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OPPORTUNITIES AND CHALLENGES OF UNIVERSITIES CO-PRODUCTION IN AFRICA

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Universities are engine of growth and development if well managed and sustained. Most of the universities in Africa are performing below expectation especially in co-production. Therefore, the study seeks to explore the role of university in fostering co-production with reference to Africa. What are the key features of highly co-production universities? And why is it that African universities are not innovative? Qualitative method was used, interviews were conducted with some of the stakeholders in Africa and secondary data were used. Secondary data were sourced through newspapers, journals and text books to validate the data. The findings reveal that lack of collaboration, poor funding, inadequate man power and lack of training constitute hindrance to innovation practice. The paper suggests, collaboration, information technology development and training should be enhanced.

**Key word:** Africa, Co production, Innovation and University.

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### INTRODUCTION

Tertiary education's contributions encompass a broad range of benefits that are manifested in public goods such as entrepreneurship; leadership; good governance; healthy communities; development and management of, and participation in, democratic institutions. It also contributes significantly towards reducing poverty and building stable, less dependent, and self-sustaining societies. In this era of knowledge economy university education is a panacea for growth and development of knowledge. Most of the universities in Africa rely on government for their sustainability without any other sources of funding. Co-production involves the coming together of volunteers, private firms, other agencies at different levels of government, community organizations, friends, relatives and neighbors for the enhancement the course of university education development base on common objectives. The co-production manifest itself in several ways for instance citizens giving donation in cash or in form of advice for the upliftment of the university or citizens providing assistance to university such as volunteers to teach which include discrete additional action that enhance cooperation with public agencies in existing citizens actions and also citizens and university agent interacting to adjust each other's service expectations and actions such as those that occur between teacher and student. Most of the innovative university institutions across the globe practice interactive governance which enhance their growth and development but African universities are left behind in innovation therefore this study seeks to explores the condition for co-production in African universities as well as problems they are facing. Most of the discussion of co-production covers advance industrial universities therefore African universities is the unit of analysis.

### Research questions

1. What are the roles of Universities in fostering co-production?
2. Does the universities in Africa adopting innovative practices?

3. What are the challenges to co-production of universities in Africa?
4. How can Universities in Africa improves their innovative capacity?

### Research Objectives

1. To explores the roles of Universities in fostering co-production?
2. To analyses the activities of universities in Africa in fostering innovation
3. To examines the challenges to co-production of universities in AfricaTo suggest ways of improving Universities in Africa

**Role of Government in co- production:** Governments around the world are broadening and deepening their support for innovation in the university, private sector and the economy more generally. When it comes to fostering education, business and technological innovation. Government role in innovation is to provide funding especially in early phase of research and development and encourage private investors to invest in innovation (Nagaoka and National Research, 2009).The role of government should be risk taking (Caloffi *et al.*, 2015). Creating skills and knowledge that foster innovation (Mills *et al.*, 2015). Collaboration with an organization (Universities) that play a complementary role, creation of local relations with indigenous companies and involvement in policy support network (Caloffi *et al.*, 2015). The role of state in innovation is exploration, creation of opportunities and consolidation (Sun, 2015). Studies such as (Hoppmann, 2015) also show that government has created deployment policy to foster innovation, the policy aimed at liaising with the universities, civil society. Japan for instance create national innovation system which foster research especially in defense, space exploration, agriculture, education and health care delivery (Suzuki *et al.*, 2015). Fostering capabilities such as network, coordination, knowledge and management(Sutthijakra and

Intarakumnerd, 2015). Participatory planning such as inclusive, popular control, consider judgment and transparency (Mattijssen *et al.*, 2015). Creating institution favorable for private investors (Cull *et al.*, 2015).

**Role of Private Sectors in co-production:** Private organizations are innovative than public organizations (Park and Kim, 2015) Dedicate their time and effort, capacity building and various form of economic and political cooperation (Heitor, 2015). Japan for instance encourage private sector in fostering new technological capabilities as well as collaboration (Jiang *et al.*, 2015). Private sector has important role to play in fostering innovation especially in the era of globalization in international system (Inzelt, 2008). It is common knowledge that innovation is the key to success for private businesses (Schumpeter, 1934; Schumpeter, 2013). Innovation helps private companies to cut costs, improve their products and open new markets. Failure to innovate is often fatal as private firms will gradually lose their competitive edge and face shrinking market shares and profits, before they eventually close down. The widespread recognition of the need for innovation in private companies means that large private enterprises create large R&D departments or use crowd-sourcing to get new ideas. Small and medium size companies form strategic alliances with each other and public knowledge producers and try to copy the products and practices of the larger and more innovative firms in order to maintain their competitive position as well as collaboration with universities.

**Role of civil societies in co-production:** The innovation gap between civil society and universities can also be understood as insufficient possibilities for citizens to have a bearing on the innovations developed by firms and R&D organizations. User involvement can be divided into two strands: an approach that focuses on the role of the service user as a mere consumer of services (consumerist) and an approach that emphasizes a clearer role of user in decision making (collectivist) (Hoggett and Hambleton, 1987). Criticisms have been raised against local authorities that apparently focus on the first approach, whilst neglecting the second, since although a consumerist approach might entail changing services to meet the needs of customers and ensuring also that those services are accessible, it does not address the issue of power (Driver *et al.*, 1994). Hence, it does not change the position of those on the receiving end of services. In this paper, I perceived civil society as the arena outside the family, the state and the market where people associate to advance common interest. On the one hand, this understanding of civil society covers the perception that civil society is the third sector beyond the realm of the public and the private; on the other hand, it stresses the object of associating to advance common interest, which is also the departure point of arguing for a fourth actor in eco-innovation. Specifically, we perceive civil society groups as comprising social groups, NGOs, community-based organizations, voluntary organizations and cultural organizations, which are beyond the family, state and

market and able to distinguish themselves from academia, industry and government in triple helix metaphor. They fill in the gaps of actors by representing everyday practice and the appropriation of technology into cultural settings. Eco-innovation is a carrier of both economic and environmental benefits, in which environmental benefits are common benefits shared by civil society at large. This characteristic calls for intensive participations of a fourth-party compared to the triple helix framework of innovation both functionally and institutionally to represent common interests. Industry is a classical private sector and for survival it aims at fundamentally maximizing economic benefits with limited resources. Government authorities are public, however, they cannot always guarantee common benefits, as the governmental policy and regulation making process is turbulent with diverse short- and long-term objectives as well as interest conflicts of different parties. Universities, public or private, mainly have three missions of teaching/training, research and supporting economic development. They can serve as important actors by arguing for common environmental benefits, educating for sustainability and being a frontrunner as green campuses but still they are seated within an academic culture which can hardly be said to be representing the everyday practice of commons. Civil society groups fill in the gaps of actors by representing everyday practice and the appropriation of technology into cultural settings. Historically, civil society played an important role in changing environmental agendas by social/environmental movements. In general innovation, civil society is interpreted as the foundation on which innovations are developed by interplays between academia, industry and state (Leydesdorff and Etzkowitz, 2003). However, in eco-innovation, civil society's awareness of environmental problems, life styles and consumption habits considerably affect eco-innovation in terms of market pull and it becomes questionable whether an implicit inclusion in the arena of actors is sufficient.

NGOs represent collective actions of individuals in civil society and they comprise the important bodies of social movements. NGOs are the non-profit organizational entities representing public and particular groups' interest towards decision-makers, channeling concerns, viewpoints and values within the political process (Carroll, 1992). In cases where important services, representation and/or social cohesion are lacking, NGOs play critical roles in governance and value creation for social ends. In recent years, with growing public concerns about health, safety and environment, a growing number of NGOs have emerged. Their activities are increasingly relevant to government and business and NGOs are suggested to be as important as government in companies' strategy decision making (Lindenberg and Bryant, 2001). As an important part of civil society groups, NGOs are not stressed in general innovation, as the interaction of three spheres is sufficiently complex to accommodate various forms of chaotic behavior towards business value creation and economic growth. In eco-innovation, however, NGOs are

expected to be important external expertise knowledge providers; mediators bridging industry, government and society groups; facilitators/supporters pushing university, industry and government in the direction of eco-innovations by raising civil society's awareness of environmental problems and coordinating boycotts and important stakeholders affecting firms' innovation strategies and business development greatly (Singh *et al.*, 2015).

**Role of universities in fostering co-production:** The traditional role of universities was education, basic research and -science. In the past few decades' new functions were taken over knowledge and technology transfer to industry, commercialization of knowledge, more active role in national and regional innovation systems. In most developed countries, a growing attention is paid to the economic utilisation of publicly funded research. This holds particularly true for high-technology and knowledge based sectors where scientific inputs are of key importance in the innovation process (Tödtling and Kaufmann, 1999; Cooke *et al.*, 2000). Building on the evolutionary and interactive innovation model. Innovation occurs in a division of labor, many private and public actors involved. Innovation systems are networks of firms and organizations influencing the innovation process in a particular area through their interaction. Universities are key elements in the subsystem of knowledge generation and -diffusion. Innovation is taking place increasingly in a division of labor of many actors; knowledge base becomes more distributed. External knowledge becomes more important for generating new knowledge and innovations. Universities hold a key function in this respect being inserted in global knowledge communities and networks conferences, workshops, research collaborations, co-publication, co-patenting etc. Well-functioning of innovation system requires also local circulation of absorbed knowledge through various mechanisms. A traditional role of universities becoming more important for co-production in the emerging knowledge economy. Graduates and highly skilled labor are one of the most powerful mechanisms for knowledge transfer to industry. One of the key factors for the development of high technology clusters have clearly become more frequent in past years. Universities have become important knowledge sources and innovation partners for industry. Increasing variety of relationships, R&D contracts, R&D collaborations, innovation partnerships, joint use of facilities, informal knowledge exchange. From simple knowledge transfer towards knowledge sharing and interaction. U-I links are clearly more important in knowledge based industries and clusters (Ackoff, 1994; Morton, 1995). Fortune cited in (2) observed that theories taught in management schools are often useless when applied to practical business. That is why we think the Harvard Business School is a remarkable school but may be more of detrimental to the US economy (Ackoff, 1999).

**Theoretical framework:** Quadruple Helix (QH), analysis the cooperation in innovation, and it represents a shift towards

systemic, open and user-centric innovation policy. An era of linear, top-down, expert driven development, production and services is giving way to different forms and levels of coproduction with consumers, customers and citizens. This also sets a challenge for public authorities and the production of public services. Along with this, the Quadruple Helix debate is directly connected to the vision 2020 Strategy for smart, sustainable and inclusive growth, and thus to the shifts towards a better connection between stakeholders and a smarter use of resources which many African states advocate (Carayannis and Campbell, 2009).

Triple Helix (TH) describes spiral-shaped innovation cooperation between firms, universities and public organizations. The concept tries to capture the multiple reciprocal relationships of different innovation actors at different points of innovation process. Quadruple Helix adds another helix and actor group to the TH innovation cooperation model. After reviewing literature related to R&D&I activities, we arrived at the conclusion that there is a wide range of conceptions or approaches, which could be named as QH type of innovation conceptions. Some of them are very close to the TH concept, some of them deviate more radically from it, and many of them are somewhere between these two extremes. What is common to all QH type of innovation conceptions is they all have included some fourth group of actors into TH model. As we have already brought forth, we argue that this fourth helix should be users. Accordingly, Quadruple Helix can be seen as describing innovation cooperation between firms, universities, public organizations and users. Based on the above, we have formed a general definition of the QH innovation model: it is an innovation cooperation model or innovation environment in which users, firms, universities and public authorities cooperate in order to produce innovations. These innovations can be anything that is considered useful for innovation cooperation partners; they can be, for example, technological, social, product, service, commercial and non-commercial innovations. As we can see, it is more useful and meaningful to consider Quadruple Helix rather as a continuum or space than a single entity. Accordingly, it is more useful to talk about different QH models situated somewhere along the QH continuum or space. In each case, the QH model to be constructed depends on the perspective that one chooses. In this research report we consider it mainly from the innovation perspective, especially innovations related to the development of products and services either in the private or public sector. These models are ideal-type models and they are not meant to describe reality as it is. The purpose of these models is to bring forth some essential characteristics of different QH models more clearly and to provide examples of the possible application possibilities of QH. The real QH innovation environments and cooperation models most probably contain elements from several different QH models. Next we introduce these four QH models and their essential characteristics. Of the four QH models presented here, the

first two (TH + users and Firm-centered living lab) seem to be very much reality already today in several countries. The public-sector-centered living lab model also seems to be in use at least in different projects related to the development of public services. At the moment the citizen-centered model is most likely the most infrequently utilized QH model of these four QH models. It provides the biggest challenges to firms, universities and public authorities that are not used to hand over the steering wheel/driver's seat to citizens in innovation activities (fig. 1) (Muraoka *et al.*, 2008; Carayannis and Campbell, 2011; Carayannis and Campbell, 2012).

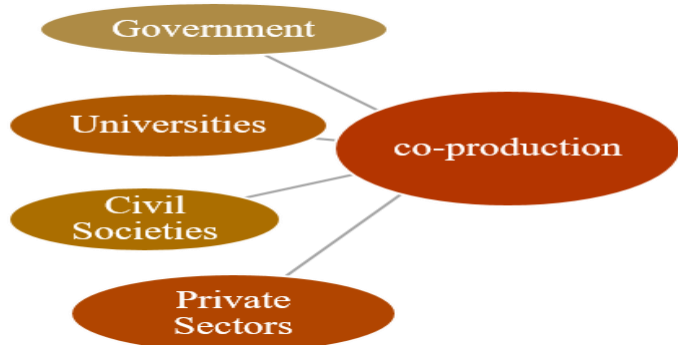


Figure 1. Quadruple Helix Model

**RESEARCH METHODOLOGY**

Qualitative research is method of inquiry that produces results in words rather than statistics. It is a research based on behavior, person's lives functioning of organization, interaction between nations and cultural phenomenon (Strauss and Corbin, 1994; Alvarez and Rubio, 2015). Qualitative research focus on personal experience in political institution which is based on description and analysis rather than use of numbers (Marsh and Rhodes, 1992). Qualitative research deals with phenomenon in their natural selection, it makes use of instruments such as interview, photographs, conversation, memos etc. (Denzin and Lincoln, 2009). Qualitative research did not show ordinal value because the data are not in form of numbers. The rationale behind choosing qualitative method of data collection is to give each participant the opportunity to respond in their own words, rather than forcing them to choose from fixed responses, it also flexible to probe participant responses because the information of this paper can be source through qualitative approach. The reasons for choosing the method is because it relates to nature of the research problem, it suits investigation such as organizations, people's lives etc. It is also associated with finding the nature or meaning of human experience and it is also good for field investigation to get complex information which is in line with suggestions of (Strauss and Corbin, 1998).

**Interviews:** In order to get qualitative, first hand and reliable information in-depth interview was used to get data from key officials such as university Dons, community, firms and government officials. Interview is commonly used to study institution such as behaviorism, feminism and institutionalism

(Marsh and Stoker, 2010). The in-depth interview is the most widely used in social research and can produce good, rich and valuable data (Punch, 2013). The table below shows the respondents that were interviewed as far as this research is concern, they include:

S/n	Interview	No. of informants
1	Lecturers	5
2	Government officials	5
3	Local communities	5
4	Firms	5
Total		20

Table 1: Informants interviewed.

**Methods of data analysis:** The methods of analysis of data for the study include using thematic analysis. Analysis of qualitative data involves the understanding of theory and interpreting the data (Stumpe et al., 2007; Denzin and Lincoln, 2008). Thematic analysis provide avenue for interpretation and involvement of the researcher, it focuses on identification of code as well as the themes. Firstly the study collected the data from the source that is in-depth interview, and then organizing and interpreting the data i.e. elaborating and reduction which is known as coding, finally is the verbal and report written in line with suggestion of (Bason, 2010). Atlas ti7 software was used to analyze the data.

**Problems of Co- production in African Universities:** The ideal modern university is one with academic freedom, institutional autonomy, and governance by professors and students. There needs to be a reasonable relationship between the education providers, educators and those being educated. Based on these standards, there is really no true modern university in Africa. Below are some of the problems highlighted by informants (fig2).

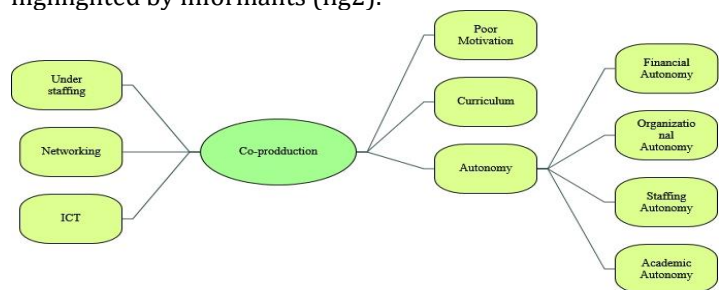


Figure 2: concepts map of co-production

**Under staffing:** The African Universities faces a huge challenge in human resource capacity, which has negative effect on its ability to make strides in the areas of socio-economic and political development. While various efforts have been made to address the problem, there seems to be little progress, due to a variety of reasons, particularly, the inadequate investment in education and other training programs. Thus, while the World Bank, for example, made significant investments in capacity building initiatives in several countries during the 1990s, these initiatives have not

generated sustained human capital benefits for the countries. To make matters worse, even the narrow high skill base that exists is being eroded at a very fast rate by the outflow of professionals to more developed countries of the world.

In addition to the above, African countries are characterized by poverty and illiteracy that needs invention and reinvention, innovation, and social capital. Such processes require training of staff and student. But unfortunately, the universities themselves do not seem capable of mobilizing the intellectual strength needed to drive these processes. Indeed, staff development/retention remains a major challenge.

The major hindrance to co-production among universities in Africa is understaffing. Worst still, the available one lacks experience especially in international best practices as one of the university dons put it: - We are grossly under-staffed. Although, we have employed several persons but, if you look at the employment status, getting senior lecturers and professors has been difficult. They are not just there. So what we do is to employ graduate assistants and assistant lecturers (Bachelor's and Master's degree holders) and train them.

In addition to the above, Academic staff are also attracted away by a variety of government agencies, where salaries are often better and the working environment more comfortable. In many cases, the salaries and benefits in universities are lower than comparative positions in and outside of the civil service.

The human resource problems of African universities are made worse by the fact that the existing complement of academic staff is overwhelmed by the huge expansion in student enrolments that has occurred over the last few years. The enrolment in tertiary institutions went up, while the number of permanent academic staff went down. Obviously, if significant numbers of the 'best brains' are leaving their countries of origin, without commensurate or appreciable levels of replacement, the quality of education, training and, consequently, service delivery will inevitably deteriorate.

**Poor motivation:** The take home pay of lecturers in African universities is very low comparable to their colleagues in other parts of the globe such as UK and USA. Lecturers are poorly paid as a result of that many of them prefer moving to other institutions outside Africa that offers a lucrative package.

But when you train them, many of them don't come back no matter how you threaten them, they just melt away. One of the reasons is that lecturers are poorly paid. A professor in Nigeria collects less than \$3,000 a month, less than \$36,000 in a year so he does not earn up to a trainee in the oil/gas sector, therefore, people no longer want to go into lecturing.

In addition to the above, lack of housing constitutes a problem to co-production in African universities, government could not provide enough housing for the universities, some lecturers stay far away from the institution coupled with congestion on their way to work affects timing and lectures' deliverance. Informants said that: - "There is reluctance on the part of professional staff to enter academia, because of the steady

decline in academic salaries, compared to salaries in business and other professional jobs. Partly because of this trend, a gap has emerged between professional and academic".

More important, another problem is that appointments are biased. You find that some unqualified people are employed simply because of who they know. This affects the caliber of people in the universities and the kind of graduates we churn out. Normally, you cannot be appointed an academic staff if you don't have a first class or second class upper degree but nowadays, getting that caliber of graduates is difficult. Even when you have such graduates, lecturing jobs are the last thing they want to take up because it is no longer attractive. Also some informants added that: -

Lack of adequate remuneration, frustrating red tape, and long working hours. They argue that the situation has degenerated to the point where there is the possibility of the inability of some programs to comply with the faculty requirements for accreditation, the risk of residents being inadequately trained, and the failure of our specialty to maintain its record of significant contributions to the surgical knowledge base.

The poor salaries and conditions of service led to strikes by the University Teachers Association. Although salaries have seen some improvements during the past decade, a relatively poor salary structure still persists. The disparities of the salaries among African universities added to the problem. Some countries pay higher than others. The remuneration packages that lecturers receive cannot guarantee them even the basic minimum living requirements. Therefore, some of the most competent lecturers and researchers have been forced to abandon universities for greener pastures. This exodus of the best brains from the universities has meant that only a few lecturers can handle research methodology courses effectively. In addition, academics try to supplement their university income by moonlighting; teaching on part-time basis in private universities, consultancy work, selling goods, operating food kiosks, and other jobs.

**Networking:** There is no inter-university collaboration in many universities in Africa. Where A is collaborating with B in training of students in certain areas and in staff exchange. Having this collaboration, especially in areas of strength, would help to marshal out sufficient staff. Collaboration with industries to deliver and give their professional advice on the area of felt needs. Industry cooperative concept such as joint curriculum as well as SMEs. Also co-production with industries such as joint research, lectures, joint post doc. Joint recruitment of the top talents such as industrial sponsoring of best students to pursue their further studies. Private development of university infrastructures such as innovation lab for industrial research skills, lack of collaboration is the biggest problem.

Universities in Africa lack involvement of students in decision making such as curriculum development, teaching and assessment, collection between lecturers and students. In addition to the above, they also fall behind in use of Doctorate students that are employed by the company such as

DBA. Involvement of graduate students as tutor to developed their skills and wider their scope of knowledge.

However, another issue is lack of collaboration with the companies, local governments, regional and federal governments as well as health care sector. Establish collaboration with other international universities to come and teach especially in exchange of personnel. Community needs to be involved in day to day affairs of universities so as to give them sense of belonging. University can also establish partnership and joint venture which is lacking in African universities.

In addition to the above, there is problem of limited research output due to the lack of clearly articulated educational and research priorities at both national and institutional levels, increasing involvement of academic staff in undergraduate teaching because of the growing numbers of students, making it increasingly difficult to undertake research; lack of opportunities for sabbatical leave, conferences, seminars; and in general lack of strong academic leadership in various departments, faculties, and research units. However, by far, the biggest obstacle in the area of research appears to be financial deprivation.

**Curriculum:** The curriculum is outdated which constitute reasons for the high unemployment that the continent is experiencing. Unlike what is going on in advance industrial societies where curriculum is tailored towards the industry. As one the informants put it We are not tailoring ours towards the industry. We don't prepare students towards specific industries. In Botany for instance, you look at areas that are relevant to industry and tailor your curriculum towards these areas. What we have now is someone coming from overseas, saying he specializes in a course that is irrelevant to our economy. He goes on to raise a unit and starts grooming students up to post-graduate level. Now, where would they work. There are so many things that are not relevant to the industry in our curriculum.

In addition to the above, another informant added that: - Applied aspects of subjects are underrated while upholding the traditional aspects. When you uphold the traditional aspect of a subject and leave out the applied, how do you expect the students to cope at the end of the day? So it might not even be that we are under-staffed in number, but because of the way our curriculum is open-ended, we have become under-staffed because the kind of courses we are taking are vague, the number of students are vague so most of the teachers are over-worked. This under-staffing could have been nipped in the bud if and only if we sit down and decide on the kind of curriculum we want to run.

The curriculum should be designed to meet needs of industry, government and society. So the everybody can tailor himself or herself towards that particular goal. In order to obtain functional educational system. So that a graduate can do something for himself or herself.

**The ICT:** ICT is another problem of universities in Africa, the cost of it provision is very high and most of the universities

relies on government for it provision, the states in Africa are in serious financial constraints which affect the provision of facilities for Universities. Without resources ICT activities and programmers cannot succeed. Comment on resource support (e.g. staffing, finance, hardware, software, space and accommodation, skill development, ICT policy, library etc.) was therefore essential. ICT is not always sufficiently supported by qualified staff, finance, hardware, software, space and accommodation. In addition, with regard to skill development, ICT policy is lacking in some cases. It was observed that African universities suffer from related problems such as software and hardware inadequate, space inadequate in computer labs, no computer in the library, no ICT policy in the department, and maintenance service is irregular. On the other hand, some universities report: A fairly good ICT university policy. However, this policy is neither publicized nor implemented. Sufficient space and accommodation available in Faculty of Information Sciences (FIS) Inadequate finance to sustain ICT systems. Hardware and software need upgrading/ improvement/ replacement. The library has an OPAC and some offline databases on CD-ROMs. The CDROMS are not current and lack good retrieval features. Besides, computers in the library are of the older generation, which cannot support modern information transfer, e.g. full-text services. The library does not provide Internet services. Inadequate IT support staff due to poor remuneration, which does not attract/ retain quality personnel. There are cases where connectivity is managed by a central ITS (all SA institutions and UB) and libraries generally provide sufficient ICT services (all SA institutions and UB). Robust ICT policy at UB is noted.

Finally, the ICT trends, issues and problems in the institution (e.g. support, access, utilization etc.) were very eye opening. ICT capacity can be improved if ICT policy that is implementable is in place, the emergence of ICT is a vital component in our society, there is a need to view it as complimentary rather than replacing other forms of communication and information use. There is a danger of over-emphasizing use of ICT in circumstances where better resources are available off the shelf. Given the fact that the institution intends to go the e-learning route, there is a need to increase facilities for students as well as increase the available bandwidth (for Internet traffic).

**Academic freedom and autonomy:** Although, universities are insulated from external forces and interference, there are still reservations about situations in which they are asked to conform to rules and regulations imposed on by ministries and government departments. The University Act of 1970 gave government considerable control over university administration and resulted in poor policies, especially at the hand of dictatorial and ineffective governments. During this period, every effort was taken to silence and curtail students and academic staff engaging in organized and legal protest or having input in discussions or conditions affecting them. However, present reform initiatives such as diversifying

sources of funding have been successful. However, there is still a need for the higher education system to remain relevant in a rapidly changing world. The autonomy of institution is based on three key areas which are lacking in African universities.

Creating successful universities requires a supportive governance structure in which universities or colleges have autonomy to achieve objectives, whether research or teaching, with the appropriate level of accountability. Evidence of tertiary education sectors around the Africa suggests that, at least on paper, countries have been modifying their system wide governance structures to devolve management and oversight of their universities to achieve these dual goals of autonomy with accompanying levels of accountability. Autonomy is further sub- divided into the following: -

**Organization autonomy** structures and institutional governance – in particular, the ability to establish structures and governing bodies, university leadership and who is accountable to whom that is in selection of executive head of the institution. Selection procedure for the executive head, Selection criteria for the executive head, procedures for the dismissal of the executive head, term of office of the executive head, external members in governing bodies, ability to decide on including external members in university governing bodies, appointment of external members in university governing bodies, capacity to decide on academic structures, capacity to create legal entities. The universities in Africa have poor institutional structure base on the aforementioned.

Second, there was too much focus on providing external oversight to universities, while not enough is being done to cultivate the capacity for evaluation and accountability from within. The role of councils in transformation has not been properly crystallized.

**Financial autonomy:** That is – in particular the different forms of acquiring and allocating funding, the ability to charge tuition fees, to accumulate surplus, to borrow and raise money from different sources, the ability to own land and buildings and reporting procedures as accountability tools Length and type of public funding, funding cycle, funding modalities, ability to keep surplus on main public funding, ability to borrow money on financial market, ability to own buildings, ability to charge tuition fees. The pity of it is that most of the African universities rely on government for funding and having poor internal generated revenue. In addition to the above, they lacked good relations with community, NGOS and well to do individuals as alternative source of funding.

Funding is another issue. It is so poor that some universities use part of their internally-generated revenue to pay salaries, so they cannot attract as many academic staff as they need. Also Governments in have opened so many new universities without making prior arrangement for more lecturers. As a result, they are competing with the existing ones and with private universities. Some private universities even pay better than public universities. The condition of service is poor.

There are many reasons why we are experiencing dearth of academic staff in our universities.

**Staffing autonomy:** Also the autonomy of staff is very important. For instance, the in particular the capacity to recruit staff, the responsibility for terms of employment such as salaries and issues relating to employment contracts such as civil servant status. Capacity to decide on staff recruitment procedures (senior academic/administrative staff). Capacity to decide on staff salaries (senior academic/administrative staff). Capacity to dismiss staff (senior academic / administrative staff). Capacity to decide on staff promotions (senior academic / administrative staff). In area of recruitment of staff, politics plays a vital role. The appointment is not based on merit but base on whom you know which affect the functioning of university.

**Academic autonomy:** This have to do with capacity to define the academic profile, to introduce or terminate degree programmers, to define the structure and content of degree programmers, roles and responsibilities with regard to the quality assurance of programmers and degrees and the extent of control over student admissions. Capacity to decide on overall numbers of students, Capacity to select students (admission mechanisms), Bachelor level Master level, Capacity to introduce degree programmers, Bachelor level, Master level Doctoral level, Capacity to terminate degree programmers, Capacity to choose language of instruction, Bachelor level, Master level, Capacity to select appropriate quality assurance mechanisms and providers Capacity to design content of degree programmers/courses. The regulatory body plays a very important role, being that universities in Africa suffered from lack of autonomy in this aspect.

## DISCUSSION

From the analysis above, it could be deducing that universities in Africa suffers from lack of online and offline databases/database hosts available for teaching and learning (number, titles, fee or free access, etc.) revealed no uniformity. In the first instance, there is a need for Internet access and sustainability of the service that most countries and institutions in the region still fail to achieve. Secondly, the cost of equipment and telecommunication networks is prohibitive. Where funding is a problem online databases on CD-ROMS are generally outdated or antiquarian (Ocholla, 2003).

In addition, the take home pay of lecturers in African universities is very low comparable to their colleagues in other part of the globe such as UK and USA. Lecturer are poorly paid as a result of that many of them prefer moving to other institutions outside Africa that offers lucrative package. This finding ryme with the works such as (Bresnick, 1981; Randolph *et al.*, 1994; Sawyer, 1998; Turk-Bicakci and Brint, 2005; Carlton *et al.*, 2009; Abramo *et al.*, 2011).

Furthermore, Universities in African faces many challenge in human resource capacity, which has negative effect on its ability to make strides in the areas of socio-economic and

political development. While various efforts have been made to address the problem, there seems to be little progress, due to a variety of reasons such as brain drain etc. The findings of (Brudney and England, 1983; Mattson, 1986; John Clayton, 1987; Jakobsen and Simon Calmar, 2013) buttressed this point. Also universities in Africa lacks autonomy in compares with their counterpart in other part of the globe, such autonomy include, organizational, financial, staffing and academic autonomy. This is also in line with the works of (Brudney, 1986; Bovaird, 2007; Tomlin and Wang, 2008; Salazkina, 2010; Meijer, 2011; Brendon, 2012)who conducted similar studies.

Finally, African universities lacks infrastructures such as steady internet connectivity, poor electric supply, and other infrastructures which constitute tremendous problems to the universities in Africa. The findings of (Antikainen, 1981; Lindley and Singpurwalla, 2002; Yaeger, 2007; Johnston, 2010; GÜRsel, 2012) also supported this point.

**CONCLUSION**The study is on problems of co-production of higher education in Africa. African universities are facing multi-dimensional problems ranging from poor networking to the problem of inadequate staff, as well as funding. Funding higher education remains the biggest problem of education in Africa. The findings also revealed that the institutions lacked autonomy as well as poor infrastructures.

#### RECOMMENDATIONS

The following should be observed by higher institutions in Africa and the world at large in order to improve the problems of university education.

- Development of project beyond schools such as industrial attachment.
- Development of joint plan between the university, industry as well as community and government.
- University should come out with programs that foster social entrepreneur and enterprises.
- Sharing of ideas between the universities, private sectors and the community.

#### REFERENCES

Abramo, G., C. A. D'Angelo and F. D. Costa, 2011. University-industry research collaboration: A model to assess university capability. *Higher Education*, 62(2): 163-181.

Ackoff, R. L., 1994. *The democratic corporation. A Radical Prescription for Recreating Corporate America and Rediscovering Success*. New York: Oxford University.

Ackoff, R. L., 1999. *Transformational leadership*. *Strategy & Leadership*, 27(1): 20-25.

Alvarez, S. and A. Rubio, 2015. Carbon footprint in green public procurement: A case study in the services sector. *Journal of Cleaner Production*, 93: 159-166.

Antikainen, A., 1981. The regional impact of universities in finland. *Higher Education*, 10(4): 437-448.

Bason, C., 2010. *Leading public sector innovation: Co-creating for a better society*. Policy Press.

Bovaird, T., 2007. Beyond engagement and participation: User and community coproduction of public services. *Public Administration Review*, 67(5): 846-860.

Brendon, S., 2012. Cultural coproduction of four states of knowledge. *Science, Technology, & Human Values*, 37(3): 151-179.]

Bresnick, D., 1981. University/agency collaboration in management development efforts. *Public Administration Review*, 41(6): 683-686.

Brudney, J. L., 1986. The sba and score: Coproducing management assistance services. *Public Productivity Review*, 10(2): 57-67.

Brudney, J. L. and R. E. England, 1983. Toward a definition of the coproduction concept. *Public Administration Review*, 43(1): 59-65.

Caloffi, A., F. Rossi and M. Russo, 2015. What makes smes more likely to collaborate? Analysing the role of regional innovation policy. *European Planning Studies*, 23(7): 1245-1264.

Carayannis, E. G. and D. F. Campbell, 2009. 'Mode 3'and'quadruple helix': Toward a 21st century fractal innovation ecosystem. *International Journal of Technology Management*, 46(3-4): 201-234.

Carayannis, E. G. and D. F. Campbell, 2011. Open innovation diplomacy and a 21st century fractal research, education and innovation (freie) ecosystem: Building on the quadruple and quintuple helix innovation concepts and the "mode 3" knowledge production system. *Journal of the Knowledge Economy*, 2(3): 327-372.

Carayannis, E. G. and D. F. Campbell, 2012. *Mode 3 knowledge production in quadruple helix innovation systems*. Springer.

Carlton, E. L., B. W. Jason, K. Bradford, P. H. Dyk and A. Vail, 2009. Defining factors of successful university-community collaborations: An exploration of one healthy marriage project. *Family Relations*, 58(1): 28-40.

Carroll, T. F., 1992. *Intermediary ngos: The supporting link in grassroots development*. Kumarian Press.

Cooke, P. N., P. Boekholt and F. Tödtling, 2000. The governance of innovation in europe: Regional perspectives on global competitiveness. Cengage Learning EMEA.

Cull, R., W. Li, B. Sun and L. C. Xu, 2015. Government connections and financial constraints: Evidence from a large representative sample of chinese firms. *Journal of Corporate Finance*, 32: 271-294.

Denzin, N. K. and Y. S. Lincoln, 2008. *Strategies of qualitative inquiry*. Sage.

Denzin, N. K. and Y. S. Lincoln, 2009. *Qualitative research*. Yogyakarta: PustakaPelajar.

Driver, R., H. Asoko, J. Leach, P. Scott and E. Mortimer, 1994. Constructing scientific knowledge in the classroom. *Educational researcher*, 23(7): 5-12.

GÜRsel, Z. D., 2012. The politics of wire service photography: Infrastructures of representation in a digital newsroom. *American Ethnologist*, 39(1): 71-89.



- Heitor, M., 2015. How university global partnerships may facilitate a new era of international affairs and foster political and economic relations. *Technological Forecasting and Social Change*, 95: 276-293.
- Hoggett, P. and R. Hambleton, 1987. Decentralisation and democracy: Localising public services. University of Bristol, School for Advanced Urban Studies.
- Hoppmann, J., 2015. The role of deployment policies in fostering innovation for clean energy technologies: Insights from the solar photovoltaic industry. *Business & Society*, 54(4): 540-558.
- Inzelt, A., 2008. Private sector involvement in science and innovation policy-making in Hungary. *Science and Public Policy*, 35(2): 81-94.
- Jakobsen, M. and A. Simon Calmar, 2013. Coproduction and equity in public service delivery. *Public Administration Review*, 73(5): 704-713.
- Jiang, S., Q. Gao, H. Chen and M. C. Roco, 2015. The roles of sharing, transfer, and public funding in nanotechnology knowledge-diffusion networks. *Journal of the Association for Information Science and Technology*, 66(5): 1017-1029.
- John Clayton, T., 1987. Neighborhood coproduction and municipal productivity. *Public Productivity Review*, 10(4): 95-105.
- Johnston, E., 2010. Governance infrastructures in 2020. *Public Administration Review*, 70: S122-S128.
- Leydesdorff, L. and H. Etzkowitz, 2003. Can 'the public' be considered as a fourth helix in university-industry-government relations? Report on the fourth triple helix conference, 2002. *Science and Public Policy*, 30(1): 55-61.
- Lindenberg, M. and C. Bryant, 2001. *Going global: Transforming relief and development ngos*. Kumarian Press Bloomfield, CT.
- Lindley, D. V. and N. D. Singpurwalla, 2002. On exchangeable, causal and cascading failures. *Statistical Science*, 17(2): 209-219.
- Marsh, D. and R. A. W. Rhodes, 1992. *Policy networks in British government*. Clarendon Press.
- Marsh, D. and G. Stoker, 2010. *Theory and methods in political science*. Palgrave Macmillan.
- Mattijssen, T. J. M., J. H. Behagel and A. E. Buijs, 2015. How democratic innovations realise democratic goods. Two case studies of area committees in the Netherlands. *Journal of Environmental Planning and Management*, 58(6): 997-1014.
- Mattson, G. A., 1986. The promise of citizen coproduction: Some persistent issues. *Public Productivity Review*, 10(2): 51-56.
- Meijer, A. J., 2011. Networked coproduction of public services in virtual communities: From a government-centric to a community approach to public service support. *Public Administration Review*, 71(4): 598-607.
- Mills, G. R. W., M. Phiri, J. Erskine and A. D. F. Price, 2015. Rethinking healthcare building design quality: An evidence-based strategy. *Building Research and Information*, 43(4): 499-515.
- Morton, M. S., 1995. Emerging organizational forms: Work and organization in the 21st century. *European Management Journal*, 13(4): 339-345.
- Muraoka, T., H. Cui and S. I. Stupp, 2008. Quadruple helix formation of a photoresponsive peptide amphiphile and its light-triggered dissociation into single fibers. *Journal of the American Chemical Society*, 130(10): 2946-2947.
- Nagaoka, S. and C. National Research, 2009. *21st century innovation systems for Japan and the United States: Lessons from a decade of change: Report of a symposium*. Washington, D.C.: National Academies Press.
- Ocholla, D. N., 2003. An overview of information and communication technologies (ICT) in the LIS schools of Eastern and Southern Africa. *Education for Information*, 21(2-3): 181-194.
- Park, J. and S. Kim, 2015. The differentiating effects of workforce aging on exploitative and exploratory innovation: The moderating role of workforce diversity. *Asia Pacific Journal of Management*, 32(2): 481-503.
- Punch, K. F., 2013. *Introduction to social research: Quantitative and qualitative approaches*. Sage.
- Randolph, R., S. Robbins and A. R. Gere, 1994. Writing across institutional boundaries: A K-12 and university collaboration. *The English Journal*, 83(3): 68-74.
- Salazkina, M., 2010. Soviet-Indian coproductions: Alibaba as political allegory. *Cinema Journal*, 49(4): 71-89.
- Sawyer, M. H., 1998. The portfolio research project: A successful school/university collaboration. *The English Journal*, 88(1): 64-67.
- Schumpeter, J. A., 1934. *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*. Transaction Publishers.
- Schumpeter, J. A., 2013. *Capitalism, socialism and democracy*. Routledge.
- Singh, M. M., S. Garg, A. Nath and V. K. Gupta, 2015. An assessment of felt needs and expectations of people living with HIV/AIDS seeking treatment at NGOs in Delhi, India. *Asia-Pacific Journal of Public Health*, 27(2): NP703-NP712.
- Strauss, A. and J. Corbin, 1994. Grounded theory methodology. *Handbook of qualitative research*: 273-285.
- Strauss, A. and J. Corbin, 1998. *Basics of qualitative research*. 1998. Thousand Oaks.
- Stumpe, K. O., E. Agabiti-Rosei, T. Zielinski, D. Schremmer, J. Scholze, P. Laeis, P. Schwandt and M. Ludwig, 2007. Original research: Carotid intima-media thickness and plaque volume changes following 2-year angiotensin II-receptor blockade. The multicentre olmesartan atherosclerosis regression evaluation (more) study. *Therapeutic Advances in Cardiovascular Disease*, 1(2): 97-106.
- Sun, Z., 2015. Technology innovation and entrepreneurial state: The development of China's high-speed rail industry. *Technology Analysis & Strategic Management*, 27(6): 646-

- 659.
- Sutthijakra, S. and P. Intarakumnerd, 2015. Role and capabilities of intermediaries in university-industry linkages: A case of hard disk drive industry in thailand. *Science Technology and Society*, 20(2): 182-203.
- Suzuki, J., N. Tsukada and A. Goto, 2015. Role of public research institutes in japan's national innovation system: Case study of aist, riken and jaxa. *Science Technology and Society*, 20(2): 133-160.
- Tödtling, F. and A. Kaufmann, 1999. Innovation systems in regions of europe—a comparative perspective. *European Planning Studies*, 7(6): 699-717.
- Tomlin, B. and Y. Wang, 2008. Pricing and operational recourse in coproduction systems. *Management Science*, 54(3): 522-537.
- Turk-Bicakci, L. and S. Brint, 2005. University-industry collaboration: Patterns of growth for low- and middle-level performers. *Higher Education*, 49(1/2): 61-89.
- Yaeger, P., 2007. Introduction: Dreaming of infrastructure. *PMLA*, 122(1): 9-26

Date Published (D-M-Y): 15-12-2016