET financing context reveals a sector in transition. The legal framework provides for diversified and performance-sensitive funding; strategic planning recognises sustainable financing as a priority;

student-centred funding seeks to improve targeting; institutional enterprises are emerging as supplementary revenue sources; employer levies offer a basis for skills co-financing; and dual training strengthens industry alignment. Yet each mechanism faces implementation risks linked to fiscal constraints, equity concerns, weak compliance, uneven institutional capacity, and governance challenges. The central policy implication is that Kenya does not need isolated financing reforms, but an integrated financing framework that combines public funding, targeted student support, industry co-financing, institutional income generation, employer levies, development finance, and strong accountability mechanisms.

LITERATURE REVIEW

Theoretical Foundations

Resource Dependence Theory

Resource dependence theory explains how organisations depend on external actors for critical resources and how such dependence shapes institutional behaviour, autonomy, and strategy. Pfeffer and Salancik (1978) argue that organisations are not self-contained entities; they survive by obtaining resources from their external environment and by managing relationships with those who control those resources. This theory is particularly relevant to public TVET institutions because they depend on government allocations, student fees, loans and scholarships, donors, industry partners, county governments, and institutional income.

From a resource dependence perspective, overreliance on a single source of funding increases vulnerability. Public TVET institutions that depend primarily on exchequer allocations may face operational instability when disbursements are delayed, budgets are reduced, or policy priorities shift. Similarly, institutions that rely heavily on student fees may struggle when learners are unable to pay. Resource dependence theory therefore supports the need for diversified financing portfolios that reduce risk and improve institutional resilience.

In the Kenyan context, this theory helps explain why TVETA's strategic plan emphasises sustainable funding, diversification of revenue sources, engagement with industry and development partners, and improved financial management systems (TVETA, 2024a). It also supports the argument that institutional sustainability requires active resource mobilisation rather than passive dependence on central government funding.

Human Capital Theory

Human capital theory views education and training as investments that improve individual productivity, employability, earnings, and national economic growth. Schultz (1961) argued that investment in human capital is central to economic development, while Becker (1993) developed the theory further by showing how education and training increase productive capacity. In TVET, this theory justifies public and private investment in practical skills because trained workers can contribute to productivity, innovation, entrepreneurship, and industrial development.

TVET is especially relevant to human capital formation because it develops occupation-specific and practical competencies. In Kenya, public TVET institutions are expected to produce middle-level technical skills needed for manufacturing, construction, ICT, agriculture, energy, transport, hospitality, and other sectors. The National Treasury (2025) links tertiary and higher education to Kenya's industrialisation agenda, labour-market needs, entrepreneurship, and digital skills. This confirms the human-capital rationale for TVET investment.

However, human capital theory has limitations. It can overemphasise economic returns while underplaying equity, social justice, institutional quality, and labour-market structure. Training alone does not guarantee employment if the economy cannot absorb graduates or if skills are mismatched with industry needs. Therefore, the theory must be complemented by stakeholder theory, institutional theory, and resource dependence theory to capture the wider financing and governance challenges affecting public TVET sustainability.

Stakeholder Theory

Stakeholder theory argues that organisations must consider the interests and contributions of multiple actors who affect or are affected by their activities (Freeman, 1984). In education, stakeholders include learners, parents,

employers, government agencies, regulators, trainers, communities, development partners, civil society, and professional bodies. Public TVET institutions are especially stakeholder-dependent because they serve both social and economic functions.

In TVET financing, stakeholder theory supports shared responsibility. Government has responsibility for equity, regulation, and national development. Employers benefit from skilled labour and should therefore contribute to training through apprenticeships, equipment support, workplace learning, training levies, and curriculum participation. Students and households contribute through fees, loan repayment, and opportunity costs. Development partners support infrastructure, capacity building, innovation, and reform. Communities may support local institutions through land, resources, and social legitimacy.

Stakeholder engagement is also essential for quality and relevance. A systematic review by Peng et al. (2026) shows that stakeholder management in education can strengthen quality, accountability, governance, inclusiveness, and institutional sustainability. This is directly relevant to Kenya's TVET sector, where weak employer participation, limited industry linkages, and uneven local partnerships can reduce training relevance. Stakeholder theory therefore provides a strong justification for public-private partnerships, dual training, sector skills councils, and collaborative financing models.

Institutional Theory

Institutional theory explains how formal rules, norms, values, routines, and legitimacy pressures shape organisational behaviour. DiMaggio and Powell (1983) argue that organisations often adopt similar structures and practices because of coercive, normative, and mimetic pressures. Scott (2014) further explains that institutions are supported by regulative, normative, and cultural-cognitive pillars that influence how organisations behave and how reforms are adopted.

Institutional theory is useful for analysing TVET financing because financing reforms do not succeed merely because they are technically sound. They must fit the legal framework, public-finance rules, governance culture, institutional capacity, political environment, and expectations of stakeholders. For example, performance-based funding requires credible data, accepted indicators, institutional autonomy, and trust in allocation mechanisms. Training levies require employer confidence, enforcement capacity, and transparent fund governance. Institutional income generation requires financial-management rules and internal accountability.

In Kenya, the TVET Act, TVETA regulations, public-finance management rules, the new funding model, and quality assurance systems all create an institutional environment that shapes how financing innovations can be implemented. Institutional theory therefore helps explain why legal reform, governance reform, data systems, audit systems, and accountability mechanisms are necessary conditions for sustainable TVET financing.

Empirical Literature on TVET Financing Models

The reviewed literature shows that innovative TVET financing is not defined merely by the number of funding sources available, but by how each source is structured, governed, targeted, and connected to institutional sustainability. In the Kenyan context, each financing model must be examined in terms of its operational logic, expected contribution, implementation risk, and required safeguard. This is important because a financing model that works in principle may fail in practice if it does not address institutional capacity, learner affordability, employer incentives, public accountability, regional inequality, and programme-cost differences.

Public Financing and State Support

The empirical literature shows that sustainable TVET financing requires a combination of public funding, learner support, institutional income generation, employer participation, development finance, and strong governance. Public financing remains central because TVET serves national priorities such as youth employment, equity, productivity, industrialisation, and social inclusion. In Kenya, the TVET Act establishes the TVET Fund and Funding Board, confirming the state's responsibility to finance technical and vocational education (Republic of Kenya, 2013). However, public funding alone is insufficient. National Treasury data show that some TVET targets, including digital-skills training, scholarship uptake, industry memoranda of understanding, and skills

competitions, were not achieved because of limited resources or lack of funding (National Treasury, 2025). This suggests that public financing must remain predictable, adequate, and equity-sensitive, but should be complemented by other sources.

In practical terms, public financing for TVET in Kenya should operate through a clearer and more predictable allocation formula that combines baseline institutional support with programme-cost sensitivity, equity weighting, and performance-informed incentives. Baseline funding would ensure that every public TVET institution can meet essential recurrent costs such as trainer support, utilities, workshop maintenance, basic equipment servicing, and quality-assurance requirements. Programme-cost weighting would recognise that engineering, construction, automotive, ICT, energy, hospitality, agriculture, and health-related technical programmes do not have the same delivery costs. Equity weighting would provide additional support to institutions serving learners from poor households, rural and marginalised areas, learners with disabilities, and students enrolled in high-cost priority programmes. This would make public financing more responsive to institutional realities instead of relying mainly on uniform allocations that may not reflect actual training costs. Such an approach would also align with the TVET Act's recognition of institutional output, efficiency, and government-priority areas as relevant considerations in TVET funding (Republic of Kenya, 2013).

Student-Centred Financing

Student-centred financing has emerged as one response to these limitations. Kenya's Variable Scholarship and Loan Funding model combines scholarships, loans, and household contributions based on assessed student need and programme cost (TVETA, 2024b; Universities Fund, n.d.). In principle, this model can improve fairness by directing more support to vulnerable and extremely needy students. It may also improve accountability by making funding follow the student rather than the institution. However, it can create equity and cash-flow risks if means-testing criteria are unclear, disbursements are delayed, application systems are difficult to use, or loan burdens become excessive. The Kenya Human Rights Commission (2024) has raised concerns about classification criteria, transparency, loan terms, appeals mechanisms, and possible exclusion of some learners. For public TVET institutions, delays in scholarships and loans can also disrupt operations, making bridge financing and predictable disbursement timelines necessary.

Operationally, student-centred financing in public TVET institutions should function as a structured flow of support from learner application to institutional receipt of funds. A trainee would apply through the higher education financing portal, provide socio-economic information, receive a need classification, and then be awarded a combination of scholarship, loan, and household contribution depending on assessed vulnerability and programme cost. For this model to support institutional sustainability, the approved scholarship and loan amounts should be disbursed directly and predictably to the receiving TVET institution within a clearly communicated academic calendar. This is important because colleges rely on these funds to purchase training materials, maintain workshops, support practical sessions, pay service providers, and sustain daily operations. Where disbursement delays occur, the government should consider a bridge-financing or guarantee arrangement so that institutions do not suspend practical learning, delay assessments, or shift the burden to already vulnerable students. The model should also include learner support desks within TVET institutions to help students complete applications, appeal classifications, understand loan obligations, and avoid exclusion due to limited digital access or weak information.

Income-Generating Activities and Enterprise Units

Institutional income-generating activities represent another important financing model because they combine revenue mobilisation with practical training. TVETA (2024b) highlights examples of institutions using agricultural ventures, technical workshops, production units, and entrepreneurial projects to generate income while strengthening applied learning. Such activities can support trainee upkeep, improve infrastructure, and promote entrepreneurship. Their value lies in their close alignment with TVET's practical mission, since institution-based enterprises can function as training laboratories for production, marketing, customer service, maintenance, quality control, and business management. However, income-generating activities require clear safeguards on revenue sharing, procurement, trainee participation, safety, quality assurance, and reinvestment.

Without these safeguards, they may create conflicts of interest, exploit trainees, or shift attention away from teaching and assessment.

In the Kenyan public TVET context, institutional enterprises should operate as regulated training-linked business units rather than informal income-generation projects. A college offering agriculture, mechanical engineering, hospitality, ICT, fashion design, building technology, electrical installation, or automotive programmes can establish production units, repair workshops, demonstration farms, catering services, digital service centres, consultancy units, or short-course centres that generate income while exposing trainees to real work conditions. However, each enterprise should have an approved business plan, a learning plan, trainer supervision, safety procedures, separate accounting records, procurement controls, and an annual audit. Trainee participation should be tied to clearly defined competencies and assessment outcomes rather than being treated as cheap labour. Income generated from these activities should be partly reinvested in tools, equipment, consumables, workshop maintenance, innovation projects, and student welfare. This would allow institutional enterprise to strengthen both financial sustainability and practical learning quality.

Training Levies and Skills Development Funds

Training levies and skills development funds provide another route for mobilising employer contributions. Kenya's Industrial Training Levy Fund collects contributions from registered employers to support industrial training and reimburse employer training costs (UNESCO, 2022). Such levies can create a more stable and ring-fenced funding stream than annual budget allocations and can strengthen employer participation if employers are represented in governance. However, Kenya's experience shows challenges such as low compliance, weak enforcement, limited informal-sector participation, and employer concerns that the levy acts as an additional tax (UNESCO, 2022). A reformed skills development fund could support equipment upgrading, apprenticeships, trainer industry attachment, curriculum development, and priority-sector programmes, but it would need clear objectives, employer trust, independent audits, and measurable links between contributions and training outcomes.

For Kenya, a strengthened skills development fund should operate as a transparent employer-supported financing mechanism that links contributions to visible training benefits. Employers would contribute through a ring-fenced levy or structured skills contribution, while the fund would support activities that directly improve workforce preparation, such as apprenticeship placement, trainer attachment to industry, curriculum review, workplace assessment, modern equipment acquisition, certification support, and priority-sector training. To avoid the perception that the levy is merely an additional tax, employers should be represented in the governance of the fund and should receive clear reports showing how contributions are used. Public TVET institutions should access the fund through competitive proposals, sector-based training plans, or matching-grant arrangements tied to labour-market needs. Special windows may also be created for micro, small, and informal-sector enterprises so that levy-supported training does not benefit only large formal employers. This would make the levy system more credible, inclusive, and directly connected to skills development outcomes.

Public-Private Partnerships and Industry Co-Financing

Public-private partnerships and industry co-financing are widely promoted because they connect TVET institutions with labour-market demand. In Kenya, dual training initiatives show the potential of industry-linked training, with trainees dividing their learning between the classroom and industry through partnerships involving private-sector actors and development partners (TVETA, 2024b). Industry co-financing may also include equipment donations, shared workshops, sponsored apprenticeships, employer-funded short courses, curriculum co-development, trainer attachments, certification support, and industry-based assessment. These models can reduce institutional financial burdens while improving relevance and access to modern technology. However, PPPs are not automatically equitable. Employers may prefer urban institutions, commercially attractive sectors, or programmes that meet immediate firm needs, leaving rural institutions, special-needs institutions, and low-income regions under-supported. Industry co-financing should therefore be guided by national policy, equity incentives, regional balancing mechanisms, and transparent partnership agreements.

In practice, industry co-financing should be organised through formal partnership agreements between TVET institutions, employers, sector associations, county governments, and relevant national agencies. These agreements should specify what each partner contributes, how trainees benefit, how quality is assured, and how outcomes are monitored. Employers may contribute modern equipment, consumables, apprenticeship slots, workplace mentors, guest trainers, curriculum advice, certification support, research and innovation challenges, or paid short-course opportunities. TVET institutions, in turn, would provide trainees, trainers, workshops, assessment systems, and continuing professional development services for workers. To prevent industry partnerships from benefiting only institutions in urban and industrialised regions, national guidelines should include incentives for firms that partner with rural, special-needs, or under-resourced TVET institutions. This would help ensure that industry co-financing improves labour-market relevance without widening inequality across institutions.

Results-Based Financing and Performance Contracts

Results-based financing and performance contracts link funding to predefined and verifiable outcomes, such as completion rates, competency certification, employment placement, employer satisfaction, apprenticeship completion, female participation in non-traditional trades, and inclusion of learners with disabilities. The World Bank's Skills4Dev Knowledge Digest argues that results-based financing can improve accountability and labour-market relevance by linking disbursement to measurable outcomes (Angel-Urdinola & Guedira, 2025). However, such models can produce unintended consequences if providers avoid difficult-to-serve learners or if institutions in weaker labour markets are penalised for employment outcomes beyond their control. Verification can also be costly where tracer studies, labour-market information systems, and independent verification agencies are weak. For Kenya, performance-based funding should therefore use equity-weighted indicators, regional adjustments, and mixed metrics that balance access, quality, completion, employment, and inclusion (Angel-Urdinola & Guedira, 2025).

Operationally, performance-based financing for public TVET institutions should not reward only enrolment growth or graduate employment because such indicators may disadvantage institutions serving poorer learners, rural regions, special-needs trainees, or weak local labour markets. A fair model should combine several indicators, including student retention, competency-based assessment completion, female participation in non-traditional technical trades, inclusion of learners with disabilities, apprenticeship completion, employer satisfaction, graduate transition into work or self-employment, workshop utilisation, trainer industry exposure, and improvement in institutional financial management. The funding formula should also include equity adjustments so that institutions are rewarded for supporting difficult-to-serve learners rather than avoiding them. Independent verification, graduate tracer studies, employer feedback, and digital reporting systems would be necessary to reduce manipulation of results and to ensure that performance funding strengthens quality rather than encouraging institutions to chase narrow targets.

Blended and Green Finance

Blended and green finance are emerging as important opportunities for TVET sustainability. Blended finance combines public, donor, and private resources to support infrastructure, equipment, digital platforms, renewable-energy workshops, trainer upskilling, innovation hubs, and priority-sector centres of excellence. Green finance is particularly relevant as Kenya prepares for low-carbon and climate-resilient economic transitions. Ricou et al. (2026) report that Kenya is developing a National Strategy on Green Skills and Jobs to align the workforce with a low-carbon, resource-efficient, and climate-resilient economy. They also note that Kenya's Alliance for Green Skills and Opportunities brings together government, private-sector actors, education providers, development partners, and youth organisations to support green skills development (Ricou et al., 2026). Green TVET financing can support solar photovoltaic training, circular economy programmes, waste management, sustainable agriculture, energy efficiency, electric mobility, green construction, and climate-smart technologies. However, green finance must be linked to labour-market demand, trainer capacity, equipment availability, and certification systems to avoid remaining donor-driven and unsustainable.

In Kenya, blended and green finance should be operationalised through targeted investment projects that combine public resources, development-partner funding, private-sector participation, and institutional co-

financing. Such financing could support solar photovoltaic training laboratories, electric mobility workshops, climate-smart agriculture demonstration units, water and sanitation technology centres, energy-efficiency training facilities, green construction workshops, digital learning platforms, and innovation hubs. However, these projects should not be treated as short-term donor pilots. Each project should include a maintenance budget, trainer upskilling plan, certification pathway, industry partnership, student access strategy, and sustainability plan after donor funding ends. Digital finance should also be used to strengthen transparency through online application systems, disbursement tracking, institutional dashboards, e-procurement, and real-time monitoring of funding flows. This would connect green and digital finance to long-term institutional sustainability rather than limiting them to isolated modernisation projects.

Governance and Accountability

Across all financing models, governance and accountability are decisive. The TVET Act requires proper books of account, financial reporting, and audit of the Funding Board's accounts in line with public audit requirements (Republic of Kenya, 2013). This demonstrates that financing sustainability depends not only on resource mobilisation but also on transparent allocation, credible data, financial controls, institutional autonomy, and stakeholder oversight. The National Treasury (2025) shows that lack of funding affected implementation of memoranda of understanding, competitions, and other activities, indicating that accountability should extend beyond financial compliance to whether resources achieve intended outcomes. Therefore, innovative financing must be implemented as part of a broader governance reform agenda. Training levies require employer trust and transparent fund management; student-centred financing requires fair means testing and timely disbursement; institutional enterprises require internal controls; performance-based funding requires reliable data; and blended or green finance requires sustainability planning after donor support ends.

Comparative Lessons from Selected TVET Financing Models

Comparative experience is useful because Kenya's public TVET financing challenge is not unique. Many countries have attempted to reduce overreliance on government allocations by combining public funding, employer contributions, learner support, workplace training, and lifelong learning incentives. However, the value of comparison lies not in copying foreign models directly, but in identifying principles that can be adapted to Kenya's legal, institutional, fiscal, and labour-market context. Botswana, South Africa, Germany, and Singapore provide useful lessons because they illustrate different financing approaches related to training levies, employer participation, dual training, and lifelong skills development.

Botswana offers a relevant African example of levy-supported skills financing. The Human Resource Development Fund operates through a levy-grant system in which companies pay a levy into the fund and are reimbursed for costs incurred in training their employees. The scheme focuses on workplace learning and encourages employers to invest in both in-house and outsourced training, including technical and vocational education (Human Resource Development Council [HRDC], n.d.). The Botswana case is relevant to Kenya because it demonstrates how an employer levy can be linked directly to reimbursement and workplace training. However, it also shows that a levy fund requires clear reimbursement rules, employer awareness, administrative efficiency, and trust that contributions will return visible training benefits. For Kenya, the lesson is that a strengthened skills development fund should not be designed only as a collection mechanism; it should operate as a transparent levy-grant system that rewards firms and institutions that invest in apprenticeships, trainer attachment, workplace assessment, and priority-sector skills development.

South Africa provides another relevant example through its Skills Development Levy and Sector Education and Training Authorities. Employers are required to pay a skills development levy, commonly calculated as one percent of the total amount paid in salaries and wages, and the levy supports education and training through sector-based structures (Republic of South Africa Department of Employment and Labour, 2008). Employers may also access mandatory grants by submitting workplace skills plans and annual training reports, which helps to connect employer contributions with sector planning and workplace-based training priorities (Services SETA, 2025). The South African case is useful because it links employer contributions with sector-level planning, workplace skills plans, and accountability for training implementation. Its relevance to Kenya lies in the possibility of connecting levy finance to sector skills councils, industry boards, apprenticeship systems, and

public TVET institutions. However, South Africa also shows that levy systems require strong compliance, credible sector institutions, timely grant processing, and safeguards against bureaucratic complexity. For Kenya, this means that any strengthened levy or skills development fund should be simple enough for employers to understand, transparent enough to build trust, and flexible enough to include small and informal-sector enterprises.

Germany provides an important lesson on dual vocational training and shared responsibility between the state, employers, vocational schools, and social partners. In the German dual system, training takes place in two learning venues: the company and the vocational school. Apprentices are employed by companies, receive training allowances, learn practical skills at the workplace, and attend vocational school for theoretical and general education (Federal Institute for Vocational Education and Training [BIBB], 2020). The system is supported by recognised occupations, training contracts, qualified trainers, chambers, final examinations, and cooperation among public and private actors (BIBB, 2020). The relevance for Kenya is not that Germany's model should be copied wholesale, but that dual training requires a structured financing and governance arrangement. If Kenya expands dual training, employers should not only host trainees; they should contribute to equipment, workplace supervision, trainer exposure, competency assessment, and transition into employment or self-employment. The German case therefore supports the argument that industry co-financing in Kenya should be formalised through clear agreements, quality-assurance standards, and shared accountability.

Singapore provides a useful lesson on lifelong learning and individual skills support. SkillsFuture Credit supports Singaporeans in paying for eligible courses that strengthen skills development and lifelong learning, while SkillsFuture Singapore also links employer contributions through the Skills Development Levy to workforce upgrading programmes (SkillsFuture Singapore, n.d.-a, n.d.-b). This example is relevant to Kenya because TVET sustainability should not focus only on initial training for young people, but also on reskilling, upskilling, modular short courses, and lifelong learning for workers in changing labour markets. Kenya's public TVET institutions could therefore strengthen sustainability by offering demand-driven short courses, stackable modules, recognition of prior learning, digital skills programmes, and industry-responsive continuing education. However, the Singapore case also shows that learner-centred financing works best when course eligibility, quality assurance, digital claims, training subsidies, and labour-market relevance are clearly managed. For Kenya, the lesson is that student-centred funding should be complemented by a lifelong skills account or targeted short-course support for youth, workers, informal-sector operators, and mid-career learners.

Overall, the comparative evidence suggests four lessons for Kenya. First, employer levies are more credible when contributors can see a clear return through grants, reimbursement, apprenticeships, and workforce development. Second, levy-based financing should be linked to sector skills planning rather than treated as a general revenue source. Third, dual training requires structured employer participation, quality assurance, trainer preparation, and certification systems. Fourth, learner-centred financing should extend beyond initial enrolment support to include lifelong learning, modular upskilling, and labour-market-responsive short courses. These lessons strengthen the case for an integrated financing framework in Kenya because no single model is sufficient on its own. Botswana and South Africa show the importance of employer-supported skills funds; Germany demonstrates the value of shared financing and governance in dual training; and Singapore illustrates the role of lifelong learning incentives in sustaining skills development.

METHODOLOGY

This study adopted a desktop-based integrative review design to examine innovative financing models and the sustainability of public TVET institutions in Kenya. The approach was suitable because it allowed the study to synthesise evidence from academic literature, policy documents, legal frameworks, government reports, and development-agency publications into a coherent analytical framework (Snyder, 2019; Torraco, 2005). Since TVET financing is a complex policy issue, the use of secondary evidence enabled the study to develop a conceptual and policy-oriented understanding without collecting primary data.

The study drew on peer-reviewed journal articles, Kenya-specific legal and policy documents, TVETA strategic materials, Ministry of Education reports, National Treasury education-sector reports, Universities Fund and HELB-related publications, and reports from organisations such as the World Bank, ILO, UNESCO, African

Development Bank, and African Union (National Treasury, 2025; Republic of Kenya, 2013; TVETA, 2024a; Universities Fund, n.d.; World Bank et al., 2023). Sources were identified through structured searches in databases such as Scopus, Web of Science, Google Scholar, ERIC, JSTOR, ScienceDirect, Taylor & Francis Online, SpringerLink, and official government and development-agency repositories. Search terms included phrases such as "TVET financing Kenya," "public TVET institutions sustainability Kenya," "innovative financing technical vocational education," "skills development funds Africa," and "performance-based funding TVET."

Sources were included if they addressed TVET financing, institutional sustainability, skills development, education governance, or public policy, with priority given to Kenya and comparable African or low- and middle-income contexts. Most sources were published between 2013 and 2026, reflecting the period after Kenya's TVET Act, 2013, although older seminal theoretical works were included where relevant. Sources were excluded if they lacked relevance, credibility, identifiable authorship, institutional affiliation, publication date, or verifiable evidence.

Data were extracted using a structured matrix that captured each source's geographical focus, financing model, sustainability dimension, key findings, and relevance to Kenya's public TVET institutions. The extracted evidence was analysed through thematic synthesis. Financing models such as public funding, student-centred financing, industry co-financing, income-generating activities, training levies, performance-based funding, blended finance, and green financing were coded and compared with sustainability challenges such as funding instability, delayed disbursement, equity risks, weak employer participation, infrastructure gaps, governance weaknesses, and quality-assurance constraints. This process supported the development of an integrated conceptual framework for sustainable public TVET financing in Kenya (Braun & Clarke, 2006; Snyder, 2019).

To strengthen quality and trustworthiness, the study relied on credible academic and institutional sources, triangulated evidence across multiple document types, applied transparent inclusion and exclusion criteria, used APA referencing, and distinguished clearly between evidence, interpretation, and conceptual framework development. These measures enhanced the credibility, dependability, and academic rigour of the review (Snyder, 2019; Torraco, 2005).

Although the desktop-based integrative review was appropriate for synthesising legal, policy, institutional, academic, and development-agency evidence on TVET financing, the study did not collect primary data from TVET principals, finance officers, policymakers, employers, students, or funding agencies. Consequently, the proposed Integrated Sustainable TVET Financing Framework should be interpreted as a policy-synthesis model rather than a statistically tested or institutionally validated model. The absence of interviews, surveys, and institutional case studies means that issues such as college-level cash-flow experiences, employer willingness to co-finance training, regional differences in income-generation capacity, and learner-level experiences under the student-centred funding model were examined through available documentary evidence rather than direct field evidence. Future empirical studies should therefore test the framework through surveys, interviews, institutional case studies, tracer studies, and cost-analysis approaches across different categories of public TVET institutions in Kenya.

FINDINGS

The findings show that sustainable financing of public TVET institutions in Kenya cannot be achieved through a single funding source. Instead, sustainability depends on a coordinated financing ecosystem that combines public investment, student-centred support, industry participation, institutional income generation, performance incentives, blended finance, green and digital finance, and strong governance. The evidence further suggests that each financing model offers opportunities but also carries risks that must be addressed through equity safeguards, transparent allocation, reliable data, and institutional accountability.

Public Funding Remains Necessary but Insufficient

The first major finding is that public funding remains indispensable but inadequate on its own. TVET serves public-interest goals, including youth employment, productivity, industrialisation, regional inclusion, and social

mobility. Kenya's TVET Act establishes the TVET Fund and Funding Board, confirming that the state has a continuing responsibility to support technical and vocational education (Republic of Kenya, 2013). However, National Treasury data show that although enrolment in national polytechnics, technical and vocational colleges, and special-needs TVET institutions has expanded, several targets related to capitation, scholarships, digital skills training, skills competitions, and institutional partnerships were not fully achieved because of funding limitations (National Treasury, 2025).

The implication for Kenya is that public financing must remain the foundation of TVET sustainability, but it should be redesigned to become more predictable, equity-sensitive, and performance-informed. A sustainable model should protect core public funding while complementing it with additional revenue streams from industry, institutional enterprise, development partners, green finance, and targeted student support.

Student-Centred Financing Improves Targeting but Creates Equity and Cash-Flow Risks

The second finding is that student-centred financing can improve targeting, but only if it is transparent, timely, and equity-sensitive. Kenya's Variable Scholarship and Loan Funding model directs scholarships, loans, and household contributions according to assessed learner need and programme cost (TVETA, 2024b; Universities Fund, n.d.). In principle, this approach can improve fairness by allocating greater support to vulnerable and extremely needy learners.

However, the model also creates risks. Concerns have been raised about the transparency of means testing, loan conditions, appeals processes, affordability, and the exclusion of some learners, including those below 18 years (Kenya Human Rights Commission, 2024). For institutions, delays in scholarship and loan disbursement can also disrupt cash flow, especially where colleges depend heavily on learner-based financing.

The implication is that student-centred financing should not be treated merely as a cost-sharing mechanism. It requires clear eligibility rules, timely disbursement, accessible appeals, financial literacy, and bridge-financing arrangements to protect both vulnerable trainees and institutional operations.

Industry Co-Financing Is Critical for Labour-Market Relevance

The third finding is that industry co-financing is essential because financial sustainability and training relevance are closely connected. Dual training initiatives in Kenya show the potential of partnerships in which trainees divide their learning between classrooms and workplaces, with support from private-sector actors and development partners (TVETA, 2024b). Such arrangements can improve exposure to real work environments, strengthen employer confidence in graduates, and support curriculum relevance.

Industry co-financing may include equipment donations, apprenticeship support, shared workshops, employer-funded short courses, curriculum co-development, trainer attachments, and industry-based assessment. However, the model may favour urban institutions, high-growth sectors, and commercially attractive programmes, leaving rural institutions, special-needs institutions, and low-income regions less supported.

The implication for Kenya is that industry co-financing should be structured through clear national guidelines, sector skills councils, regional equity incentives, tax or recognition incentives, and transparent partnership agreements. Without these safeguards, industry partnerships may improve relevance for some institutions while widening inequalities across the TVET system.

Institutional Income Generation Has Potential but Requires Strong Governance

The fourth finding is that income-generating activities can strengthen institutional sustainability when they are aligned with TVET's practical learning mission. TVETA (2024b) highlights examples of TVET institutions generating revenue through agricultural ventures, workshops, production units, technical services, and entrepreneurial projects. These activities can support institutional income, trainee upkeep, infrastructure improvement, and applied learning.

Their main value lies in combining financial sustainability with pedagogy. Institution-based enterprises can function as training laboratories where students learn production, customer service, marketing, quality control, maintenance, and entrepreneurship. However, income-generating activities can also create risks if they are poorly governed. These include mission drift, weak accounting, trainee exploitation, commercialisation of learning, and diversion of attention from teaching and assessment.

The implication is that institutional enterprise should be formalised as a regulated sustainability strategy. Public TVET institutions need clear policies on revenue sharing, procurement, student participation, safety, reinvestment, supervision, and quality assurance.

Training Levies and Skills Funds Offer Predictable Co-Financing but Need Employer Trust

The fifth finding is that employer-based training finance can provide a more stable funding stream, but it depends on compliance, transparency, and employer confidence. Kenya's Industrial Training Levy Fund demonstrates the feasibility of ring-fenced skills financing, with employer contributions used to support industrial training and reimburse training costs (UNESCO, 2022).

However, the same model faces implementation challenges, including low employer compliance, weak enforcement, limited informal-sector participation, and concerns that the levy functions as an additional tax (UNESCO, 2022). These challenges are especially significant in Kenya, where many workers and enterprises operate in informal or small-business settings.

The implication is that any strengthened skills development fund should include employer representation, independent audits, transparent allocation rules, informal-sector engagement mechanisms, and measurable links between contributions and training outcomes. Without these conditions, levy-based financing may face resistance and fail to generate broad-based support.

Performance-Based Financing Can Strengthen Accountability if Equity Is Protected

The sixth finding is that performance-based financing can improve accountability, but it must be carefully designed. Results-based financing links funding to measurable outcomes such as completion, competency certification, employment placement, employer satisfaction, inclusion, and apprenticeship completion (Angel-Urdinola & Guedira, 2025). This approach aligns with Kenya's legal provision for allocating TVET funds based on institutional output, efficiency, and government-priority areas (Republic of Kenya, 2013).

However, performance-based financing may produce unintended consequences if institutions serving disadvantaged learners or weak labour markets are penalised for outcomes beyond their control. Providers may also be tempted to prioritise learners who are easier to train or place in employment.

The implication for Kenya is that performance indicators should be equity-weighted and context-sensitive. Funding should reward not only efficiency and employment outcomes, but also inclusion, regional equity, quality improvement, support for special-needs learners, and progress in disadvantaged areas. Reliable data systems, tracer studies, and independent verification are essential.

Blended, Green and Digital Finance Are Emerging but Must Be Strategically Aligned

The seventh finding is that blended, green, and digital finance offer important opportunities for modernising TVET. Blended finance can combine government, donor, and private resources to support infrastructure, equipment, digital platforms, innovation hubs, and centres of excellence. Green finance is increasingly relevant as Kenya prepares for a low-carbon and climate-resilient economy. Ricou et al. (2026) report that Kenya is developing a National Strategy on Green Skills and Jobs and that the Alliance for Green Skills and Opportunities brings together government, private-sector actors, education providers, development partners, and youth organisations to support green skills development.

Green TVET financing can support renewable energy, circular economy, waste management, climate-smart agriculture, sustainable construction, electric mobility, and solar photovoltaic training. Digital financing tools

can also improve transparency through online applications, digital payment systems, institutional dashboards, and real-time monitoring.

The implication is that these emerging financing sources should not remain donor-driven pilot initiatives. They should be integrated into national TVET financing strategy, linked to labour-market demand, supported by trainer capacity, and accompanied by maintenance budgets, certification systems, and sustainability plans.

Governance Determines the Success of Financing Innovation

The final finding is that governance is the condition that determines whether financing innovation succeeds. The TVET Act requires proper accounting, financial reporting, and audit of the TVET Funding Board's accounts (Republic of Kenya, 2013). This confirms that sustainability depends not only on mobilising more resources, but also on managing them transparently and effectively.

Across the reviewed financing models, governance risks recur. Student-centred financing requires fair means testing and timely disbursement. Institutional income generation requires internal controls. Training levies require employer trust and transparent fund management. Performance-based funding requires reliable data and verification. Blended and green finance require sustainability planning after donor support ends.

The implication is that innovative financing should be implemented as part of a broader governance reform agenda. Kenya's public TVET institutions need stronger financial management, institutional autonomy, procurement controls, stakeholder oversight, data systems, and accountability mechanisms.

Integrated Sustainable TVET Financing Framework

The findings indicate that sustainable public TVET financing in Kenya depends on the coordinated interaction of public core funding, student-centred support, industry co-financing, skills levies, institutional enterprise, performance grants, blended finance, and green/digital finance, all mediated by governance and accountability. The proposed Integrated Sustainable TVET Financing Framework for Kenya therefore treats sustainability as the outcome of a financing ecosystem rather than reliance on a single source of funds. Public funding remains the foundation, but institutional resilience depends on how effectively other financing models are combined, governed, and aligned with equity, quality, affordability, institutional viability, and labour-market relevance. Table 1 strengthens this argument by showing not only the contribution and risks of each financing component, but also how each component can operate practically within Kenya's public TVET system.

Table 1: Integrated Sustainable TVET Financing Framework for Kenya

Financing component	Operational mechanism in Kenya	Sustainability contribution	Main risk	Required safeguard
Public core funding	Government allocates baseline institutional support through the Ministry of Education and State Department for TVET, using multi-year budgeting, programme-cost weighting, equity-sensitive grants, and priority-sector allocations.	Provides baseline stability, protects equity, sustains core training functions, and supports national development priorities.	Fiscal constraints, delayed disbursement, inadequate allocations, and uniform funding that does not reflect programme cost differences.	Multi-year budgeting, transparent allocation formula, programme-cost weighting, equity-sensitive grants, and timely disbursement.
Student-centred scholarships and loans	Students apply through the higher education financing portal and receive scholarships, loans, and household contribution classifications based on assessed need and programme cost. Funds should	Improves affordability, targets support to vulnerable learners, and links funding to actual student need.	Exclusion of vulnerable learners, unclear means testing, loan burden, digital-access barriers, appeals	Clear eligibility criteria, timely disbursement, accessible appeals, financial-literacy support, learner support desks, and

	be disbursed predictably to institutions and supported by student help desks.		challenges, and delayed disbursement to institutions.	targeted grants for vulnerable groups.
Industry co-financing	Employers, sector associations, and TVET institutions sign formal agreements for equipment support, apprenticeship slots, workplace mentors, trainer attachments, sponsored short courses, curriculum input, and industry-based assessment.	Strengthens labour-market relevance, workplace learning, access to modern technology, employability, and graduate transition into work.	Concentration of support in urban institutions, high-growth sectors, or commercially attractive programmes.	Sector skills councils, regional equity incentives, tax or recognition incentives, transparent partnership agreements, and support for rural and special-needs institutions.
Skills development funds and levies	Employers contribute to a ring-fenced skills fund managed transparently, with funds used to support apprenticeships, trainer industry exposure, equipment upgrading, workplace assessment, and priority-sector training.	Creates predictable employer-based co-financing and strengthens shared responsibility for skills development.	Low compliance, employer resistance, weak enforcement, limited informal-sector coverage, and perception of the levy as an additional tax.	Employer representation, independent audits, clear reporting, stronger compliance systems, informal-sector windows, and transparent links between contributions and training benefits.
Institutional enterprise income	TVET institutions establish regulated production units, farms, workshops, repair centres, consultancy units, hospitality units, facility rentals, and short-course programmes linked to training.	Diversifies institutional revenue while strengthening practical learning, entrepreneurship, and applied skills development.	Mission drift, weak accounting, trainee exploitation, poor procurement, and diversion of focus from teaching and assessment.	Approved business plans, separate accounts, trainer supervision, safety procedures, procurement controls, internal audit, and reinvestment in training quality.
Performance grants	Institutions receive additional funding based on verified indicators such as completion, competency certification, apprenticeship completion, graduate transition, inclusion, employer satisfaction, and financial-management improvement.	Links funding to results, quality, equity, accountability, and labour-market outcomes.	Penalising disadvantaged institutions, encouraging selection of easy-to-place learners, data manipulation, and excessive focus on narrow indicators.	Equity-weighted indicators, regional adjustments, tracer studies, independent verification, mixed performance metrics, and protection for special-needs and rural institutions.
Blended and development finance	Government, development partners, private actors, and institutions jointly finance infrastructure, equipment, innovation hubs, digital platforms, centres of excellence, and system reforms.	Supports modernisation, infrastructure expansion, equipment renewal, innovation, and capacity development.	Donor dependency, fragmented projects, weak maintenance planning, and unsustainable interventions after project closure.	Domestic co-financing, maintenance budgets, project exit strategies, institutional ownership, sustainability plans, and alignment with national TVET priorities.
Green and digital finance	Financing is directed to renewable-energy labs, solar photovoltaic training, electric mobility workshops, climate-	Supports future-oriented skills, climate-aligned training, digital	Fragmented pilots, weak labour-market alignment,	National green-TVET strategy, trainer upskilling, certification systems,

	smart agriculture, green construction, digital platforms, funding dashboards, and e-procurement systems.	transparency, and readiness for green and technology-driven labour markets.	limited trainer capacity, poor equipment maintenance, and donor-driven implementation.	maintenance planning, industry linkages, and integrated data platforms.
Governance and accountability	Financing flows are supported by audits, procurement controls, institutional boards, stakeholder oversight, financial reporting systems, digital monitoring, and institutional sustainability reports.	Connects all financing models to transparency, efficiency, equity, quality, institutional sustainability, and public trust.	Misuse of funds, inefficiency, corruption, weak implementation, poor data quality, and fragmented accountability.	Independent audits, procurement controls, data systems, institutional autonomy, public reporting, stakeholder oversight, and performance monitoring.

The framework shows that each financing model contributes differently to sustainability and should therefore be implemented through a clear operational mechanism. Public core funding protects access and national priorities when it is predictable, cost-sensitive, and equity-weighted. Student-centred financing supports affordability only when the application, classification, disbursement, and appeals process is transparent and timely. Industry co-financing improves relevance when it is formalised through partnership agreements, sector skills councils, apprenticeship financing, and workplace-based learning arrangements. Skills development funds and levies broaden employer responsibility when contributors can see a clear link between their contributions and training benefits. Institutional enterprise strengthens financial resilience when income-generating activities are tied to learning outcomes, separate accounting, supervision, and reinvestment. Performance grants can improve accountability if indicators balance efficiency, equity, quality, completion, employment, and regional disadvantage. Blended, green, and digital finance can modernise TVET only when projects include trainer capacity, maintenance budgets, certification systems, data platforms, and sustainability plans. Governance and accountability therefore remain the enabling condition for the entire financing ecosystem.

DISCUSSION

The findings suggest that the sustainability of public TVET institutions in Kenya should not be understood simply as a problem of inadequate funding. It is better interpreted as a financing-ecosystem problem involving the interaction of public investment, student support, employer participation, institutional income generation, development finance, green and digital financing, and governance capacity. Although public funding remains essential because TVET serves national goals such as youth employment, productivity, industrialisation, and social inclusion, dependence on government allocations alone exposes institutions to fiscal pressure, delayed disbursements, and shifting policy priorities. National Treasury evidence showing declining capitation beneficiaries and unmet targets in areas such as scholarships, digital-skills training, institutional partnerships, and skills competitions illustrates the vulnerability of a system that depends heavily on public allocations (National Treasury, 2025). Therefore, the central policy challenge is not only to increase public funding, but to design a financing ecosystem in which different sources of funding reinforce rather than substitute one another.

This interpretation is consistent with resource dependence theory, which argues that organisations become vulnerable when they depend too heavily on external actors controlling critical resources (Pfeffer & Salancik, 1978). Public TVET institutions depend on government funding, student fees, loans and scholarships, donor support, employer partnerships, county-level support, and institutional enterprise income. When one source becomes unstable, the whole institution can be affected. A more sustainable model should therefore reduce excessive dependence on any single financing source while preserving the public responsibility to fund TVET as a social and economic good. The proposed financing framework contributes to this debate by showing how public core funding, student-centred support, industry co-financing, skills levies, institutional enterprise, performance grants, blended finance, and green/digital finance can operate as complementary pillars of sustainability.

However, diversification alone is not sufficient. The findings show that financing innovation can reproduce inequality if it is not equity-sensitive and governance-led. Student-centred funding can improve targeting by directing scholarships and loans to learners according to assessed need, but it can also create risks where means testing is unclear, disbursement is delayed, loan conditions are poorly understood, or vulnerable learners struggle to navigate digital application systems (Kenya Human Rights Commission, 2024; Universities Fund, n.d.). Similarly, industry co-financing can improve relevance and employability, but it may favour urban institutions, commercially attractive programmes, and sectors with stronger employer capacity. Income-generating activities can supplement institutional budgets and strengthen practical learning, but they may create mission drift, weak accountability, or exploitation of trainee labour if poorly governed. Training levies can provide ring-fenced funding, but employer resistance and low compliance may weaken their potential if transparency and trust are absent (UNESCO, 2022).

These risks demonstrate that innovative financing must be guided by equity and accountability safeguards. For the Ministry of Education and the State Department for TVET, this implies the need for a national sustainable TVET financing strategy that integrates public funding, targeted student support, employer contributions, institutional enterprise, performance-based incentives, and green finance. Such a strategy should protect vulnerable learners through transparent means testing, appeals procedures, targeted grants, and timely disbursement. It should also avoid concentrating resources in already advantaged institutions by using regional equalisation mechanisms, disability-inclusive funding, gender-sensitive incentives, and support for high-cost priority programmes. For TVETA, the implication is that financial sustainability should become part of institutional quality assurance. Institutions should not only be assessed on compliance and training standards, but also on revenue diversification, financial controls, reinvestment of income, industry partnerships, and sustainability planning.

The findings also show that Kenya's TVET reforms require stronger data systems, employer trust, and institutional capacity. Performance-based financing, student-centred funding, green finance, and industry co-financing all depend on credible data. Without reliable information on enrolment, disbursement, programme costs, completion, employment, equipment use, learner disadvantage, and institutional performance, funding decisions may remain fragmented or politically driven. Digital dashboards, tracer studies, funding-monitoring systems, and institutional sustainability reports would help policymakers identify gaps, track outcomes, and improve accountability. This is especially important if Kenya moves toward performance-informed funding, where indicators must be carefully designed to avoid penalising institutions serving disadvantaged learners or weak labour markets (Angel-Urdinola & Guedira, 2025).

Employer trust is equally important. Stakeholder theory suggests that institutions are more sustainable when key actors share responsibility for resources, decision-making, and outcomes (Freeman, 1984; Peng et al., 2026). In the TVET sector, employers benefit from skilled labour and should therefore contribute to training through apprenticeships, equipment support, curriculum participation, workplace learning, and skills-development funds. However, employer participation will remain limited if firms do not trust how funds are managed or if partnerships lack clear benefits. Strengthening employer representation in skills funds, sector skills councils, curriculum boards, and institutional advisory committees would help align financing with labour-market needs while improving accountability.

Institutional capacity is the final condition for successful financing reform. Public TVET institutions require the autonomy and managerial competence to mobilise resources, manage partnerships, operate income-generating units, prepare grant proposals, track graduate outcomes, and maintain transparent financial systems. Institutional theory is useful here because it reminds us that reforms succeed only when they are supported by rules, norms, legitimacy, and organisational capacity (DiMaggio & Powell, 1983; Scott, 2014). Financing innovation cannot be imposed as a technical reform alone; it must be accompanied by governance reforms, leadership development, procurement controls, audit systems, and capacity-building for boards and managers.

The proposed framework also requires empirical validation because the effectiveness of each financing mechanism is likely to vary across institutions, regions, programme types, and learner groups. For example, national polytechnics located near major industries may have stronger opportunities for industry co-financing and dual training than rural technical and vocational colleges. Similarly, institutions offering high-cost technical

programmes may experience different sustainability pressures from those offering less equipment-intensive courses. Learners from vulnerable households may also experience the student-centred funding model differently depending on digital access, application support, scholarship classification, loan conditions, and disbursement timelines. Therefore, while the framework offers a coherent basis for policy and institutional planning, its practical application should be tested through field-based research involving TVET managers, finance officers, employers, policymakers, students, and funding agencies.

RECOMMENDATIONS

The findings suggest that Kenya requires a more coordinated and equity-sensitive approach to financing public TVET institutions. The first recommendation is the development of a National Sustainable TVET Financing Framework that brings together public funding, student-centred financing, industry contributions, skills levies, institutional enterprise, blended development finance, and green finance into one coherent policy architecture. Such a framework should clarify the responsibilities of government, TVET institutions, employers, students, households, counties, and development partners. It should also establish principles for predictable public funding, transparent allocation, equity protection, and performance-informed financing. Without such coordination, financing reforms may remain fragmented, with student loans, industry partnerships, donor projects, institutional income generation, and public allocations operating as separate and weakly connected instruments.

Second, Kenya should strengthen equity-sensitive public and student financing mechanisms. Public funding should remain the foundation of TVET financing because public TVET institutions serve national goals such as youth employment, industrialisation, social inclusion, and regional development. However, public financing should be supported by multi-year budgeting, transparent allocation formulas, and equity-weighted grants that protect institutions serving disadvantaged learners, remote areas, special-needs trainees, and high-cost programmes. The student-centred funding model should also be strengthened through clearer means-testing criteria, timely scholarship and loan disbursement, accessible appeals mechanisms, financial-literacy support, and targeted grants for vulnerable learners. These reforms would reduce the risk that cost-sharing and loan-based financing exclude the students whom public TVET is intended to support.

Third, the government should deepen industry co-financing and employer participation through sector skills councils, structured apprenticeship financing, tax incentives, matching grants, and transparent public-private partnership agreements. Industry participation should not be limited to curriculum consultation or occasional equipment donations. Employers should be encouraged to co-finance workplace learning, trainer attachments, certification, modern equipment, and specialised training facilities. At the same time, employer-based financing should be governed carefully to avoid concentrating benefits in urban institutions or commercially attractive sectors. A strengthened skills development fund or reformed training levy could support this agenda, but only if it includes employer representation, independent audits, transparent fund management, stronger compliance systems, and mechanisms for including small and informal enterprises.

Fourth, public TVET institutions should institutionalise resource mobilisation and enterprise development as part of their sustainability strategies. Each institution should prepare a resource mobilisation plan that identifies potential industry partners, income-generating activities, short-course markets, alumni networks, donor opportunities, and community partnerships. Production units, technical workshops, agribusiness projects, consultancy services, facility rentals, and demand-driven short courses can support institutional revenue while reinforcing practical learning. However, these activities must be governed through clear policies on revenue sharing, procurement, trainee participation, safety, quality assurance, reinvestment, and internal audit. Institutional enterprise should therefore be treated as a regulated educational and financial strategy rather than an informal survival mechanism.

Fifth, Kenya should invest in data systems, accountability, and green-digital financing capacity. Innovative financing models require reliable data on enrolment, funding flows, completion, employment outcomes, equipment availability, student disadvantage, institutional performance, and employer engagement. Digital dashboards and graduate tracer systems would strengthen evidence-based allocation, performance monitoring, and public accountability. Green and digital finance should also be developed as emerging funding streams for

renewable-energy training, circular economy programmes, digital infrastructure, climate-smart agriculture, sustainable construction, and solar photovoltaic skills. These investments should be linked to national labour-market priorities, trainer upskilling, certification systems, maintenance budgets, and institutional sustainability plans.

Future research should empirically test the proposed financing framework across different categories of public TVET institutions in Kenya. Priority areas include the effects of the student-centred funding model on access, retention, equity, and institutional cash flow; differences in income-generation capacity across institutions; employer willingness to contribute to skills funds; the impact of dual training and public-private partnerships on graduate employment; and the sustainability of donor-funded infrastructure after project completion. Mixed-methods studies using surveys, institutional case studies, tracer studies, cost-benefit analysis, and regional comparisons would provide stronger evidence on which financing combinations are most effective, equitable, and scalable in Kenya's public TVET sector.

CONCLUSION

The sustainability of public TVET institutions in Kenya cannot be secured through government funding alone. A resilient approach requires an integrated financing ecosystem that combines predictable public investment, need-sensitive student support, industry co-financing, institutional income generation, performance-based incentives, blended finance, green financing, and strong governance. The proposed Integrated Sustainable TVET Financing Framework (ISTFF-K) offers a policy-relevant model for aligning financing innovation with access, equity, quality, labour-market relevance, and institutional sustainability. Policy-makers, TVET leaders, industry partners, and development partners should collectively implement the framework and test the propositions presented. With diversified revenue portfolios, equity safeguards, and robust governance, Kenya's public TVET institutions can fulfil their mandate of equipping youth with practical skills and supporting national development.

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Declarations

Conflict of Interest

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Ethics Approval

This article did not involve primary data collection from human participants, patients, health workers, students or health facilities. It was based on publicly available literature, legal documents, policy reports, government implementation updates and published sources. Therefore, institutional ethics approval was not required.

Data and Materials

No original datasets, copyrighted instruments, survey tools or restricted materials were used in the preparation of this article. All information used in the review was obtained from publicly available sources and has been cited in the text and listed in the reference list.

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Author Biography

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