Quality Assurance in Higher Education: KNUST's Quality Assurance Trajectory

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Abstract

The paper examined the quality assurance trajectory of KNUST within the broader context of higher education in Ghana. It explored the historical evolution of KNUST's quality assurance framework, including its policies, accreditation processes and institutional structures. The qualitative research gathered data through document analyses and interviews with knowledge-rich current and former staff, experienced on quality assurance evolution at KNUST. The paper reveals that KNUST has made considerable progress in implementing quality assurance mechanisms with various institutional structures including its committee system of governance, subjecting itself to accreditation and international ranking mechanisms, decentralising quality assurance issues and enabling policies with support systems. However, it is challenged by bureaucratic delays in accreditation and curriculum reviews, resource constraints and resistance to change. The paper concludes by emphasising the need for continuous policy review and institutional governance reforms to enhance the sustainability of quality assurance. The insights provided contribute to the broader discourse on higher education quality management and serve as a model for other universities seeking to strengthen their quality assurance frameworks.

1.0   Introduction

Higher education continues to be one of the bedrocks of socio-economic development. Unterhalter et al. (2020) emphasise the pivotal role of higher education in socio-economic development, suggesting that it not only equips individuals with necessary skills but also propels societal advancements. However, Salmi (2020) extends this argument by linking higher education to achieving the United Nations' Sustainable Development Goals (SDGs). Salmi argues that without the foundational knowledge and skills higher education provides participants, efforts towards SDGs such as poverty reduction and economic growth (SDG 1 and SDG 8) would be significantly hampered. This perspective is particularly relevant as it highlights the broader implications of educational advancements, not just for individual economic benefits but also for global sustainability goals. The interconnection drawn by Salmi between educational output and sustainable development challenges the traditional view that sees education merely as a pathway to employment, urging a broader conceptualisation that includes its role in societal transformation.

This raises a critical question about the adequacy and quality of current higher education provision on immediate and long-term social and economic returns to the individual and society in general. Quality assurance (QA) in higher education, therefore, becomes critical in ensuring that higher education institutions (HEIs) effectively contribute to socio-economic development and the realisation of global sustainability goals. Quality assurance mechanisms, thus, should ensure that academic programmes of HEIs remain relevant, rigorous and aligned with the evolving needs of local and global economies (Gow & Sun, 2024). This is because, without robust QA frameworks, HEIs may fail to provide the quality education necessary to address current and emergent critical global challenges. Moreover, QA fosters continuous improvement by promoting innovative teaching methods, faculty development, and curriculum enhancements, ensuring that graduates possess the competencies required for meaningful societal transformation (Anis, 2024).

Consequently, the institutionalisation and implementation of strong QA mechanisms become fundamental in safeguarding the integrity and effectiveness of higher education and contributing to short and long-term socio-economic and development efforts. Following this, QA in HEIs has and continues to evolve in response to increasing demands for accountability, efficiency, competitiveness, effectiveness and continuous improvement. This calls for periodic and systematic monitoring, evaluation and improvement of various aspects of higher education provision such as governance and administration, research, teaching, learning and community engagement activities (Nnadozie, 2024). This is further heightened by factors such as competition, low funding, massification, technological advancements such as the emergence of online learning platforms, globalisation, micro-credentials, short professional courses including executive and sandwich programmes and the ever-

changing skill requirements of employers (Ngalomba et al., 2025).

As a result, several accreditation agencies and regulatory bodies have emerged to oversee and promote quality standards across diverse educational contexts (Naim et al., 2024). However, the specific approaches and priorities of QA vary across countries and this can be influenced by socio-economic factors, cultural norms and individual institutional structures (Riad-Shams & Belyaeva, 2019). For instance, the Bologna Process has standardised QA practices in Europe through the European Standards and Guidelines (ESG) for QA. On the part of the United States of America, it relies on several accrediting agencies. These include institutional accreditors, regional accreditors, and programme-specific accrediting agencies (Hegji, 2017). At the global level, there are also regional and global agencies such as the International Network of Quality Assurance Agencies in Higher Education (INQAAHE), the Quality Assurance Agency (QAA), the International Association for Quality Assurance in Pre-tertiary and Higher Education (QAHE), the European Association for Quality Assurance in Higher Education (ENQA), the National Academic Recognition Information Centre (NARIC) and the Accreditation High Quality Standard Education (AHQSE) that accredit programmes and institutions for QA.

In Africa, mention can be made of the African Quality Assurance Network (AfriQAN), African Accreditation Co-operation (AFRAC), the Pan-African Quality Assurance and Accreditation Framework (PAQAF), the African Quality Rating Mechanism (AQRM) and Association of African Universities (AAU)'s Council for Higher Education Accreditation (CHEA). To harmonise QA issues across Africa, there is even the Harmonisation of African Higher Education Quality Assurance and Accreditation Initiative (HAQAA) by the African Union (HAQAA, 2021).

In Ghana, QA practices are regulated by the Ghana Tertiary Education Commission (GTEC), which sets accreditation standards and monitors compliance by HEIs. Ghana's higher education sector has witnessed significant reforms in QA, particularly with the establishment of GTEC. Accreditation processes involve rigorous evaluation of faculty qualifications, curriculum design, infrastructure adequacy and research output. However, challenges such as resource constraints, inconsistent policy implementation and the need for greater institutional autonomy persist (Armah, 2022). To ameliorate these challenges, HEIs are required to put in place internal mechanisms to assure quality. Given this, the Kwame Nkrumah University of Science and Technology (KNUST) has established a structured QA framework to enhance research, teaching, learning and community engagement activities. The Quality Assurance and Planning Office (QAPO) under the Vice-Chancellor's Office of KNUST oversees the initiation and implementation of internal and external QA mechanisms.

In spite of this, evolving challenges such as curriculum relevance, accreditation procedures and digital transformation necessitate continuous refinement of QA mechanisms at KNUST. While existing studies have explored QA in Ghanaian universities, there is limited exploration of KNUST's unique trajectory in implementing QA mechanisms. There is a need to analyse the effectiveness of KNUST's internal quality assurance mechanisms, their impact on academic outcomes and potential areas for policy enhancement. This study, therefore, seeks to fill this gap by providing a detailed assessment of KNUST's QA strategies and their implications for higher education governance. The paper further examines the trajectory of KNUST's QA framework, analysing its evolution, strengths and areas for improvement. It explores how KNUST has adapted to changing educational landscapes and regulatory requirements while maintaining its commitment to excellence in science and technology education. The study provides valuable insights into best practices and recommendations for enhancing QA within the university and beyond.

As the paper unfolds, there is a brief about the context of the study (KNUST) in terms of its evolution, vision, mission, core values and administrative structure. Following this, the methodology section describes the qualitative methodology used in this study, including interviews with key informants, document reviews and ethical considerations. A review of KNUST's QA framework is presented next with insights into the historical evolution of QA at KNUST, the various institutional structures supporting QA, policies, procedures, accreditation processes and compliance with national and international standards. This is followed by an expose of key insights from the University's QA practices as in the strengths and challenges of the existing system and ends with implications for policy and institutional governance.

2.0   The Study Context
This study explores KNUST's QA trajectory within the Ghanaian higher education context. KNUST traces its history to the College of Technology, Science and Arts (CTSA) which was transformed into the Kwame Nkrumah University of Science and Technology. It was established in October 1951 to provide training and research in technology, science and arts subjects (KNUST, 2023). In January 1952, about 200 teacher-training

students were transferred from the then Achimota College as the first batch of students to form the Kumasi College of Technology. The College became a purely science and technology institution in 1958 with the relocation of the teacher training courses and the Department of Commerce to Winneba and Achimota, respectively. In December 1960, a commission was established to provide recommendations to the government regarding the future expansion of university education in Ghana. This was in relation to a proposal to elevate the University College of Ghana and the Kumasi College of Technology to the status of an independent University of Ghana. The Commission highlighted many important attributes of a good liberal arts and science university, many of which were crafted into the respective Acts establishing the University of Ghana and the Kwame Nkrumah University of Science and Technology (KNUST, 2023).

On 6th October 1961, the then Kumasi College of Technology was established by a Government Ordinance. It was transformed into a full university and renamed Kwame Nkrumah University of Science and Technology by Act 80 of the Parliament of the Republic of Ghana on 22nd August 1961. The University is situated in Kumasi, the capital city of the Ashanti Region of Ghana with a student population of 86,459 with 3,551 staff of varied ranks and categorisation (KNUST Facts and Figures, 2024). The University has since January 2005 operated a collegiate system of governance where various Faculties of the University are grouped into Six Colleges: Science, Engineering, Agriculture and Natural Resources, Art and Built Environment, Health Sciences, Humanities and Social Sciences. There is also the Institute of Distance Learning (IDL) and the School of Graduate Studies (SGS) that co-ordinate distance learning and graduate education, respectively. Through its Colleges, KNUST offers programmes of study that lead to the award of diploma, bachelors, masters and PhD degrees. These are in varied areas of specialisation including engineering, science, health sciences, art, technology, humanities and social sciences.

It has a vision to "*build on KNUST's leadership as the premier science and technology university in Ghana and to be among the top ten Universities in Africa.*" Its mission is "*to advance knowledge in science and technology through creating an environment for undertaking relevant research, quality teaching, entrepreneurship training and community engagement to improve the quality of life.*" Its core values are leadership in innovation and technology, a culture of excellence, diversity and equal opportunity for all, as well as integrity and stewardship of resources (KNUST, 2023). KNUST is home to several international students predominantly from the West African sub-region and has and continues to mentor several private university colleges in Ghana.

3.0   Study Methodology

To provide depth and context to the study, the qualitative methodology was adopted to allow for an in-depth exploration of the quality assurance trajectory of KNUST (Creswell, 2021). Information-rich key informants knowledgeable regarding the QA journey of KNUST were purposively selected (Campbell et al., 2020). Consequently, two former deans of QAPO, the current Dean of QAPO, five Heads of Department at QAPO, two administrators and three Chairpersons of Unit Quality Assurance Sub-Committees were used for the study. These informants are knowledgeable and experienced about how QA has evolved over the years at KNUST.

As a qualitative study, diverse sources of evidence were used to enhance the quality of the study (Flick, 2022). Primary data collection involved semi-structured interviews lasting 40 to 50 minutes each with key informants. Even though the interviews provided the core data for the study, relevant university documents that could provide relevant insights into the QA trajectory and practices of KNUST (Hatch, 2023) were also used. Consequently, documents consulted included the Statutes of the University, the Quality Assurance Policy document, the Quality Management System (QMS) Manual, the five-year institutional cyclical review report of 2024, accreditation documents and other relevant policy guidelines that provided contextual background on KNUST's QA evolution and practices. Data from the interviews and document analyses were compared and this enhanced the authentication and validation of the data obtained (Kutsyuruba, 2023). This triangulation also enhanced the credibility of the data.

Data analysis followed Miles and Huberman's (1994) model, involving verbatim transcription of interviews, manual coding and thematic analysis. Key themes that emerged included a framework of KNUST's QA system concerning the historical evolution of QA at KNUST, institutional structures supporting QA, policies and practices, as well as strengths and challenges of the QA system. The study ensured trustworthiness through Lincoln and Guba's (1986) criteria of credibility, dependability, confirmability and transferability. This was achieved through prolonged engagement with the key informants, triangulation of data, detailed documentation of research procedures, and member checking. Ethical considerations were adhered to through informed consent and protection of participant confidentiality by using pseudonyms (Creswell & Creswell, 2017).

4.0   KNUST's Quality Assurance Framework

This section of the paper reviews KNUST's QA framework emphasising the historical evolution of QA at KNUST, institutional structures and policies supporting QA, accreditation processes and compliance with national and international standards.

4.1   Historical Evolution of Quality Assurance at KNUST

KNUST is committed to upholding national and international standards in its operations to improve the quality of its research, teaching, learning and community service. In view of this, the maintenance of QA at KNUST dates back to decades when the then *Planning Unit* was set up to take care of institutional planning in the University. The Unit was transformed into the Quality Assurance and Planning Unit (QAPU) in the year 2003 with an additional focus on QA issues. QAPU was headed by a Head of Department. With more leverage and additional responsibilities, the Unit was in the year 2022 transformed into the Quality Assurance and Planning Office (QAPO), headed by a Dean who reports directly to the Vice-Chancellor. With five Departments namely: Quality Assurance and Accreditation, Institutional Policy and Planning, Monitoring and Evaluation, Management Information Systems and Examinations Audit, the Office is responsible for strategic planning, management of quality assurance and the management of information systems of the University (QAPO, 2022).

The Office does this in consultation with Provosts, Deans/Directors, Heads of Department and the University Administration in co-ordinating the preparation, implementation, monitoring and evaluation of strategic planning, as well as quality service delivery in respect of research, teaching, administration and other community engagement services to ensure the University attains academic and service excellence. It does this by assisting in setting performance standards, developing and monitoring policies, co-ordinating internal and external accreditation processes, and providing expert advice on quality assurance policies to management. In addition, the Office plays a key role in performance appraisal mechanisms, ensuring accountability and continuous improvement through staff and student surveys. Furthermore, the Office supports academic planning by managing data on staff-student ratios, examination monitoring and results auditing (QAPO, 2022). KNUST is, therefore, implementing a structured QA system through its QAPO, which oversees programme accreditation, faculty evaluation, student assessment, and institutional research. *Over the years, KNUST has integrated technology-enhanced learning, periodic curriculum reviews, and staff development programmes to maintain academic rigour and relevance* (Key Informant 4).

4.2   Institutional Structures Supporting Quality Assurance

The Kwame Nkrumah University of Science and Technology, Kumasi, Act 1961 (Act 80) as amended by PNDC Law 240 of 1990 and Act 559 of 1998 mandates KNUST *to provide higher education, to undertake research, to disseminate knowledge and to foster relationships with outside persons and bodies but special attention to subjects that relate to the social, cultural, economic, scientific, technological and any other problems which exist in Ghana or elsewhere in Africa*. The University upholds guiding principles that safeguard academic freedom, allowing staff to critically examine established knowledge, propose new ideas, and express controversial or unconventional views without fear of job loss or professional repercussions. These principles support the University's mission to deliver quality education, foster learning, and conduct research efficiently and cost-effectively while ensuring justice and fairness in all its operations.

KNUST operates a bicameral system with a Governing Council (Section 7 of the Act) and an Academic Board (Section 8 of the Act) with their respective statutory Sub-Committees to see to the general policy direction and all teaching and learning or academic issues of the University, respectively. The Governing Council as established by Act 80, 1961 is the supreme body on all matters about the University. The powers, functions and responsibilities of the Council are as stipulated in the Act establishing the University (Act 80, 1961) and per Statute 6 of the Statutes of the University (2004). On the other hand, the Academic Board of the University (Statute 21) of the Statutes (KNUST, 2004) formulates and implements the academic policy of the University and, generally, regulates and approves programmes of study and examinations. Its functions/powers are stipulated in Statute 21, and it operates with Sub-Committees as stipulated in Schedule B1 of the KNUST Statutes (2004).

To oversee the day-to-day administration of the University, there is a Vice-Chancellor appointed by the University Council per Schedule I of the Statutes of KNUST (2004). According to Statute 12 of the Statutes of KNUST (2004), the Vice-Chancellor is the Chief Executive Officer of the University, and is, thus, responsible under the Statutes of the University and with decisions of the Council and the Academic Board, for organising

and conducting the academic, financial and administrative business of the University. The Vice-Chancellor is the academic and executive head as well as the chief disciplinary officer of the University. The Vice-Chancellor conducts the day-to-day administration of the University with a team of administrators across the various Colleges and Units of the University. These include Provosts, Deans, Directors and Heads of Department who are responsible for administering affairs at the College, Faculty and Departments (teaching).

Other offices/units are headed by professionals such as Works and Physical Development, Estate, Registry (Academic Affairs, Human Resource Development, General Administration, Legal and Welfare, Students Affairs, University Relations), Finance Office, Internal Audit, Health Services, Library, E-Learning, Procurement and Information Technology, among others. These offices also have several subunits that help administer the affairs of their Offices. These Offices provide essential support services to facilitate the conduct of university business. *The Vice-Chancellor administers the University through these offices and the committee system and submits reports thereof to the Academic Board and the Governing Council on the conduct of the University* (Key Informants 1, 4, 5 and 6).

In addition to the above structures, Section 15 of the above Act mandates the Governing Council of the University to enact Statutes to carry into effect the provisions of the Act. Accordingly, there is the KNUST Statutes (2004) that sets out guidelines, procedures and processes for actualising the mandate of the University. The Statutes in Statute 47, therefore, sets up a QAPO to be *responsible for strategic planning, management of quality assurance, as well as the management of information systems of the University*. The activities of QAPO are organised under the following departments:

i. The Quality Assurance and Accreditation Department: This oversees curriculum development and reviews, programme and institutional accreditation, monitor service delivery and quality assurance across the university and is responsible for quality assurance issues in all institutions affiliated to KNUST;

ii. Institutional Policy and Planning Department: It facilitates the drawing up and implementation of institutional and unit Strategic Plans and their approval processes, facilitates the drawing up and implementation of policy instruments that guide the conduct of University business and advice Management on strategies, policy options and implementation strategies of various policies and plans;

iii. The Monitoring and Evaluation Department: This Department is responsible for conducting staff performance evaluations, developing appropriate performance appraisal mechanisms for students and staff, evaluating performance and service delivery and conducting needs assessment through tracer studies and exit polls;

iv. Management of Information Systems Department: This is responsible for processing staff and student data including admission and management information systems and related services and coordinating and publishing the basic statistics and quality assurance bulletin. It also provides up-to-date data to management and other stakeholders, provides periodic reports on examinations, classroom monitoring and resource utilisation for senior management and stakeholders;

• Examinations Audit Department: This Department on its part co-ordinates the audit of examination results, graduation list and admission requirements of students of KNUST and affiliated institutions. It does this by ensuring that the approved format for presentation of results in the University is strictly adhered to, that students' names are well captured and tally with index numbers, that all trailed courses are duly captured and when any trailed courses are redeemed, the lecturer is made to provide evidence. It also ensures that all regulations regarding withdrawals, repetition, probation and non-regular status of students are strictly observed, that the calculation of Student's Cumulative Weighted Averages (CWA) is a true reflection of their performance and that Departmental, Faculty and College Board's requirements are met by graduating students. It presents the Examinations Audit Report to the Academic Board for consideration (QAPO, 2022).

To take the issues of quality assurance and make them more relevant, there are seven college-specific quality assurance sub-committees for each of the academic colleges of the University. In addition, there are ten unit-specific quality assurance sub-committees for the non-teaching or professional offices to oversee quality assurance issues at those units (Key Informants 9 and 11). Their mandate is to co-ordinate all activities to ensure quality service delivery, effective teaching, research, administration and other services to enable the University

to attain academic and service excellence. This is to help nib in the bud, any quality assurance infractions (Key Informant 1, 5, 8, 10 and 12).

4.3   Institutional Practices in Furtherance of Quality Assurance
To assure quality in the performance of its mandate, certain key practices characterise the University. Some of these are discussed in this sub-section of the paper.

- *Academic Integrity*

Academic Departments in collaboration with their respective professional bodies such as the Ghana Institution of Engineering, Ghana Institution of Surveyors, and the Nursing and Midwifery Council of Ghana among others set minimum entrance requirements for all fresh applicants to the various departments (Key Informant 2). This is in tandem with the broad guidelines of GTEC. In addition, the results of candidates who apply to the various programmes of the University are verified with the West African Examinations Council to ensure authenticity. This ensures that only quality students gain admission into the University. After students gain admission to the University, there is a mandatory rigorous orientation programme to help them find their feet in their new environment. According to Key Informants 1, 4, 6, 8 and 11, fresh students are supplied with a *Students Guide and Code of Conduct* to regulate their general conduct in the University. Students are also required to do semester registration which includes an online course registration and in-person biometric verification to reduce absenteeism and late registration by students when the semester resumes. This way, students who want to overstay their vacation period could be checked. Since a biometric system is used, impersonation or proxy registration is also avoided (Key Informants 1, 5, 6 and 9).

Per GTEC guidelines, there is mandatory accreditation and re-accreditation of programmes. To come out with a new programme in the University, an academic department develops/reviews an existing programme for consideration and approval by the Departmental Board. The Departmental Board also reviews the programme and if approved, forwards same to the Faculty Board for further scrutiny and approval. The programme is then forwarded for the consideration of the College Board to ensure there are no duplications of the programmes, among others. If the programme is to be run via the distance learning mode, the College Board forwards same to the Board of IDL for further scrutiny. If the programme is a postgraduate programme, the Board of SGS also reviews and approves it. After this level, the programme is then placed before the Planning and Resources Committee for further review after which the programme is placed before the Academic Board of the University for its consideration. If the programme gets approved by the Academic Board, QAPO then takes it to GTEC for scrutiny and final accreditation (Key Informants 7, 9, 11 and 12).

To ensure academic integrity, students use index numbers and are biometrically verified during examinations. Students' works are subjected to plagiarism checks. Students are also allowed to anonymously assess their courses and facilitators every semester. Students are also taken through oral examinations (viva voce) to defend their research works. As a quality assurance measure, KNUST processes all its examination questions centrally at the Photocopy Unit with guidelines on the submission of questions and penalties for any breaches. Heads of Department or internal assessors are required to vet examination questions for coverage, depth, and adequacy and the results are subjected to a rigorous auditing process before approval and release (Key Informants 1, 5, 7 and 9).

- *Support Systems*
To provide a conducive environment for the conduct of university business, KNUST has put in place some systems. These include staff and student clinics that are strategically located to attend to the health needs of staff and students. *There is also a full Counselling Unit with complementary clinical psychologists and counsellors assigned to each College of the University to attend to staff and students' counselling needs* (Key Informant 3). There is also a Directorate of Students Affairs with complementary staff to attend to student needs with respect to funding (bursaries and scholarships), accommodation and welfare needs (Key Informants 3, 4, 6, 7 and 9).

According to Key Informant 6,

> *there are also clubs, societies and independent student associations including the Graduate Students Association of Ghana (GRASAG), Distance Learning Students Association (DLSA), Students Representative Council (SRC) and National Union of Ghana Students (NUGS) that champion the interest of students. The Catholic, Protestant and Muslim Chaplaincies are also at hand to cater for the spiritual needs of staff and students. A pre-paid campus bus or shuttle service also helps students commute around the campus*

seamlessly.

- *General Administration*

It also came out during the study that other activities of the University promote QA including a mandatory mentorship programme for new staff where new staff are paired with experienced ones to help nurture them. There is also peer evaluation of teaching where colleagues review other colleagues' teaching and make inputs for improvement. The University also conducts an annual ranking of Colleges, Faculties and Departments under some criteria to engender healthy competition towards QA. A Key Informant added that

> *there is a five-year cyclical review by Section 1(7) of the Education Regulatory Bodies Act 2020) (Act 1023) conducted by GTEC. This enables the University to report on its organisation and governance, financial governance and sustainability, teaching and learning, quality assurance, social inclusion/diversity and students' experiences and academic affairs among many other quality indicators* (Key Informant 2).

In addition, it came out that KNUST subjects itself to international ranking agencies such as Times Higher Education (THE) and Webometrics. In this respect, KNUST was ranked number one on the provision of quality education (SDG 4) worldwide by THE in 2023. It has also recently been accredited by the Quality Assurance Agency for Higher Education (QAA) for the successful completion of the International Quality Review and meeting the standards and guidelines for quality assurance in the European Higher Education area.

Administratively, KNUST operates a bi-cameral system of governance with a Governing Council and Academic Board in charge of general policy direction and academic direction of the University, respectively. These Boards have their respective sub-committees with representations from students, government, alumni, staff and industry. *The University's committee system of governance also acts as checks and balances, and these tend to enrich decision-making in the University* (Key Informant 1)

Staff of the University, especially those in specialised units of administration belong to varied professional bodies that ensure higher standards of performance and professionalism. The promotion of certain categories of staff of the University are subjected to external peer reviews and this is also another QA mechanism. In addition to these, the University has developed several in-house procedures and applications to aid in seamless administration. This includes an accounting and auditing software (PANACEA), a student academic information management system (SIS), a human resource management information system (SYNERGY) and many other such applications (Key Informants 1, 3 and 11).

4.4   Institutional Policies Towards Quality Assurance

To ensure quality in its activities, policies have played a fundamental role at KNUST in providing the framework for decision-making, accountability and overall management (Andrews & Glendinning, 2024). They have provided the structure and guidelines necessary for maintaining high standards of academic integrity, operational efficiency and ethical behaviour at KNUST. These policies are grounded in the KNUST Act 1961 (Act 80) which was amended by PNDC Law 240 of 1990 and Act 559 of 1998 and the Statutes of the University, which are the supreme documents on which the governing structure, as well as the vision, mission and values of the University, are founded (Key Informant 12).

- *The University Strategic Plan*

To provide a strategic focus on all aspects and activities of the University, there is in place a KNUST Corporate Strategic Plan (PLAN2K25) (2016). The plan sets out a situational assessment of the University, its strategic focus, thematic areas with strategic objectives, key performance indicators, implementation, monitoring and evaluation as well as plan implementation frameworks. According to Key Informant 3, *the plan has guided all developmental activities of KNUST since 2016.*

- *The Quality Assurance Policy*

Specifically on QA issues, the University has a comprehensive Quality Assurance Policy which provides the broad framework for achieving quality in service delivery towards the achievement of the vision and mission of the University by adhering to its core values. The policy aims to *ensure that quality education is provided to students, that research and publications are enhanced in the University, and that all areas of the University's operations achieve quality service delivery* (KNUST Quality Assurance Policy, 2018).

This is to be achieved through leadership in academic excellence by safeguarding and improving the academic standards and quality of teaching and learning, leadership in innovation and technology through the development of appropriate programmes in science and technology that meet the needs of the job market and industry and maintaining the integrity of certificates awarded by the University. The policy also ensures continuous improvement of the quality of community services rendered to stakeholders, expands internal quality mechanisms to cover all university operations to ensure quality service delivery and promotes a culture of excellence among all members of the university community (KNUST Quality Assurance Policy, 2018). Other aspects of the policy have to do with scope, desired outcomes, specific policy statements, implementation responsibilities for major stakeholders, linkage with other bodies, implementation strategies, policy evaluation and revision. The policy, therefore, provides a general framework for and connections with other important policies concerning research, teaching and learning, ethics, gender, and ICT, among others.

- *The Quality Management System Manual*

With University Management, QAPO and Unit-level quality assurance sub-committees as the driving force on matters of QA at KNUST, there is also a Quality Management System (QMS) Manual (Key Informants 1, 3, 4, 5, 7, 9 and 13). The QMS ensures that KNUST complies with relevant regulations, accreditation requirements and best practices, fostering a culture of quality and excellence. It serves as a driving force for excellence in higher education by upholding the principles of quality, transparency and continuous improvement (KNUST Quality Management System Manual, 2025). The University sets benchmarks for academic and operational excellence, contributing to the holistic development of its students and the advancement of knowledge and innovation in Ghana and beyond. In doing this, KNUST collaborates with external agencies for programme and institutional accreditation, ensuring alignment with national and international quality standards. *This is to pave the way for strengthening KNUST's global positioning in research and education provision, collaboration with international research institutions, improvement in public confidence in its awards, and attraction of international students and faculty. This is within the broad framework of the Quality Assurance Policy of KNUST* (Key Informant 8).

The QMS document, thus, provides a roadmap and benchmarks for a culture of continuous improvement and captures the organisational structure, responsibilities, processes, procedures, resources, controls and related mechanisms which ensure that KNUST satisfies stakeholder expectations. It documents existing practices and pursues best practices that guide the University to achieve its vision. The QMS, thus, captures KNUST's management responsibility, resources, teaching/learning, research and community service as well as monitoring and evaluation mechanisms as depicted in Figure 1 (KNUST Quality Management System Manual, 2025).
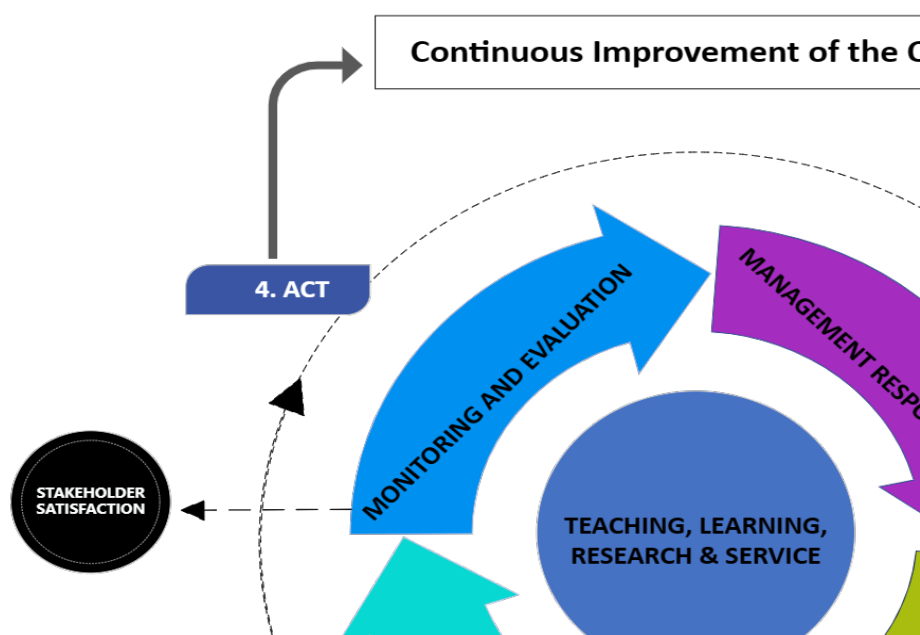

Figure 1: KNUST's Adapted Model for Quality Management System

The input-output model identifies the primary stakeholder (students), as key to the policies, procedures and practices required to adequately address issues related to the four main sections. To give a holistic view of the stages involved in the QA cycle employed at KNUST, it uses a "process-driven approach" for quality management. The iterative cycle commences with establishing a need for a process and ends with implementing actions for continuous improvement, before beginning again as depicted in Figure 2.
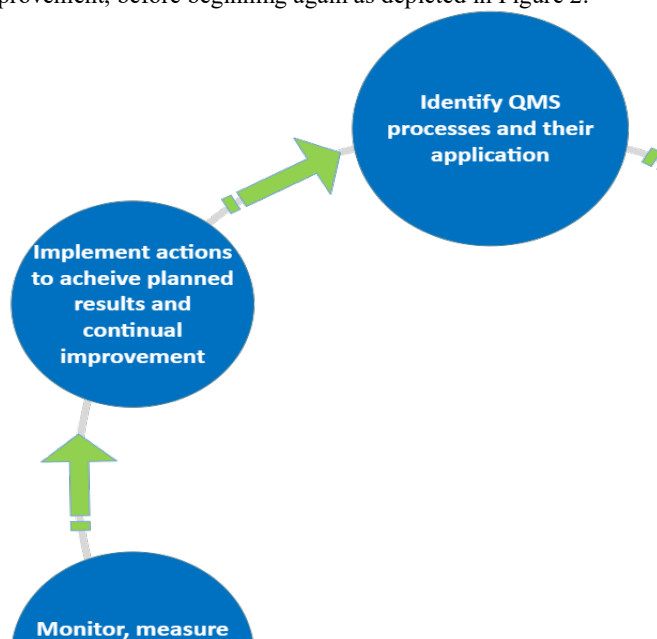

Figure 2: KNUST's Process-driven Approach to Quality Management

In the views of Key Informants 1, 2, 3, 5, 7 and 9, KNUST's QMS together with several other relevant policies of the University guide stakeholders in the management of quality in the University.

5.0 Key Insights from KNUST's Quality Assurance Practices

From the foregoing, the following key insights can be gleaned regarding KNUST's QA practices. First, it has strong institutional structures and governance systems. The University operates a bi-cameral governance system (a Governing Council and an Academic Board) with respective sub-committees with representation from varied stakeholders including staff, students, alumni and industry. This enriches its decision-making and accountability. The committee system also ensures a system of checks and balances, allowing for broad stakeholder participation in decision-making. KNUST's QAPO headed by a Dean who reports directly to the Vice-Chancellor further provides leadership in institutional QA, ensuring compliance with national and international standards.

The institution further has comprehensive mechanisms for QA. For instance, there is a Quality Assurance Policy, a QMS Manual, University Statutes, a Strategic Plan and many other policies that guide QA practices, ensuring compliance with regulatory requirements and global standards. KNUST has also decentralised quality assurance through the College and unit-specific QA Sub-Committees which facilitates monitoring, evaluation and policy implementation across the institution. Regular policy reviews and dissemination also help update staff and students on best practices and evolving QA requirements. To enhance its national and international standing in QA, it also subjects itself to periodic institutional reviews by national and international ranking agencies such as GTEC, Webometrics and THE.

KNUST has robust and rigorous academic integrity and assessment procedures manifested in the following: fresh students' results verification from WAEC to assure credibility in admissions, centralising the processing of examination questions to improve integrity, implementing student biometric registration every semester and auditing of examination results. Its academic departments collaborate with professional bodies and industry to set minimum entrance requirements so programmes meet industry and national regulatory standards. To uphold academic integrity in research and coursework, students defend their theses including viva voce and the turn-it-in software is also used to check plagiarism. In addition, peer evaluation of teaching and mandatory mentorship

programmes for new faculty members help maintain teaching quality and facilitate professional development.

Another key insight is that the institution has strong support systems for QA including student support services such as healthcare facilities, chaplaincies, counselling units and financial and accommodation aid programmes to ensure a conducive learning environment. The use of biometric systems for semester registration and examination attendance minimizes impersonation and absenteeism. The institution extends its QA systems to affiliate institutions, with the appointment of Moderators and Academic Board representatives to ensure that its standards are maintained. It also implements an annual ranking system for its Colleges, Faculties, and Departments with indicators for benchmarking. This fosters healthy competition and excellence in the institution.

KNUST has a commitment to continuous improvement and innovation, driven by a structured feedback loop, corrective actions and lessons learned. The University actively gathers input from stakeholders (faculty, students, staff, alumni and industry) through surveys and structured feedback sessions. Internal audits and external evaluations further strengthen this system, ensuring compliance with national and international QA standards while identifying opportunities for enhancement. Regular review meetings facilitate collaboration among key stakeholders, enabling the effective integration of feedback. It also integrates digital systems including student and staff management systems, to improve administrative efficiency and data-driven decision-making. Institutional policies and deliberate systems support staff and student exchange programmes, training, research collaborations, joint authorships and international collaborations to reinforce its commitment to quality education and global recognition.

From the above, it is evident that KNUST's QA framework is anchored in a structured institutional governance system that fosters accountability, efficiency and continuous improvement. Nonetheless, emerging challenges gleaned from informants such as unfavourable student-teacher ratios, research-to-development bottlenecks, the maintenance of state-of-the-art laboratories, staff training and apathy militate against QA initiatives. Other challenges mentioned include bureaucracy, inadequate funding for QA initiatives, the changing nature of higher education, the integration of digital education, sustainability of QA initiatives, and alignment with global educational trends with national relevance. These have the potential to hamper and derail QA efforts by KNUST and require serious attention as far as QA initiatives are concerned.

6.0   Implications for Policy and Institutional Governance

The study highlights the critical role of policy and institutional governance in sustaining QA at KNUST. A well-structured policy framework is essential to ensure continuous improvement, alignment with national and international standards, and responsiveness to emerging trends in higher education. Periodic policy reviews are also critical in addressing challenges such as accreditation delays, bureaucracies, curriculum relevance and digital transformation. In this respect, institutional policies should be flexible but robust to integrate evolving technological advancements, industry needs and regulatory requirements, ensuring KNUST remains competitive in the global academic landscape.

Sustainable funding is another key policy consideration. Limited financial resources pose a significant challenge to the effectiveness of QA initiatives. Dedicated funding streams should be allocated to support faculty development, infrastructure upgrades and digital transformation, enabling KNUST to strengthen its QA operations. Partnerships with industry and international organisations can provide alternative funding sources, facilitating research collaborations and staff development programmes and should be fully explored. Institutional governance must also prioritise stakeholder engagement in QA processes. This will ensure that QA systems are inclusive and responsive but reflect institutional needs. Governance structures should promote accountability through periodic self-assessments, stakeholder feedback mechanisms and data-driven decision-making. Establishing cross-functional committees with broad stakeholder representation will enhance policy implementation and responsiveness to quality-related challenges.

Finally, KNUST must balance regulatory oversight with institutional autonomy. While compliance with GTEC guidelines is essential, KNUST should have the flexibility to tailor QA mechanisms to its unique science and technology environment. Strengthening institutional governance through well-defined policies and continuous quality enhancement will reinforce KNUST's leadership in higher education while ensuring it remains adaptable to global educational trends. Addressing these policy and governance implications will be instrumental in sustaining KNUST's commitment to academic excellence and institutional growth.

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