

KEY PERFORMANCE INDICATORS IDENTIFIED FOR THE ENHANCEMENT OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) IN NIGERIA

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Abstract

Technical and Vocational Education and Training (TVET) plays a pivotal role in the socio-economic development of any nation. In recent years, Nigeria has placed increasing emphasis and significance on TVET as it endeavors to tackle issues of unemployment, skills gap, and the need for a competitive workforce. This study primarily focuses on the identification of Key Performance Indicators (KPIs) that can effectively measure the performance of TVET in Nigeria. Furthermore, these KPIs are intended to guide the future development of TVET in Nigeria by identifying key areas for improvement and offering policymakers valuable insights for decision-making. This paper outlined the performance measurement process and its various stages, followed by the presentation of a performance measurement framework. Specifically, this study highlights the performance measurement stage, which is the principal focus of this paper. To ensure that the identified KPIs are specific, measurable, achievable, relevant, and timely to meet the requirements of TVET in Nigeria, a concise analysis of the past and present performance of TVET in Nigeria, as well as the current challenges it faces, was conducted. Ultimately, a total of 26 KPIs have been identified for TVET in Nigeria.

Key words: Key performance indicators, performance measurement, monitoring and evaluation, Technical Vocational Education and Training, Nigeria.

Introduction

According to the definition by UNESCO, TVET refers to “aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupants in various sectors of economic and social life” (UNESCO 2006).

TVET aids students in preparing for various programs such as the agricultural industry, commerce, and other fields of study. The implementation of TVET allows youth and students to explore diverse career pathways. Furthermore, TVET supports the development of practical skills, as well as high academic standards and other relevant competencies. The execution of TVET involves a multitude of hands-on activities (Mensah 2023). The pivotal role that Technical and Vocational Education and Training (TVET) plays in shaping a nation's workforce and fostering economic development cannot be overemphasized, particularly in the context of Nigeria. Nigeria, which faces the challenges of a burgeoning population and diverse economic circumstances, greatly benefits from the presence of TVET (Vanguard 2023).

Significance of TVET

1. **Economic Development:** TVET serves as an indispensable tool for promoting economic growth in Nigeria. By equipping individuals with the necessary skills for gainful employment, TVET effectively reduces unemployment rates and poverty levels. Moreover, a skilled workforce significantly contributes to enhanced productivity and competitiveness in the global market (Muoghalu 2018; Udoudo & Ikeji 2023).
2. **Job Creation:** TVET programs possess the potential to generate opportunities for entrepreneurship and self-employment. Through fostering a culture of innovation and

providing individuals with practical skills, TVET empowers citizens to establish their own businesses, consequently leading to job creation (Muoghalu 2018; Udoudo & Ikeji 2023).

3. **Industry-Relevant Skills:** TVET programs are specifically tailored to meet the demands of various industries. This ensures that graduates possess skills that are highly sought after, thus narrowing the skills gap and augmenting the country's industrial capacity (Muoghalu 2018; Udoudo & Ikeji 2023).

The National Policy on Education and the Role of Technical and Vocational Education in National Development.

The National Policy on Education (2013) spelt out the aims of technical and vocational education in Nigeria as follows;

1. Provide trained manpower in the Applied Sciences, Technology and Business particularly at craft, advanced craft and technical levels.
2. Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and
3. Give training and impart the necessary skills to individual for self-reliance economically.

A Brief History of TVET in Nigeria

The historical development of Technical and Vocational Education and Training (TVET) in Nigeria has undergone several changes in response to societal and economic needs. In the beginning, TVET in Nigeria was mostly informal and traditional, with knowledge and skills being passed down from one generation to another. However, in the mid-20th century, the formalization of TVET commenced with the establishment of technical colleges and vocational schools. These educational institutions aspired to provide students with practical skills and prepare them for employment across various industries. In Nigeria, the genesis of TVET can be traced back to the colonial period (Late 19th Century – 1960) when technical schools and trade centers were established to train indigenous workers in skilled trades and crafts. These institutions primarily served the interests of the colonial administration and industries, focusing on vocational skills such as carpentry, welding, and masonry. After Nigeria gained independence in 1960, the government subsequently focused on technical education as a strategy to foster self-sufficiency and industrialization. As a result, technical colleges and polytechnics were established to offer more advanced technical and vocational education. Additionally, programs such as the Yaba National Technical Teachers' College and the Industrial Training Fund (ITF) were established to provide support for technical education and industrial training (Usman et al 2013; Eze & Okorafor 2016).

To regulate and coordinate TVET programs, the National Board for Technical Education (NBTE) was founded in 1977. The 1980s witnessed significant expansion in technical education as more polytechnics, colleges of education, and vocational training centers were established throughout the country. The purview of the syllabus in addition expanded to contain areas like technology, farming, wellness sciences, and commercial management. A crucial aspect of technical education involved partnerships between the public and private sectors in providing practical training and internships for students. Despite these advancements, technical education in Nigeria faced problems like insufficient funding, outdated curriculum, and a shortage of qualified instructors. Consequently, reforms were initiated to modernize and align technical education with the needs of industries. The National Board for Technical Education (NBTE) played a central role in these reforms. The implementation of the National Vocational Qualification Framework (NVQF) in 2010 sought to standardize vocational training and certification. The NVQF provided a uniform framework for evaluating and certifying the skills

and competencies of individuals in various vocational and technical fields (Usman et al 2013; Eze & Okorafor 2016).

Current Status of TVET in Nigeria

Presently, Nigeria continues to invest in technical and vocational education to address youth unemployment and stimulate economic growth. There is an escalating concentration on entrepreneurship education and the refinement of capabilities that are in accordance with emerging technologies and industries. By way of public-private partnerships and international collaborations, efforts are being made to bridge the gaps in TVET. Nevertheless, challenges such as inadequate infrastructure, limited access to quality TVET, the perception of TVET as a secondary option and several other challenges still persist.

Persisting Challenges Facing TVET in Nigeria

In spite of its importance, Technical and Vocational Education and Training (TVET) in Nigeria encounters a multitude of obstacles that hinder its effectiveness. These challenges can be categorized as follows:

1. **Insufficient Funding:** TVET institutions often encounter difficulties due to inadequate financial resources. This limitation hampers their capacity to maintain facilities, update equipment, and recruit qualified personnel (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
2. **Varied Instructional Quality:** The quality of TVET instruction exhibits significant disparities, as certain institutions lack instructors who possess the necessary qualifications and curricula that align with industry demands. Enhancing the quality of TVET programs to meet international standards is imperative. This entails curriculum development, teacher training, and assessment methods (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
3. **Perceptions and Stigmatization:** TVET programs are occasionally regarded as inferior to conventional academic pathways, resulting in a stigma that dissuades students from pursuing vocational education (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
4. **Gender Disparity:** A significant gender gap exists in TVET enrollment, with fewer females participating in technical and vocational programs (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
5. **Lack of Industry Alignment:** It is crucial for TVET programs to closely align with industry requirements to ensure that graduates possess relevant skills. Achieving this necessitates robust collaboration between TVET institutions and the private sector (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
6. **Technological Advancements:** The rapid pace of technological advancements necessitates the continuous updating of TVET programs to remain pertinent (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
7. **Access and Geographic Disparities:** TVET opportunities are predominantly concentrated in urban areas, leaving rural populations with limited access to vocational training (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Namkere & Ikeji 2023).
8. **Regulation and Standardization:** The absence of clear regulatory frameworks and standards can result in variations in the quality of TVET programs across the nation (Inyiagu 2014; Kankia & Awang 2018; Muoghalu 2018; Udoudo & Ikeji 2023).
9. **Inadequate Monitoring and Evaluation:** TVET programs in Nigeria suffer from insufficient monitoring and evaluation mechanisms. Consequently, minimal effort is made to align the training with the existing job opportunities in society. Additionally,

there is a lack of collaboration with private sectors, which could potentially serve as a means of assessing the outcomes (Muoghalu 2018; Udoudo & Ikeji 2023).

Research Focus

Due to these persisting challenges of TVET in Nigeria, it will be therefore vitally important to understand and analyse the performance criteria that can be applied in measuring and managing TVET in Nigeria. Currently this measurement criterion has not been established.

This paper focuses on identifying Key Performance Indicators (KPIs) that can be used to measure the performance of TVET in Nigeria and eventually guide the further development of TVET in Nigeria, in the sense that the KPIs will assist in identifying key areas for improvement and also serve as a guide for policy makers in making decisions.

Key Performance Indicators are quantifiable measures used to evaluate the success of an organization or employee in meeting objectives for performance. KPIs represent the pivotal measurable indicators of advancement towards a desired outcome and they serve as a focal point for enhancing both strategic and operational aspects, establish a foundation for analytical decision-making, and facilitate concentration on the most significant aspects (Neely et al, 2000; Onatere et al 2014).

The Performance Measurement Process

Performance assessment is the methodical procedure of gathering, examining, and deciphering information to evaluate the overall performance of an organization or an individual. It is an essential component of appraising and enhancing the productivity, efficiency, and accomplishments of individuals, organizations, and processes. Although the utilization of performance measurement is prevalent across various businesses and industries, the nature and scope of measurement systems differ. Over the past few decades, there has been a shift from manual to computerized and automated data collection methods, resulting in widespread data accessibility in most companies. Consequently, the current challenge primarily revolves around determining the appropriate Key Performance Indicators to use, as well as how to compile and aggregate data, present them effectively, and accurately interpret and utilize them. (Neely et al, 2000; Onatere et al 2014).

Why Measure Performance?

The underlying impetus for the evaluation of performance revolves around the necessity to furnish feedback regarding the effective execution of work or project functionality. This feedback constitutes a vital component of an organizational feedback control system, which plays a pivotal role in the management of the systems, processes, and activities that are subject to measurement. Furthermore, it serves as a tool for enhancing work or project functionality. It is impossible to effectively manage that which cannot be measured; that which is measured is accomplished, and measurements have a significant impact on behavior. In order to thrive and prosper in the era of information age competition, companies must utilize measurement systems. Consequently, the objective of performance measurement is to stimulate behavior that engenders continual enhancement of customer satisfaction, adaptability, and productivity. The primary aim of performance measurement is improvement. (Neely et al, 2000; Onatere et al 2014).

In the cycle of continuous improvement, performance measurement plays an important role in: Identifying and tracking progress against organisational goals; Identifying opportunities for improvement; Comparing performance against both internal and external standards (Neely et al, 2000; Onatere et al 2014).

Benefits of Performance Measurement

They include; Reduced failure costs, Lower appraisal costs, Increased market share, Increased customer base and More productive workforce (Neely et al, 2000; Onatere et al, 2014)

Performance Measurement Stages

Researchers at Cranfield University have developed a performance measurement and management framework called the “Performance Prism”, which they claim addresses all of an organisation’s stakeholders. The prism consists of five facets that should be considered when developing performance measures: stakeholder satisfaction, strategies, processes, capabilities and stakeholder contribution (Neely et al, 2000; Onatere et al 2014). However, in this research various measurement frameworks will be evaluated for best practice, but underpinned by the measurement process stages as follows:

Identification: This stage involves choosing/selecting the Key Performance Indicators that are worth measuring to meet the organisational goals/needs (Neely et al, 2000; Onatere et al 2014).

Monitoring: This stage involves the collection of data to check progress against planned targets. It is the formal reporting of evidence that spend and outputs are successfully delivered and milestones met. By tracking changes in outcomes over time, monitoring data plays a key part in evaluation throughout the initiative's lifetime (Neely et al, 2000; Onatere et al 2014).

Evaluation: This stage involves the assessment of the project's effectiveness and efficiency during and after implementation. This includes measuring the causal effect of the project (or elements within the project) on planned outcomes and impacts, assessing whether the anticipated benefits and value for money have been realised and whether any unanticipated impacts occurred (Neely et al, 2000; Onatere et al 2014).

Implementation: At this stage, when everything has been sorted out as regards the organisation’s performance, then comes the decision making process about what to improve, how much to improve it by and how to do the improving (Neely et al, 2000; Onatere et al 2014).

Evaluation: After implementing, another evaluation needs to be done in order to assess the projects effectiveness and efficiency, whether the anticipated benefits and value for money have been realised and whether any unanticipated impacts occurred (Onatere et al 2014).

Recycle: Repeat the process for continuous improvement (Neely et al, 2000; Onatere et al 2014).

The Performance Measurement Framework

Figure 1 shows the performance measurement framework, presenting the five stages of the Performance Measurement process (Identify; Monitor; Evaluate; Implement; Evaluate) in a cyclic form.

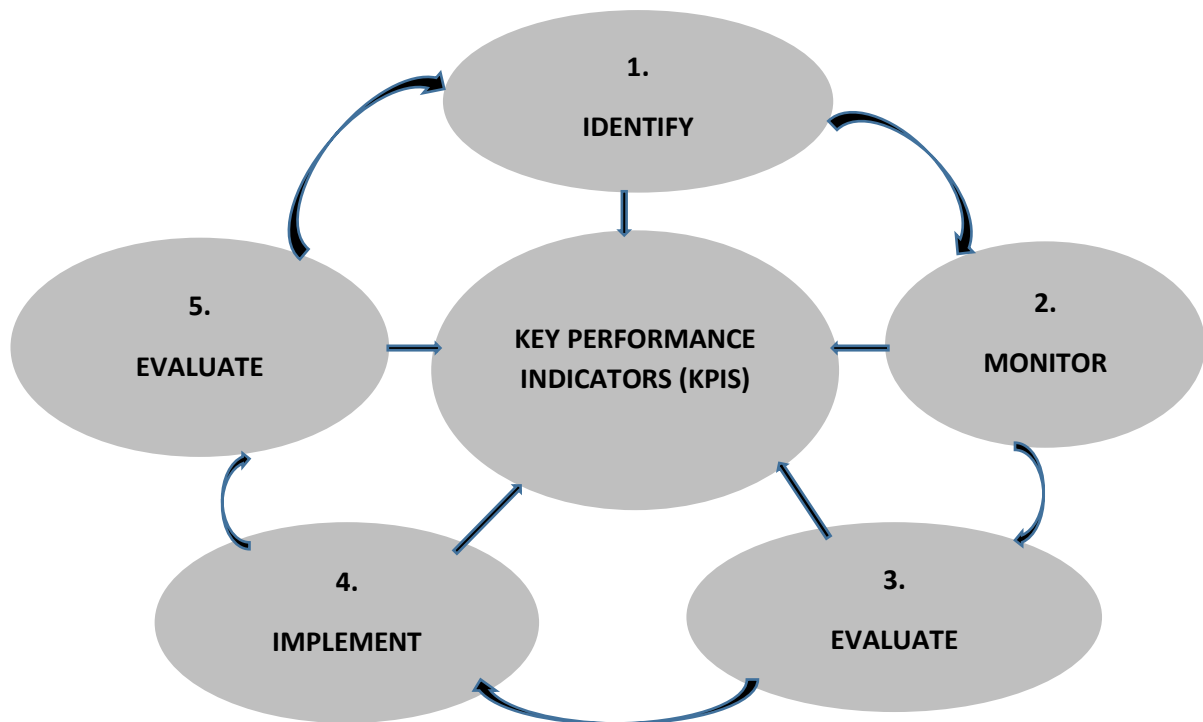


Figure 1. Performance Measurement Process (Onatere et al 2014)

The performance measurement stage that will be the focus of this paper is the Identification stage. The identification stage involves identifying and selecting the right KPIs that are specific, measurable, achievable, relevant and timely to meet the needs of TVET in Nigeria.

The Key Performance Indicators Identified For TVET In Nigeria

These Key Performance Indicators can help policymakers, institutions, educators and stakeholders evaluate the effectiveness of TVET programs in Nigeria and make informed decisions to improve the quality and relevance of technical and vocational education. These specific KPIs align with the goals and objectives of TVET in Nigeria and may evolve over time.

- **Student Enrollment Rate**

This KPI measures the number of students enrolled in TVET programs compared to the eligible population. It indicates the level of demand and access to TVET.

- **Retention Rates**

Monitoring and addressing dropout rates to improve student retention. Calculating the percentage of students who remain enrolled in TVET programs until completion can help identify areas where student support may be needed.

- **Graduation Rates**

This reflects the percentage of students who successfully complete their TVET programs within the expected time frame. High graduation rates indicate program effectiveness.

- **Placement Rate**

This KPI measures the percentage of TVET graduates who secure internships or apprenticeships during their training, as these experiences often lead to enhanced employment opportunities.

- **Employment Rate**

The percentage of graduates who secure relevant employment within a certain period after graduation. Monitoring the percentage of TVET graduates who secure employment in their chosen field or related industries is crucial. This shows the relevance of the programs to the job market.

- **Employer Satisfaction**

Surveys or feedback from employers about the performance and skills of TVET graduates can gauge how well the programs are preparing students for the workforce.

- **Industry Partnership**

The number of collaborations and partnerships between TVET institutions and industries can indicate the relevance of the curriculum to the needs of the job market.

- **Student Satisfaction**

Gathering feedback from TVET students about their overall experience, including the quality of instruction, facilities, and resources, can help assess program quality.

- **Skills Assessment**

Regularly assessing the level of skills and competencies acquired by students in their chosen fields during their TVET program is essential, as this can provide insight into the effectiveness of the training. This can involve practical assessments and testing.

- **Earnings Increase**

Tracking the increase in earnings for TVET graduates compared to their pre-training income can demonstrate the economic impact of TVET.

- **Gender Equity**

Measuring the gender distribution of TVET enrolment and graduation can highlight efforts to promote gender equality in technical and vocational fields.

- **Program Cost**

Monitoring the cost per student for TVET programs can help ensure efficient resource allocation.

- **Faculty Qualifications**

The percentage of faculty members with relevant advanced degrees and industry experience.

- **Research Output**

The number of research papers, patents, or innovations produced by faculty members and students.

- **Infrastructure Development**

Assessing the improvement and expansion of TVET facilities and resources can indicate progress in enhancing the quality of education. Investment in modern laboratories, workshops, and equipment.

- **Skills Competitions**

Participation and success in national and international technical skills competitions.

- **Curriculum Alignment**

Ensuring that the curriculum aligns with industry needs and global standards.

- **Graduate Skills Assessment**

Assessing the technical skills and competencies of graduates through standardized tests or evaluations.

- **Diversity and Inclusion**

Monitoring the enrollment and retention rates of underrepresented groups in technical education programs.

- **Resource Allocation**

Tracking the allocation of funds to technical education institutions and programs.

- **Certification and Accreditation**

Ensuring that TVET institutions maintains relevant certifications and accreditations to meet recognized quality standards is crucial for its credibility and quality.

- **Continuing Education**

Monitoring the participation of faculty and staff in professional development and continuing education programs.

- **Industry Feedback**

Gathering feedback from employers about the quality and preparedness of TVET graduates.

- **Community Engagement**

Measuring the extent to which technical education institutions engage with the local community and industry.

- **Budget Execution**

Tracking the utilization of allocated budgets for TVET programs.

- **ICT Integration**

Assessing the integration of information and communication technology (ICT) into TVET programs.

Conclusion

In light of the fact that Technical and Vocational Education and Training (TVET) holds significant potential and plays a pivotal role in the economy, as well as possessing the capacity to stimulate socio-economic advancements in Nigeria, it becomes imperative to establish criteria for measuring the performance of TVET in Nigeria. This will enable effective management of TVET initiatives. By conducting performance measurement exercises in a meticulous manner, whereby the performance of the organization is critically assessed and pertinent Key Performance Indicators (KPIs) are identified in alignment with the organization's objectives, substantial benefits and improvements can be attained. It is crucial to note that performance measurement ought not to be a one-time event, but rather an ongoing process that is conducted periodically. This ensures that the organization remains on the right path and, if possible, stays ahead of its competitors, while also facilitating continual enhancement.

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