GOVERNANCE STRUCTURE AND INSTITUTIONAL CAPACITY FOR EDUCATION-INDUSTRY COLLABORATION

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1.0 INTRODUCTION

Governance issues have played a significant role in institutional capacity to collaborate with industry in Research and Development(R&D) strategies. There is always the need for appropriate governance structure and overall good governance principles. However, it is pertinent to point out that successful policy implementation begins with leadership that possess a clear vision of the desired outcome and pathways for achievement. Good governance structure requires accountability, which necessitates effective monitoring and evaluation (M&E). An effective governance structure must be in place as a foundation for the implementation of development policy on R&D. Responsive and responsible leadership can foster good governance, build capable institutions, enhance accountability and transparency and deliver peace, stability and institutional development.

According to Vengen et al (2014) the governance structure determines not only who is able to influence collaboration's agenda but also who may take important decisions and have resources, power, and legitimate authority to act and be accountable for its undertaking.

Concept of Governance

The definition of governance varies but all the definitions point to one direction. Governance is the art of governing or steering governance or any other appropriate entity. (www.gdnc.org/u-gove/governance.understant.httm). The concept of governance has also been defined as" a process whereby elements in a society wield power, authority and influence and enact policies and decisions concerning public life and social uplift". As regards higher education institutions (HEIs) governance refers o the means by which universities and other HEIs are managed. The task Force on Higher Education (2000) defined it as " the formal and informal arrangement that allows HEIs to make decisions and to establish, implement and continuously monitor the proper implementation of policies. Two levels of governance has been identified:

a). Internal level-This refers to the organizational arrangement within the institution that contribute to the smooth running of the university/HEIs, e.g. in lines of authority, decision-making, processes and policies, staff and financial mechanisms.
b) External Level- This refers to the macro-system or state control of HEIs-laws, decrees, statues, funding, etc

2.0 Distinguishing between Governance and Leadership

Governance and leadership are closely related. Leadership has been defined several by authors as the influential relationships among leaders and followers who are bound together by mutual goal in which one person, the group leaders, influences, while the other persons respond. Capon (2008) defined leadership as the ability to influence a group towards the achievement of goals. A person may occupy a leadership role. Leadership implies a movement, taking organization or taking some part of it in a new direction, solving problems, being creative, initiating new programmes, building organizational structures and improving quality. The running thread across definition of governance is the way issues affecting the entire institutions, or two components are decided. Consequently, governance is intertwined with leadership.

The governance structure and particularly a policy on stakeholder participation in governance, therefore must be accommodative of all members of the institution, including students through their leaders. For good governance to thrive, it requires quality leadership capable of giving it direction by fostering interagency collaboration and shared understanding. According World Bank (1994), good governance is epitomized by predictable, open and enlightened policy-making and bureaucracy, imbued with professional ethos, acting in furtherance of the public good.

The Principles of Good Governance structure in universities/HEIs include:

- Academic freedom
- Shared governance
- Clearly defined roles and responsibilities
- Meritocratic selections and/or appointments
- Financial stability and accountability

The tools used by a good governance structure in universities/HEIs include:

- Governing councils
- Senate
- Statutes
- Visitations
- Accreditations

3.0 Governance structure in HEIs in Nigeria

Higher Education Institutions (HEIs) in Nigeria have similar governance structure since most of them are owned by either State or Federal Government of Nigeria. Each university consists of the following:

- A Chancellor
- Pro-Chancellor and a Council
- Vice-Chancellor and Senate
- Congregation
- Convocation
- Faculty Boards/Board of Studies

3.1 Chancellor: The law states that in relation to the university, the Chancellor takes precedence before all other members of the university and when he is present, shall preside at all meetings of convocation held for the purpose of awarding degrees.

3.2 Pro-Chancellor: The law also states that the Pro-Chancellor takes precedence before all other members of the university, except the Chancellor and except the Vice-Chancellor when acting as chairman of Congregation or Convocation. The Pro-Chancellor shall when he is present be the Chairman of the Meeting of the Governing Council.

3.3 Vice-Chancellor: The Vice-Chancellor in relation to each university shall be the Chief Executive Officer and academic officer of the university and the Chairman of Senate.

3.4 The Composition of the Governing Council of Each University

Each Governing Council shall consist of the following members;

a) Pro-Chancellor
b) Vice-Chancellor

c) Deputy Vice-Chancellors
d) One person representing the Federal Ministry of Education
e) Four Persons representing a variety of interests and broadly representing the whole Federation appointed by the Visitor
f) Four Persons appointed the Senate from among its members
g) Two persons appointed by congregation from among its members
h) One person appointed by convocation from among its members

3.5 The Functions of the Governing Council

The functions of the Governing Council are summarized as a) general control and superintendence of: a) policy b) finances and c) property of the university. The Council so constituted shall be free in the discharge of its functions and exercise of its responsibilities for the good management, growth and development of the university.

3.6 The functions of the Senate

The functions shall be:

- to organize and control the teaching by the university, the admission of students, the establishment of, organization, and control of campuses, colleges, schools, institutes, and other teaching and research units
- the organization and control of course of study at the university and of the examinations held in conjunction with those courses, including the appointment of internal and external examiners
- award of degrees and such other qualifications as may be prescribed in connection with examinations held.

4.0 Problems with existing Governance Structure in our Universities/ HEIs

Bogoro (2015) identified bad governance and issue of competence and interest of individual in senior management positions in universities especially those who are focused on politics at the expense of the institutions. He summarized the impact of bad governance on university-industry collaboration as follows: a) resources are poorly managed and there are cases of misappropriation of public funds and b) it taints the reputation of HEIs as a whole. This affects negatively university-industry collaboration.

Nigerian Economic Summit Group –NESG(2019) identified five challenges to UIC

i. Bureaucracy e.g. in land acquisition, curriculum change, other bottlenecks, etc
ii. Resistance to change from University Leadership-due to decay in the system
iii. Undue political interference in the appointment of Council members and Vice-Chancellors
iv. Low political will to implement sector policies-the inability to implement good policies by government

v. Lack of harmonized legal framework guiding the sector- appointment of Vice-Chancellors and Council Members are political in nature. Consequently persons that are not qualified can be appointed.

Additionally, unions, though a veritable advocacy group, can negatively affect university governance especially when the leadership, because of personal reasons, does not agree with the university leadership. Local issues and political patronage and inclinations can affect the institution negatively.

5.0 Suggestions for affective Governance Structure that will improve institutional capacity for University-Industry-Collaboration

NESG (2019) gave the following guidelines for effective governance structure in our universities:

- There must be sweeping legal and legislative reforms to allow universities to diversify their assets in order to create streams of revenue.
- Funding models for universities can include (a) development of endowment funds;(b) introduction of students loans and (c) diversification of investment portfolios
- Creation of one-stop effective platform for university budgeting to reduce bureaucracy. There is need to leverage technology to reduce bureaucracy, e.g. artificial intelligence, robotics, etc
- National Universities Commission (NUC) and universities should ensure that criteria for nominating members of the Governing Councils should among other criteria include (a)ability to give resources and direction; (b) ability to mobilize funding for the university and (c) the ability to exit or get out of the system. The quality and character of the Pro-Chancellor and the Vice-Chancellor are very paramount in strengthening the councils
- The universities and NUC should create strict criteria for the appointment of the Vice-Chancellor, council members and principal officers. Meritocracy should be the watchword and NOT political patronage.
- Encourage leadership to garner the political will to fully implement university R&D policies.
- There is the urgent need to institute adequate capacity building norms to prepare Vice-Chancellors and Principal Officers (Registrar, Librarian and Bursar) for their jobs before and after appointment.

Furthermore, (Dambatta, 2019) stated that there is need for universities to develop a vision framework and strategies that will:

a. Identify promising opportunities for collaboration with industries
b. Cater for long term and short-term strategic partnership with built-in flexibility that will attract fertile collaboration for both parties
c. Address the broad arching framework agreement on Intellectual Property (IP) to avoid acrimony on ownership
d. Government should also strive to stimulate collaboration between university and industries by putting mechanism to attract the university's R&D activities and ensure local learning and technology transfer.

Good governance structure will enhance the capacity for institution-industry R&D collaboration. What is more pertinent will be to prepare such governance structure to be visionary, transparent and accountable. Institutional governance and leadership must focus on the capacity of heads of institutions to be flexible, dynamic and be free from political interferences. The issue of university autonomy must be taken seriously and implemented fully by respective governments .Innovative curriculum must come into to catch the interest of industry. The establishment of Science Parks, Research and Technology Parks, incubation hubs by universities will be a very good starting point for University-Industry Collaboration,

6.0 Essence of Education-Industry Collaboration

Apparently, we are already in the era of knowledge society and indeed innovation-led and knowledge-based economy propelled by creativity, inventions and avalanche of information. It is supported and promoted by Research and Development to intersect educational curricula with the strategic goals and aspirations of governments, societies and industries to ensure sustainable development. In effect, the key to any meaningful national development has to hinge on educated and knowledgeable persons, particularly, a crop of those with some appreciable skills and competencies in varied human endeavours to actively participate in the drive for creativity, innovation, invention and entrepreneurship to facilitate the much needed national development in all sectors of the economy.

The critical factor is to engage in research and development in all human endeavours ranging from science and technology, security and safety, finance and humanities, education and training, information and knowledge management, etc to support and promote much better alternative options of doing whatever effectively and efficiently at least efforts and costs, particularly through defined partnership arrangement between and among the strategic stakeholders. In order to ensure successes much faster and sustainably, there is the need to collaborate amongst the critical stakeholders, especially tertiary educational institutions (for knowledge creation, innovations and inventions through intensive research in priority areas); industries (for provision of platforms for

modeling, test running and production of indigenous made products and utilisation of knowledge products); the government (for provision of robust policy frameworks to ensure continuity and sustainability of collaborative deals and realisation of the by-products); and of course, the organised informal public settings(such as individuals, communities, sectors and organisations) to key into efforts to mainstream the products of research, development and innovation onto their informal endeavours to uplift their socio-economic stand in the society and also to achieve the desired sustained national development and advancement goals and aspirations effectively and efficiently.

Different authors such as Camarihna-Matos (2008) and Hornby, A. (2015) viewed collaboration differently : 'as the act of working with another person or group of people to produce something' and 'a process in which two or more entities work together to bring resources, share responsibilities, jointly plan and implement …'. In simple perspective, collaboration can be conceived as deliberately and consciously prearranged and organised attempts to collectively plan, network, cooperate, interlink, partner , interact and coordinate between and among interested stakeholders willingly to perform certain activities and operations so as to creatively produce goods and services (products) of common interest to them at least costs and efforts.

The by-product of collaboration at every level and dimension is the eventual establishment/institutionalisation of strategic partnership, teamwork, cooperation and intercommunication to execute certain tasks of common interests and benefits to the partnering stakeholders so as to sustainably achieve their respective goals and aspirations. This is facilitated through voluntary pulling together from the collaborating parties, relevant human and material resources as well as effective and efficient management, sharing and utilisation of relevant information, knowledge and facilities, particularly technologies, etc at least efforts and cost. Other by-products of collaboration include the ability to collectively work and interact voluntarily/willingly with interested partners to achieve desired goals and aspirations beneficial to the cooperating parties; the emergence of responsive responsibilities; constructive engagements; meaningful dialogues; fruitful interactions; and deliberate inclusion of existing and prospective relevant stakeholders for sustained all round societal development and advancement in all sphere of human endeavours.

7.0 Dimensions of Education-Industry Collaboration

Ideally, Education-Industry collaboration is better conceived within the paradigm of tertiary education settings such as Universities, Polytechnics, Monotechnics, Colleges of Education and the likes in that category. Education-industry collaboration coverage can be by single discipline/specialisation or multi-disciplines/specialisations at local, region, zonal, national and international levels inform of Education-Industry Partnership (EIP), Education-Industry Network

(EIN), Education-Industry Linkages (EIL), Education-Industry Consortium (EIC), Education-Industry Foundation (EIF), Education-Industry Conglomerate (EIC), etc.

By and large, Education-Industry collaboration can take place between educational institutions and industries to cater for their respective needs and interests for either short term or long term regime. In another mode, it could take place between government (agency) and educational institutions for strategic reasons of interest to the two parties involved. It can also take place between educational institutions and organised informal public settings and sectors. The dual types of arrangements can be considered as dual collaboration (dual mandate).

In another perspective, Education-Industry collaboration can take place in tripod formation involving three collaborating partners. This can be considered as triple collaboration (triple mandate) when in addition, government (agency) is also involved in the collaboration to achieve their respective and collective common goals and aspirations through provision of relevant operational policies which may include standardistion of skills acquisition and competencies requirements of the beneficiaries of the collaborative project in form of provision of: National Skills Qualifications Framework (NSQF), National Standard Qualifications (NSQ), National Occupations Standards (NOS), National Research Fund (NRF), National Research and Development Foundation (NRDF), National Equipment Centre (NEC), National Scientific Laboratory Center of Excellence(NSLCE), National Centre For Technology Development/Incubation(NCTD/ NCTI), National Digital Repository for Research and Development (NDRRD), etc aimed at facilitating the achievement of sustainable national development and advancement in various sectors of national economy. As it were in the dual collaboration (dual mandate) arrangement, triple collaboration (triple mandate) could be among educational institution, industry and government (agency), or among educational institutions, industries and organised informal public settings. The extent of the respective partners' involvement in collaborative project(s) in terms of shared responsibilities should be explicitly enshrined in the article of Memorandum of Understanding (MoU) formally signed by the collaborating partners.

The contemporary collaboration is the multiple collaboration which involves not only educational institutions, industries and government (agency), but also the organised informal public settings (multiple mandates). In the equation, the strategic role players in organised informal public sector settings will contribute to provide free access to their informal industrial/production line settings and technology/incubation hub/centre/village as the case might be to serve as platforms for modeling and pilot test running of indigenous made products; or for orientation, training, internship, students' attachment and practical sessions; and for others from relevant socio-economic sectors in need of entrepreneurial skills acquisition to cope with the expectations of their trade/career at public places. However, the nature and extent of collaboration between and among cooperation partners should be guided by the vision, mission and goals of research, development and innovation in focus.

8.0 Education-Industry Collaboration Category

By and large, Education-Industry collaboration of any model can be floated under two major categories:- Human Capital Development(HCD) and Research and Development(R&D).

(i)The Education-Industry Collaboration on Human Capital Development

Competent human resources are needed to plan, organise and manage the affairs of any establishment. They are indeed needed to sustain existing mode of production/operation for provision of goods and services, introduce new line(s) of products and services, expand scope of operations and production of goods and services, expand and dominate market share in competitive environments, etc. The successes or otherwise of industries and also other types of establishments largely depend on not only availability of financial and other material resources, but availability of specialised competent human capitals in respective areas of operations to effectively manage them and compete favourable in the market world. Absence of competent workforce can easily jeopardise the operations of industries, and indeed other establishments, to achieve the desired vision, mission and goals. Thus, that generally industries rarely have all the requisite formal education programmes being run from within to educate and train their manpower at all areas of specialisation needs, they will need to depend more on educational institutions at home and abroad that offer formal specialist courses and certifications in the relevant areas of their needs. In order to facilitate meeting up with formal partnership collaboration expectations, some educational institutions establish dedicated outfits such as Directorate of linkages, Directorate/Centres of Research and Innovation, or Centre/Directorate of Research, Innovation and Technology Transfer. These endeavours are seen to enhance formal collaboration between industries and educational institutions to achieve their respective and collective goals and aspirations. In tripartite mode of collaboration where government's interest is also directly involved, the same arrangement is obtained. Essentially, Education-Industry collaboration on human capital development can be floated in the following modes:

- industries fund and equip relevant academic programme(s), especially in collaborating educational institution(s) to produce specialists much needed by the industries and the market world;
- the cooperating educational institution(s) and industries to jointly float formal academic programme(s) in the education institution for education, training and certification of prospective specialist manpower to meet the needs of the industries and other related ones on short and long terms arrangements;
- industries and partnering educational institution(s) to jointly float on-the-job/continuing education, training and certification of industry staff to effectively cope with the contemporary challenges of the industries;
- industries to establish, fund and equip workshops, laboratories and entrepreneurial/vocational centre, especially in designated educational institution(s) to

facilitate formal acquisition of requite skills, competencies and certifications by prospective beneficiaries needed by industries;

- industries to provide scholarship for their staff's education, training and certifications at cooperating educational institutions at home and abroad such that on return, they will boast the needed skilled and competent human capital resource stand;
- educational institution(s) to jointly partner with collaborating industries and indeed the organised informal public settings where applicable for invention of prototype machinery/equipment and patent licensing;
- industries and educational institutions to collaborate on formal joint vocational/entrepreneurial education, training and certification of students and employees at workplaces;
- provision of free access to and use of the collaborating organised informal public settings facilities and also those of the industry facilities such as laboratories, workshops, skills acquisition centres, for students' practicum sessions; and
- government (agency) standardistion of informal skills and competencies certification requirements, especially those offered by organised informal public settings to facilitate labour mobility, recognition and acceptability.

However, the duration of any mode of collaboration between industries and educational institutions or among educational institutions, industries, government (agency) and organised public settings on human capital development will largely be contingent upon the article of Memorandum of Understanding duly signed by the collaborating partners, especially as it relates to the scope of collaboration, type of education and training programme involved, the factors of production required and the extent/level of needs satisfaction.

(ii) Education-Industry Collaboration on Research and Development

Education-industry collaboration tend to impact more in societal sustained development and advancement when it is contextualised within the perspective of Research and Development such that the research outcome(s) will be beneficial to both/all the parties involved in the exercise to achieve their respective and collective visions, missions and goals. To this end, the educational institutions will fulfill their mandate of conducting systematic research and training to promote and support creativity, innovations and inventions; the industries or the organised informal settings, as the case might be, will provide the platform to model, test run and implement/practicalise the result of the institutions' research in form of innovation and invention of new products and services to cope with the exigencies of the time. In another dimension, it could also be between educational institutions and government agencies that would solicit for conducting the research and possibly fund it due to its relevance and strategic importance to achieving the vision, mission and goals of government (agency). In that case, depending on the shared responsibilities model/formula adopted, government will by and large provide the legal, socio-political, economic, cultural and administrative platforms for the research project processes and its full implementation as well as the sustenance of the products of the systemic research for overall

development and advancement of society. The same situation is obtainable when in addition; organised informal public settings are also involved in the collaborative endeavours.

One of the core mandates of tertiary educational institutions is to conduct systematic researches and trainings on various perspectives for varieties of purposes to discover and share new facts, knowledge, information, ideas and perspectives; confirm assertions and theories; procrastinate on phenomenon; stimulate creativity and innovation; and find solutions to exiting and anticipated societal challenges of all sorts so as to facilitate eventual transformation of society seamlessly in different dimensions through creativity, innovations and inventions.

By and large, it is a known fact that the researches normally conducted especially by students in tertiary educational institutions and published/printed in form of projects, theses and dissertations for award of Diploma and Degree certificates mostly rest on the shelves of the libraries and archives of the awarding institutions. They are rarely known to the non-academic communities/public even when they are digitised and hosted on the websites of the institutions. The same fate also applies to the independent researchers/ faculty members who conducted researches on variety of themes. Similarly, they mostly end on the pages of journals and other periodical publications generally acquired or subscribed to by interested individuals and colleagues as well as the libraries in educational institutions. The impact of such publications digitised and hosted on institutional repositories are rarely felt beyond the academic communities. In the same perspectives, the products of such researches are rarely known to the non-academic communities/ public and implemented at least by the stakeholders of the study areas. This necessitates the need to embark on on-demand and solicited researches conducted by either the students or faculty members to allow for eventual implementation of the results of the researches by the relevant stakeholders. One of such veritable medium is to engage in collaborative researches between educational institutions and industries or among educational institutions, industries, government (or its relevant agencies) and the organised informal public settings.

The conventional education-industry cooperation widely known is that translated in form of ‘Student Industrial Work Experience Scheme (SIWES) and Student Internship in industries and in organised informal public settings where students, depending on the area of specialisation and intensity of the practical skills and competencies requirements, will spend between 6 months to one year practical attachment to acquire the mandatory practical working experiences, skills and competencies as prerequisite for graduation from the courses they pursued. Other aspects of education-industry collaboration include sponsorship of attendance at or of organising conferences, seminars, workshops, public lectures, colloquiums, publications, retreats, staff/student training programmes (fellowships) and researches, field trips, sandwich courses, staff and facilities exchange programmes, consultancy services and social networking and information exchange forum, etc.

Depending on the nature and scope of the research project and extent of collaboration, the composition of the collaborating partners (stakeholders) can range from one educational institution

to one industry or organised informal public settings, to more than one educational institution and more than one industries or organised informal public settings. The same situation applies when it is between educational institution and government (agency), between educational institution and organised informal public settings, or a combination of all the four strategic collaborating partners (stakeholders). Also, depending on the nature and scope of the research project, the duration of education-industry collaboration can be for short-term regime (such as one-off quick-demand/one-short problem solving such as consulting and contract researches) or for long-term regime (such as strategically open-end and multifaceted researches such as public-private partnership and joint research projects). Similarly, depending on the article of MoU, the variants of the administration of research project collaboration can range from situations where:

- the industry funds the research only without participating in the research process;
- the industry may fully participate in the research process in addition to funding;
- the industry may contract the research to the collaborating educational institution and direct/dictate the research processes; and
- the collaborating parties (both educational institution & industry), the trio- partners (educational institution, industry & government) or multiple partners (educational institutions, industries, government (agency) and organised informal public settings) collectively agree to garner from themselves all the relevant and necessary human and material resources to ensure success in the overall processes and management of the research project in focus.

These types of approaches are to ensure achievement of mutual participation and benefits of relevance to the respective and collective visions, missions and goals of the collaborating parties (stakeholders). This effort can simply be conceived as systematic approaches to cope with the exigencies of the contemporary knowledge–based economies which encourage, promote and support creativity, innovations and inventions for overall development and advancement of society in all sectors of the economy.

9.0 The way forward:

There no doubt in the fact the contemporary knowledge-based economy and society require strategic short-term and long-term collaboration, networking and synergy between and among relevant stakeholders to effectively surmount the challenges of the time. The preponderance variety of technologies, information, Internet facilities and capabilities has demystify the era of stand-alone posture by educational institutions, industries, government (agencies) and organised informal settings to perform their regular activities/operations which are mostly at exorbitant costs, time and efforts. It is recommended that:

- educational institutions, industries and governments) should jointly be proactive in knowledge and information transfer and exchange amongst the participating partners to

enhance efforts aimed at information and knowledge creation, exchange and transfer for innovations and inventions of new products and services;

- rather than being independent of each other, relevant entities should deliberately collaborate internally and externally in joint establishment/institutionalisation, management and funding of education and training programmes as well as researches to integrate their different interests and needs so as to reduce human and material costs and efforts in achieving their individual and collective visions, missions and goals leading to accelerated practical transformation of society creatively, innovatively and sustainably in all sphere of human endeavours;
- educational institutions should endeavour to review their curriculum with emphasis on connected curriculum which promotes service learning, partnership and linkages learning, entrepreneurial learning and apprenticeship learning;
- government (agency) should standardise skills and competency requirements at all levels of education and training platforms, especially those organised by informal public settings, to facilitate labour mobility, recognition and acceptability; and
- in order to effectively sustain collaboration between and amongst the cooperating partners, educational institutions should facilitate knowledge and information acquisition ,transfer and utilisation especially through quality teaching, training and research;
- the industries and indeed the organised informal public settings should facilitate provision and acquisition of skills and competencies especially through uninterrupted access and utilisation of their facilities and equipments/gadgets and other related training infrastructure; and
- government(agencies) should provide relevant and necessary enabling policies and legal frameworks to facilitate and sustain effective collaborative endeavours between and amongst the cooperating entities.

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