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Working towards knowledge accessibility and visibility through collaboration efforts: the case of Botswana International University of Science and Technology (BIUST) library

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Abstract

Botswana is currently transforming from a natural resource to a knowledge based economy. Therefore, Botswana International University of Science and Technology (BIUST) is working towards positioning itself to respond to the new and emerging demands of Botswana's transformation agenda. The university is striving to produce graduates that would drive the nation's need of an inclusive knowledge based society through promoting community development. Furthermore, it is also working towards maximising its research and expertise to fully harness the transfer and application of its knowledgeable generation that contribute to economic and social benefits to the nation.

This new role of university and the changing research landscape has prompted the university library to forge collaboration with internal and external key stakeholders to promote knowledge sharing and accessibility. The purpose of this paper is to share outcomes of formed collaborations by BIUST library with its stakeholders. It further discusses how these collaborations have assisted in increasing locally produced publication's visibility to the global community.

Keywords

Collaboration, Knowledge accessibility, Knowledge sharing and Botswana International University of Science and Technology.

Introduction

The application of information and communication technologies (ICT) in almost all aspects of people's daily lives has impacted the way they need, access and share information. The obliquity, availability and widespread use of ICTs has inevitably shifted the research landscape in a way that complex to assess because the multidisciplinary terrain is beyond scope of any given field (Walsham, 2017: 19). This author posits this guided specifically by a synthesis geographic and chronological mapping of the developments in especially research on ICTs for development. This dynamic landscape is further acknowledged by Osman (2018) who notes that it is peculiar to the emerging fourth industrial revolution which is and characterised by an improved fusion of technologies. This revolution has brought significant changes on the research landscape. It has resulted in increasing the data size and its complexity when managing and accessing it.

The emerging transformation poses challenges to research community and information scientists in terms of storage, management and accessibility. It further drives experts in the scholarship field to increase emphasis on open access publications as well as promoting research data openness. Scholars who are seemingly guided by the ethical and social responsibility towards an inclusive economy (Lebele, 2016:43), are propelled into knowledge sharing and enhancing its accessibility.

Research in Botswana

The Botswana government is encouraging and promoting research activities that can produce results on innovation, data products, data analytics and decision making. Policies and processes have been made to aid development and improvement of the economy and society. An example of such is the country's Vision 2036, is calling for all the key players in research landscape to transform the country from resource based to knowledge based.

Ministry of Tertiary Education, Research, Science and Technology (MoTE) is given the lead role to coordinate research, science, and technology development in the country. Furthermore, other government ministries and departments are conducting relevant research in their respective areas of their operations. However, research is mostly undertaken by the research institutes, universities both public and private as

well as colleges of higher education. These higher education institutions are expected to conduct, promote, and facilitate research and scholarly investigations that would accelerate Botswana economic growth. Their findings should be able to be transformed into tangible applications and products and support the needs of the industry and society.

Botswana's Economic diversification

Botswana, a country that has predominantly been dependent on mining is now weaving policies and strategies of economic diversification. Some such strategies include supporting innovation, research and development as key factors to stimulate growth and competitiveness of especially the private sector. Sekwati (2010) emphasises the need for research in this sector because despite government's efforts to encourage the same through supportive industrial development policies and finance, the sector continues to "struggle to make significant impact in terms of contribution to GDP as well as employment". This author who further observe the low output from especially manufacturing industries comments government inter-related and research informed economic diversification strategies. The World Bank Report Number:73049-BW (2012) recommends that in addition to enhancing the manufacturing industry, the country must implore innovative ways increase value-added in the mining sector, enhance the tourism sector, transportation services.

Institutions have been set up to help in realising the nation's economic diversification strategy.

BIUST as Economic Diversification Strategy

BIUST was established in 2004 and started operating in 2012 with a mandate to be a leading institution in the transformation of Botswana's economy through quality intensive research in the areas of engineering, science and technology. The university has two faculties being faculty of sciences (FOS) and faculty of engineering and technology (FET) with a total number of one thousand eight hundred and eighty one (1881) students. It offers degree and post graduates programmes across science, engineering and technology fields. There is a centre for business management, entrepreneurship and general education that equips students with both entrepreneurship and academic skills so that upon graduation they are ready for the market and direct contribution into the national economy. The centre

also supports researchers to package the research output and to advance entrepreneurship possibilities through research related activities. This is in line with the national mandate of research and entrepreneurship in science and technology.

The university's research strategies continue to evolve in line with both global and national dictates. BIUST research landscape has not been spared from the notable advent of the open access movement in the global research arena.

In line with the observed inevitable shift, BIUST library has embarked on collaborative initiatives with internal and external key stakeholders to promote open access agenda and open science movement within the country. This paper highlights some of the stakeholder engagement activities.

Library Collaboration and BIUST Library

For the purpose of this narrative, collaboration refers to individuals and groups working together to achieve a common goal with equal voice and responsibility (Hoag, 2016). Collaboration has been considered as a driving force that can prepare information professionals to embrace the rapid changes in their profession. It has been acknowledged that collaboration in the library results in better services and programs for users as well as increased job satisfaction for all participating entities (Crowe 2015; Meier 2016). Different supportive entities are engaged in library collaborations at different levels and capacity. Harland, Stewart & Bruce (2019: 319) views that these different library support entities as library stakeholders with "interest; rights (legal or moral); ownership and contribution in the form of knowledge or support towards the activity of the library".

Collaboration has been seen as a good strategy for especially creating and promoting quality services and information sources as well as enhancing learning and research competencies in academic libraries (Nguyen and Tuamsuk, 2020). This assertion is drawn from these authors' findings on a study based on Vietnamese universities that demonstrated the impact of collaboration on the development of academic and research performance. The positive impact of collaboration as a powerful advocacy strategy that can be used to overturn a decisions made is further show cased by Levitov and Kaaland (2017). The authors showcase how their working with librarians, administrators and recently graduated library students in Washington state to reverse a decision that was allowing teachers

to become teacher librarians without passing the designed content examination. Collaboration is especially needed by librarians in the African universities where there is a common cry for lack of management support in libraries' initiatives.

It is within this vein that BIUST library has considered to leverage on forging collaboration with key stakeholders in order to :

- share expertise in the areas of digital scholarship and open science
- promote research data/intellectual output openness in Botswana
- encourage knowledge sharing and accessibility amongst BIUST community and even to the global community.

This paper therefore discusses types of stakeholders and collaboration strategies employed by BIUST library in service provision towards research management and open science. It also presents significant impact gained through collaboration initiatives.

The role of BIUST Library Services towards the University mandate

The university library facilitates access to information resources and services in alignment with the institutional strategic goals and also in response to the stated or observed user information needs. The library has structured its service into three strategic units being; resource management, information support and the administrative or management section. Library strives to facilitate access to flexible and relevant information resources in all formats. This is done in acknowledgment of the reality that even in the World Wide Web era, libraries still need to support users by organising and developing accessibility points to credible information.

Many other services interrelated to provision of such accessibility points include developing open access services through institutional Repositories (IR), customised reference services, inter-library loans, application of technology mediated tools (online services), provision of computers and reading spaces. Fieldhouse & Marshal (2011) summaries these interrelated library services aspects of library collection management in the ICT influenced research landscape.

The realisation of the need for these services compels libraries to collaborate with entities who may at times be characterised as service providers that meet the library needs or as consumers of the services that the library provides. The stakeholders

are engaged at different levels of initiative planning; actualisation and continued management.

Types of Stakeholders at BIUST Library in research support services

Academic libraries in today's ICT led research environment play an active role in the areas of big data, digital research, and open science. Corrall (2012: 13) in the discussion of the last chapter of Fieldhouse & Marshall (2011) The Concept of Collection Development in the digital World justifies such involvement of librarians as an essential way of facilitating discoverability, transferability, re-use and archiving of data. Librarians therefore have to engage with stakeholders so as to remain relevant and abreast of the evolving needs in the research landscape.

BIUST library had to bow into the universal dictate for libraries play an active role in shaping digital content landscape in line with what Corrall (2012: 16) notes as an inherent desire to manage intellectual assets for the library communities. The call for BIUST library to follow this is even compelled by the reality that Botswana is in dire need for innovative research ideas so as to address the already noted bleak context. Seemingly in response to what Lebele (2016: 51) describes as a universal call for socially inclusive strategies to bridge the digital divide through increased access to information through ICTs. In the same work, Lebele further adds that realisation of such strategies call for triangulation of inter-related theories and entities towards a collective purpose.

The library had to develop the needed skills for providing enhanced library services as well as promoting research data openness, knowledge sharing and accessibility. To attain this the library had to forge strategic collaboration and partnerships with both internal and external stakeholders. As rightly noted by Church-Duran (2017:258) there is no one size fits all stakeholder engagement strategy because of the undefined boundaries of categorising them. This fact may further be linked to the reality that besides the service delivery process maps, BIUST library does not have a clearly defined and agreed upon stakeholder engagement strategy. Although this reality may translate into a very fluid categorisation of BIUST library stakeholders, the library identifies with Harland, Stewart & Bruce (2019) assertion that stakeholders have to be categorised; analysed and engaged through a planned

communication strategy that suits the scope, budget and plan of the initiative at hand.

Categorising Stakeholders according to role

Different types of players from the broader, multi-layered community with different interest and characteristics joined hands with the library to promote research data openness; creating accessibility and the sharing of knowledge. Some entities can be broadly grouped as partners of the library (i.e. service partners). For example, the directorates of ICT and that of Research had vested interest in the success of the project because it is intended to show case their strength. Both directorates fitted in the label of support partners because they played the role of enabling the library to meet the dictates of the mandate. Another notable partner is the Association of African Universities who also played a critical role in supporting the development the IR as library service. These stakeholders will feature time and again in different categories of stakeholder discussions because they have made a critical contribution to even the advent of other stakeholders.

The Directorate of Finance and the university Executive management also played a role as sponsorship partners to the library. In some cases, some providers of library electronic resources also stepped up to some of the sponsorship responsibilities. For example, on many occasions they fund author workshops; they build capacity of library staff at no cost and they assess BIUST researchers' publishing trends so as to guide the library on the researchers needs.

Another broad and diverse category of stakeholders is one that can be viewed as the community partners. This includes the different types of library users as both consumers and contributors of the knowledge that is made accessible. It is important to highlight the reality that the community of users are category of stakeholders with a lot of influence on output of other stakeholder relationships.

Internal and External Library stakeholders

As noted earlier, any meaningful development of an inclusive information service calls for engagement on inter-related entities within and from other fields. This paper reports on some of the internal and external collaborative activities that are employed by BIUST library. The following narrative demonstrates the stakeholder engagement through examples of some of the activities that were carried out. It is of

paramount importance to reiterate the fact that, the library did not have a clearly articulated stakeholder engagement strategy. All activities being reported were mainly on adhoc or trial and error bases.

Internal Collaboration in developing Institutional Repository

The Institutional repository at BIUST library is a flagship project that has been developed to manage, reuse, accessibility and visibility of the university research output. The planning development and realisation of the project has involved a diverse range of stakeholders that played different roles as partners of the library; supporting or sponsoring stakeholders; or even a community of the library. The advent and exiting of these stakeholders presented an intertwined reality of interrelated roles at the various stages of the initiative.

Engaging these different entities also called for different strategies from the library team who were then called upon to deal with the multi-layered nature of stakeholders in the initiative. As observed by Harland, Stewart & Bruce (2017: 397) and Chellappandi & Vijayakumar, 2018, sustaining a relationship with stakeholders in such a projects calls for a library team that is agile and enthusiastic. The different functional units in the library were therefore re-energized to actively participate as stakeholders in the generation of new knowledge and sharing it with the local and international world.

During the planning and development of BIUST institutional repository (IR), the library team members rolled out strategies to strengthen library relationships with the Directorates of Research and Development and that of Information Technology as both partners and supporters so as to leverage on their expertise and structures. Advocacy, lobbying and even educational strategies were employed with faculty members and the student as community stakeholders who were to be main contributors and users of the content.

Engaging faculty at initial stage was to build an appreciation of how the IR would serve as a tool for disseminating their research capabilities. As the library staff developed and delivered meetings, training or workshop and seminars to these communities of stakeholders, they benefited from enhanced working relationship with the target participants. It also helped to sharpen advocacy and negotiation skills

for the library team members. This further translated into improved visibility of the library services as the base for research and all its intricate processes.

The experiences gained from the different collaborative engagements with internal stakeholders in the development of the BIUST institutional repository, presented commendable learning moments for both the library and its partners. While the library continued to in teaching stakeholders on the role of the IR, the library also gained some lessons on the operational processes of the internal stakeholders. The emerging learning trend resonates an observation by Harland, Stewart & Bruce (2019) that by engaging with stakeholders, the library presents itself as a learning organisation which draws collective aspiration of people (i.e. the library staff and stakeholders) who have a shared vision and progressively learn how to learn together. The library in this case learns from its stakeholder on how it can best create visibility of the institutional research output.

Employing different stakeholder engagement approaches and strategies at the different levels of the initiative helped in realising Atkinson (2018) recommendation that academic libraries should progressively robe in other departments across the university in order to ensure that their initiatives are implemented effectively. It further affirms Samberg & Taylor (2020) observe that when libraries and scholarly societies work together, they can produce sustainable paths of achieving immediate open access to scholarly research.

Other notable internal stakeholders include, Directorate of Information Technology; Directorate of Research and Development together with Directorate of BIUST Institutional, Technology, Transfer and Incubation Park (BITRIP) and the faculties. The Directorate of Information Technology as noted earlier blended the role of being library partner in the initiative with being an enabling supporter. The directorate's partnership role was even more visible as it assigned a dedicated IT expert for the project. The directorate also advocated for support of the initiative in other university wide management forums. The directorate's supportive role was also evidenced in the facilitation of both expertise and the technical infrastructure needed to archive and share materials produced by researchers. As an internal stakeholder, the contribution became a cost saving measure because the library did not pay for both manpower and the needed technologies for the initiative.

The Directorate of Research and Development together with Directorate of BIUST Institutional, Technology, Transfer and Incubation Park (BITRIP) played a key role as what one may term as parent bodies for the institutional researchers. Both directorates were very instrumental in guiding the library on issues related to intellectual properties and the diverse research policy as they related to different items that had to be harvested for the IR. The input from both directorates further led to a development of an informed institutional repository (IR) policy, which in turn became incorporated into the institutional research policy. This demonstrates the value laden nature of collaborating with internal stakeholders because it informs development of institutional governance processes. The institutional stance is to present all policies to the executive before actual operationalisation. By putting the IR policy through these processes also helped creating visibility and introducing even more entities. For example, the Directorate of Legal Affairs and that of Quality Assurance were also brought in. At all the stages, the library had to be managing the relay and the inter-connectivity of the directorates through continued consultation, engagement and a shared vision of creating accessibility and visibility of institutional research output.

Atkinson (2018) emphasises that libraries should extend their role by collaborating with faculties in the emerging areas of curriculum development, research management and digital literacy skills. In the process of developing IR at BIUST, faculty's engagement was done sequentially. At the planning phase, the concept was introduced through strategies that aimed at getting buy in from this stakeholder group. Different advocacy presentations were made by the project leader, the faculty librarians and the library management in different platforms or meetings.

At the stage of operationalising the project, faculties were encouraged to submit their intellectual content to library so that it can be made publicly available. They were also encouraged to support open access movement by publishing on open access journals. The library also educated and encouraged faculty on the importance of promoting the IR to their peers and associates. In some cases, the engagement

extended to revisiting the publishers' contracts. In that way both the author and the library as internal stakeholders, then brought in an external entity.

The inclusion of other directorates and the teaching and learning communities also increased visibility of the platform. Lecturers further marketed the service as they travelled to different conferences or research related initiatives. It further helped in building ownership of the service and appreciation of role of the library in creating visibility of research output.

External Collaboration in developing Institutional Repository

The external stakeholders engaged to support BIUST library's endeavour to create visibility and accessibility of the institutional research output were also came from both the national or local environment and from the international sphere.

BIUST library has become part of the open access movement that supports and advocates for open science and open access. The library's participation is through recognised bodies like the Botswana Open Data Open Science (ODOS) National Committee; the Botswana library Association (BLA) and Botswana Library Consortium (BLC). ODOS have a diverse membership of researchers, librarians, policy makers, journalists and entrepreneurs while BLA and BLC comprise of librarians. These various stakeholders organise forums such as training workshops, seminars, conferences and panel discussions to deliberate on issues of research data management, open access and knowledge accessibility. The attendance of the events allowed members to acquire deeper knowledge on the subject areas as well as inspiring them to take active role on the creation, sharing and accessibility of knowledge. This collaboration allows each expert to bring his/her expertise on areas of open science and research data management. This involves embracing the opportunity to learn new skills and knowledge from each other. By working with these various stakeholders, BIUST librarians managed to tap into skills and knowledge on research data management, digital preservation and open science.

At an international or regional level, there are partnerships that have been forged with bodies like the Association of African Universities (AAU), which was earlier on cited as a supporting stakeholder. The partnership focused more on addressing issues of long-term digital preservation through establishment of institutional repositories for research visibility, knowledge sharing and accessibility in higher

education institutions in Africa. BIUST library had been seeking affordable and easy ways of developing and using institutional repository, the newly established partnership with AAU was therefore a golden opportunity to BIUST. Considering BIUST library's intention as well as realising that other national research institutions were limited in developing IR, the library collaborated with AAU to host Database of African Theses and Dissertations including Research (DATAD-R) workshop. This was hands on based approach training workshop for librarians; information technology experts and researchers in Africa. DATAD-R is a digital platform set by AAU to collect and display the research findings from African universities for global awareness and visibility. The overall objective was to help the local research institutions to be part of the drive to make research findings from African institutions more accessible to the research community on the continent. It is also intended to make available research findings to the stakeholders and decision makers; and to provide knowledge base teaching, learning and further research. The library extended this invite to its local partners in research output management because, as noted by Corall (2015:7) inter- library cooperation and support is very important in attaining flexible, access to research output. This author rightly views populating IR as an activity of collection development, therefore relates to inter library cooperation initiatives. These local institutions are also valuable networks in the university's research communities of practice. To this end, BIUST library managed to set up its repository which is accessible at <http://repository.biust.ac.bw/>.

BIUST library is an active member of international professional bodies like International Federation of Library (IFLA) which continues to update and support its membership of the organisation's participation in United Nations (UN) Open Working Group in especially the advocacy for the inclusion of access to information in global development agendas. To this end, IFLA encourages its members to develop and document experiences of collaborative initiatives in the parent institutions so as to continue informing both policy development and enriching practice. BIUST library also made reference to some of these experiences at the IFLA 2019 congress through a practice conference paper entitled, "Technology mediated tools as drivers of library- researcher collaboration: the case of Botswana International University of Science and Technology (BIUST) Institutional Repository (IR)."

The African Library and Information Associations and Institutions (AfLIA) , is also another international partner that support BIUST libraries to develop flexible platforms that enable communities to access and use institutional research output. As a member of AFLIA, BIUST library benefited from a series of webinars where experts in OA; in developing IR and in stakeholder engagement give presentations that are coupled with library specific navigation guides. Participating in different related seminars, webinars and conferences as facilitated by these professional bodies helped in sharing more trends, tools, techniques and technology that the library team needed for provision of flexible access to research output. For example, AFLIA helps in sharing expertise in the areas of digital scholarship and open science; in promoting the role of libraries in sustainably engaging other stakeholder in management of research data and intellectual output openness. Therefore, both IFLA and AfLIA are valuable stakeholders who continue to link BIUST library to even more partners through sharing experiences and best practices. The associations also serves as good springboards for creating awareness of the progress that BIUST library has made in this front.

Conclusions

BIUST library is developing inclusive strategies aimed at enabling the university to positively contribute to the national economic diversification agenda. Through collaboration with stakeholders, the library has been able to make research output openly available. This noble gesture will enable the different players in the country's economy to access , use and regenerate information for development. In the process, the library has also raised awareness and motivated the key stakeholders to embrace the open science movement.

It emerges from this narrative that the library needs to develop and operationalise a well defined Collaboration strategy.As emphasised in Harland, Stewart & Bruce (2019), The Model of Academic Library Strategic and Cultural Engagement with Academic Library Stakeholders, a sustainable engagement calls for a clear strategy that enables categorisation of stakeholders; articulation on how they are to be engaged and at what stage, with a clear plan that suits the scope, budget and plan of the initiative at hand.

Although BIUST library did not have a pre-set strategy, it was able to engage and sustain stakeholders through different types of meetings (face to face, virtual, planned; etc.). The forums in the meetings also ranged from specialised or thematic compositions (e.g. IT experts or faculty) to more general meeting.

Through engaging the different stakeholders, the library observed that there was a gap in understanding and appreciation of research management issues that are related to the individuals' rights and ownership to information in the open access.

This paper also observed that the process of collaborating with stakeholders to enable access to institutional research output enhanced the country's enhanced the democratic principle of consultation and transparency. This developed democratic platform also provided skills sharing opportunities for creating more visibility to African intellectual outputs to the world.

Although the university is relatively small in size; number of years and the holdings of the IR, the library's decision to introduce and drive the open access movement at the university has had very wide positive rippling effects. It is a commendable effort in creating the needed research visibility for a country that is undergoing the noted economic transformation.

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