Collaboration on Academic Research Support among Five African Universities

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Abstract. This paper reports on an initiative, funded by Carnegie Corporation of New York, to provide five universities in three African countries with essential modern web-based research performance measurement tools. The strategic objectives of the project are to develop and strengthen institutional research performance; strengthen and improve research management processes; allow the participating universities to identify research strengths and weaknesses in specific faculties, schools and disciplines and to determine research priorities; assist participating universities in identifying regional and international research collaborators, identifying areas of research investment and funding, strategic planning, benchmarking, and assessing researchers for tenure and recruitment.

The vendors of InCites and SciVal were invited to a one day meeting and were required to address some broad functional areas of research performance measurement. The vendors also provided trial access to the tools to enable the universities to undertake individual evaluations in their institutions.

The project so far has shown new dynamics among different stakeholders in some of the participating universities. The process of assessing the research performance measurement tool brought together academics, staff of the research office and librarians. At this early stage, it is evident that the project represents a high level opportunity for librarians to add value and reinforce their role in the university's research life cycle, acquire new skills and forge collaborative relationships with academics, postgraduates, researchers and institutional research support entities.

Keywords: Research support, Collaboration, Africa, Research performance, Research evaluation, Academic libraries.

1. Introduction

The global ranking of universities has led to widespread push toward world-class status for universities around the world. According to a World Bank report governments are becoming increasingly aware of the important contribution that high performance, world-class universities make to global competitiveness and economic growth. There is therefore growing recognition, in both industrial and developing countries, of the need to establish one or more world-class universities that can compete effectively with the best of the best around the world (Salmi, 2009).

The pressure for universities to increase their research output has led to increased competition among universities to attract top academics in order to boost their research output and thereby increase their ranking among the universities. Rankings have become important for students, researchers, administrations, industry, and governments. Ranking systems have attracted wide attention from stakeholders both national and institutional as they are interested in the performance of these institutions.

In order to foster research excellence, many countries have embarked on research assessment. A 2009 pilot study commissioned by OCLC Research, *A comparative review of research assessment regimes in five countries* (Key Perspectives, 2009), observed that

"As more universities conduct similar evaluations, it is becoming clearer how individual universities compare with others. Universities also pay attention to the world rankings of universities, such as the Academic Ranking of World Universities, compiled by Shanghai Jiao Tong University, and the Times Higher Education World Universities Ranking. This indicates that universities value the ability to measure the quality of their research outputs and to benchmark themselves with universities around the world" (Key Perspectives, 2009).

For students, especially post-graduates, the university's research performance is indicative of post-graduate employment. Researchers aspire to positions in top ranked institutions as they see their careers being linked to the quality and reputations of institutions that employ them.

Institutional research administrations are interested in academic institutions' assessments in order to optimise the use of scarce resources, acquire funding and know their performance in relation to their competitors so that they can adjust their policies and strategies appropriately.

National research administrations are interested in the performance of the institutions they support in order to assess the results of their own efforts and to direct the academic institutions towards areas of national interest.

Industry has an interest in academic rankings from the perspective of future employer of the students of the various institutions and as a client of academic research. The quality of students and their research capabilities impact on the personnel and research policies of industries (Pouris, 2007).

A 2008 report of the Research Information Network (RIN), *Ensuring a bright future for research libraries: A guide for vice-chancellors and senior institutional managers*, suggests that librarians and information professionals can now do much more to provide leadership that brings improvements in

research performance and effectiveness in the higher education sector. The report further suggests that higher education institutions should:

"draw on the expertise and advice of library and information professionals in making use of bibliometric and cybermetric tools, which are likely to play an increasing role in the assessment and evaluation of research outputs and impact at international, national and institutional levels".

The involvement of library and information professionals in research assessment in some countries has shown that RIN's suggestion above is possible.

The OCLC Research report (Key Perspectives, 2009) noted that some librarians have 'achieved success in terms of putting their library at the operational and strategic centre of their institution's assessment processes'. They have done this through collaboration and partnerships with their research administrators, researchers and administrative departments. Some of the research librarian skills that contribute to the research assessment process include:

- managing the institutional repository (IR);
- guiding research outputs from their creators into an institutions repository;
- providing advice and assistance to faculty members;
- ranking of journals for the purposes of research assessment;
- providing advice on bibliometrics - the role of citation analysis and the interpretation of citation data; and
- providing expertise in data management planning and data curation (Key Perspectives, 2009).

Librarians have emphasized the context of supporting citation analysis evidence in research performance evaluation. Moed (2010) accurately captures the justification for the library's focus on bibliometrics in research evaluation:

- Bibliometric indicators are applied as supplementary tool in peer review processes.
- The outcomes of peer reviews are used as a validation instrument of bibliometric indicators.
- Bibliometric indicators are applied as tools for monitoring and studying peer review processes.

The Library at the National University of Ireland, Galway, provides an online bibliometrics tutorial for researchers at: http://www.ndlr.ie/myri/MyRI_Tutorial/player.html.

Universities that aspire to better results engage in an objective assessment of their strengths and areas for improvement, set new stretch goals, and design and implement a renewal plan that can lead to improved performance (Salmi, 2009). Recently research performance measurement tools have been developed to assist institutions in the identification of their strengths and areas for improvement. Examples in this regard include *InCites* by Thomson Reuters and *SciVal Spotlight* by Elsevier.

This paper reports on an initiative, funded by Carnegie Corporation of New York, to provide five universities in three African countries with essential modern web-based research performance measurement tools. It was envisaged that the tools will assist African universities in managing research and making strategic decisions at sophisticated new levels of research productivity and the impact of research produced, including the capacity to drill down from institution, faculty and school to the individual level. The strategic objectives of the project are to develop and strengthen institutional research performance; strengthen and improve research management processes; allow the participating universities to identify research strengths and weaknesses in specific faculties, schools and disciplines and to determine research priorities; assist participating universities in identifying regional and international research collaborators, identifying areas of research investment and funding, strategic planning, benchmarking, and assessing researchers for tenure and recruitment.

2. Research Scenario in Africa

Since the 1960s Africa's research and development agenda had been on the decline, but there are efforts underway to rectify this situation and to reinvigorate research in order for Africa to make significant strides in development. There are various initiatives to support research capacity strengthening as shown by the consortium of private foundations (Ford, Hewlett, Rockefeller, Carnegie, Andrew W Mellon, MacArthur, Kresge Foundations) involved in funding the Partnership for Higher Education in Africa (PHEA).

In particular, this project's collaborating university libraries have benefited from Carnegie Corporation of New York's (CCNY) Higher Education and Libraries in Africa program http://carnegie.org/programs/higher-education-and-libraries-in-africa/ aimed at enhancing the capacities of educators, researchers and academic leaders in selected countries; improving the use of information and communication technologies in teaching, research and management and creating public and university libraries to deepen academic research and public access to information and knowledge.

Only two African countries, Egypt and South Africa, achieved a top 400 ranking on the Times Higher Education World University rankings in 2011 (THE World University Rankings, 2010-2011). An analysis of the research output of six African countries (Table 1 below), as represented in Thomson Reuters Essential Science Indicators (ESI), shows the significant research disparities amongst six African countries.

Table 1. Research output of 6 African countries, Essential Science Indicators. (2001 – 2011)

Country	Papers	Number of disciplines (ESI)	Citations	Citations per paper
South Africa	59 547	22	504 886	8.48
Egypt	40 258	21	206 217	5.12
Nigeria	14 769	20	58 652	3.97
Kenya	8 400	16	87 255	10.39
Uganda	3 958	11	38 301	9.68
Ghana	3 033	10	22 500	7.42

The Graph below from Thomson Reuters InCites presents the impact (citations) relative to the world for South Africa, Egypt, Nigeria, Kenya, Uganda and Ghana. A value greater than 1 is an indication that the impact of the country is higher than the world average.
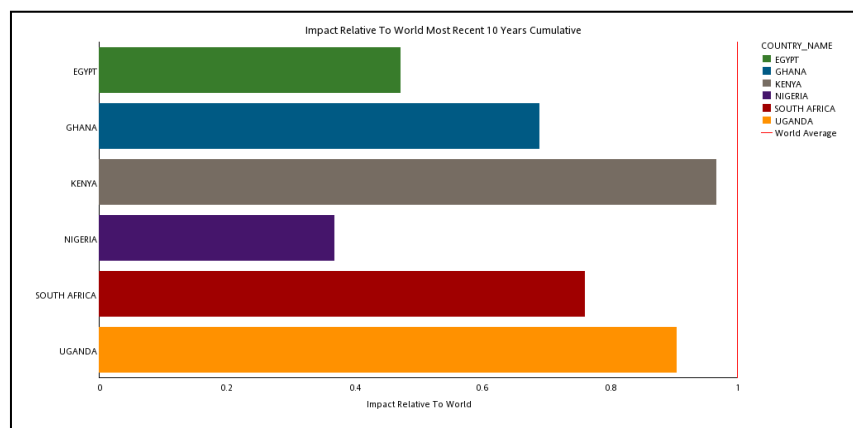
The high impact of Kenya's publications has been attributed to the smaller number of papers and greater collaboration with industrialized countries.

Kaniki (2003) referred to the information needs of research and innovation managers in Africa: "More specifically however, they need information on experts in particular fields. This provides comparative data for analysis of the output of institutions and countries. They also need information on applicable and adaptable indicators for research output and productivity. Most importantly though, research and innovation managers need information on applicable and adaptable indicators for assessing impact of basic research and the transfer of such research into the innovation arena."

An adequate research infrastructure is crucial for successful research – including laboratories, equipment, internet facilities, libraries, and an effective system of information storage, retrieval, and utilization; appropriate

management systems; and policies that facilitate and support the research enterprise including incentives that recognize and reward high calibre research. The limitations to research productivity in Africa include the researcher's lack of knowledge of research information services and the high-level skills needed to access the services.

The Nairobi Report: *Frameworks for Africa-UK Research collaboration in the Social Sciences and Humanities: African University Perspective* (2009) further identifies areas that are needed to enable and facilitate research, including:

- Access to internet facilities and information resources (scholarly publications).
- Access to funding information.
- Provision of flexible funding to enable needs that arise during the course of a project.
- Efficient institutional structures.

The report underscores the need for more collaborations and partnerships within Africa and between Africa and other continents.

A recent paper commissioned by the British Academy as part of the Nairobi Process, *Foundations for the Future: Supporting the early careers of African researchers* (2011) identifies six areas where support is needed to ensure brighter prospects for African early career researchers. These include

- Opportunities to stay connected to their peers, locally, regionally and internationally, through networks and conferences, and through participating in their respective research communities.
- Guidance and support to enable the development of PhD work into publishable form and secure their first peer reviewed articles.
- Time and assistance to define a research agenda, design new projects, and secure funding to enable it.
- Access to modest seed funding to build on doctoral work, or to explore new ideas.
- The ability to supervise future doctoral students of their own, in order to contribute to the research base of their departments.
- A supportive institutional context, where the institution and its senior academics seek to enable their progression, encourage research and foster collegiality and mentorship.

The paper further notes the importance of collaboration in its statement that

"there are clear opportunities, however, and a strong logic, for collaborative mechanisms to support this in the medium term, and longer term to foster continued links between research communities between and within regions. African universities, and their partner universities overseas, have much to gain from stronger links at early career level".

3. Project background and Relevance to University Missions

In 2007, the libraries at the University of Cape Town, University of KwaZulu Natal and the University of the Witwatersrand (Research Libraries Consortium, RLC) benefited from support by the Carnegie Corporation of New York to develop a new cadre of research librarians to support their institutions in their research challenges. In 2009, CCNY renewed the funding of the project for a further three years to include three additional partners, namely University of Pretoria, Rhodes University and Stellenbosch University. During the period 2007-2012, participants of the Research Libraries Consortium were challenged to proactively and critically assess existing services and support to researchers. The authors attended the first two-week residential academy programme

in 2007 and discussions centred around scholarly research practices, library and faculty collaboration, challenges in higher education and alternative research support services. Kaniki (2007) encouraged delegates at the Academy to support university authorities and researchers in research performance evaluation.

Early in 2008, the University of the Witwatersrand Library embarked on an initiative to provide citation analysis and bibliometric support to researchers applying for rating by the National Research Foundation (NRF). The NRF is an independent government agency in South Africa, promoting and supporting research in all fields of knowledge. The library consulted with the Research Office and National Research Foundation on the details needed for rating. Librarians were challenged to interact in new ways with two core databases, Scopus (Elsevier) and Web of Science (Thomson Reuters) and communicate results to researchers in a structured format. An initiative that started off as a pilot project to support researchers with their rating applications and submissions, led to further support in service delivery for promotions, appointments, internal review processes, research awards and grant applications.

The library's involvement in the above activities led to closer collaboration with various university units, for instance Strategic Planning Division, International Office, and Human Resources Offices, which previously had not been 'regular' customers of the library. From the outcomes of this development it became clear that researchers at the university would benefit from a more detailed and in-depth application of bibliometric data for research productivity and analysis purposes. The timely launch of two research analysis tools, SciVal from Elsevier in 2008 and InCites from Thomson Reuters in 2009, promised to complement and strengthen the library's existing bibliometric and citation analysis service to researchers. Having established a recognized service to support researchers and various university stakeholders, the library was ready to embark on further collaborations to implement new developments, skills and services to ensure new research measurement tools are deployed effectively to all sectors at the University.

Gannon-Leary (2008) reflected on the future role of the library relevant to the University of the Witwatersrand library initiatives: "What may be necessary however is for us to reorient our professional training and development, and probably on a more fundamental level, to rethink how we develop our leadership and strategic planning."

The Carnegie Corporation of New York also provided support to Makerere University, Kampala and the University of Ghana, Legon to improve their provision of library and information service to support research, teaching and learning in their institutions.

4. Collaboration among Five African Universities

In September 2010 Dr. Rookaya Bawa, Program Officer, Higher Education and Libraries in Africa and Manager, African Libraries Project, International Program, CCNY encouraged Wits Library to initiate a review of two research management tools, SciVal (Elsevier) and InCites (Thomson Reuters). The goal of the project was to provide five universities (three in South Africa, one in Ghana and one in Uganda) with a unique web-based research analysis tool to guide strategic decisions. An important precondition placed on the implementation of the project by CCNY was to encourage collaboration amongst the five institutions. Elsevier and Thomson Reuters were invited to present their respective research evaluation tools in October 2010 at the University of the Witwatersrand. Representatives from libraries and research offices from South African as well as neighbouring countries were invited. The National Research Foundation was also represented at the meeting. The purpose of the meeting was to:

- Create an awareness of the functionalities and application of SciVal and InCites.
- Determine the level on interest in acquiring a research analysis tool.
- Stimulate debate on the value of research analysis tools in the research endeavors of higher education institutions.

A proposal for the funding of the project was submitted and approved in 2011. The following five institutions were selected to add value to existing projects funded by CCNY: University of the Witwatersrand, University of Cape Town and the University of Pretoria in South Africa as well as Makerere University in Uganda and the University of Ghana, Legon. Financial and project management are being carried out by the University of the Witwatersrand. A consultative teleconference in April 2011 between CCNY and representatives from the respective institutions sought consensus on high level buy in. All the institutions appointed implementation teams with representatives from their research offices and library.

Participating institutions were particularly interested in the application of SciVal and InCites to:

- Demonstrate the impact and importance of institutional research output.
- Simplify the presentation of research performance over time and across scientific fields, focusing on specific topical areas or research thrusts.
- Pinpoint topical strengths.
- Identify leading researchers and institutions in each area.
- Optimize funding allocations.
- Assist in recruitment processes and research collaboration decisions.

5. Evaluation Process

The five participants of the project were invited to a follow-up presentation by Elsevier and Thomson Reuters. The vendors were requested to address specific focus areas for researchers and research administrators, including multidisciplinary research, collaboration, funding opportunities, national and global comparisons and institutional research performance. Each institution was required to evaluate SciVal and InCites using a selection of criteria relevant to their particular institutional needs. Trial access was allowed on both platforms to give participants the opportunity to explore the detailed applications of the tools.

The evaluation committee at the University of the Witwatersrand comprised librarians, research deans and representatives of the research office. The following focus areas were identified in the assessment of SciVal and InCites:

- Research students / scholarship office
    - Identify potential supervisors
    - Identify funding opportunities
- Researchers
    - Reports on grant details
    - Indication of the impact of research output
    - Comparisons of researcher performance within the institution
    - Identify potential collaborations
- Multidisciplinary research
    - Identify and analyze multidisciplinary areas of research excellence
    - Identify potential research teams
- School / Faculty / Senior Management / Research Offices
    - Create research performance profiles for individual researchers
    - Generate reports on performance indicators
    - Information to support recruitment, retention and promotion decisions
    - Identify potential funding opportunities
    - Determine areas of research strengths and weaknesses
    - Benchmark institutional performance nationally and globally and generate reports
    - Monitor collaborative research projects
    - Chart patterns of publication grant applications across the university and at individual researcher level
- Collaboration
    - Identify institutions and researchers for collaboration
- General
    - Potential institutional repository developments
    - Save / Download options and formats of reports

Further to the evaluation of the SciVal and InCites platforms, the selection committee also explored the Scopus and Web of Science databases which form the knowledge base of the two research evaluation tools. The following additional criteria were considered in the evaluation process:

- Optimize funding allocations
- Comparison of journal metrics used in Scopus and Web of Science
- Comparisons in the coverage of regional (African) and local (South African) indexed journal titles and a comparison of the increase of coverage from 2005 to 2011
- The total number or articles indexed under the university affiliation in Social Sciences, Arts, Humanities and Science.
- The difference in subject specialization used in Scopus and Web of Science
- Comparisons of the university's most cited researchers in Social Sciences, Arts, Humanities and Science
- Annual subscription costs

The findings and decision of the selection committee to subscribe to Thomson Reuters InCites were approved by the University Research Committee.

The outcome of the evaluation processes by the participating institutions was as follows:

- University of the Witwatersrand: InCites
- University of Cape Town: SciVal
- University of Pretoria: InCites
- Makerere University, Uganda: InCites
- University of Ghana: SciVal

6. Implementation, Training and Awareness

The University of the Witwatersrand obtained access to InCites in February 2012 following a joint effort with Thomson Reuters to reconcile affiliation variants in preparation of the university's dataset. The subscription will be subsidized on a declining scale where CCNY will support the full cost of the subscription in the first year, on a declining scale to 75 percent of the cost in the second year and 50 percent in the third year. Universities will be expected to assume the full cost of the subscription thereafter.

The marketing strategy at the university followed a 'top-down' institution based approach. InCites was presented to the university's Senior Executive Team, Senate Library Committee and Faculty Executive Committees to demonstrate the functionality and potential use of the tool. Further roll out to smaller committees with a vested interest in research productivity and evaluation is being planned.

Various training sessions have been scheduled as part of the project for librarians, researchers and the key role players involved in research evaluation

to optimize the applications of the research analysis tool. Collaborative meetings and workshops will be organised with participating institutions to develop and strengthen skills to support their research environments.

A workshop on bibliometrics and its applications in the academic environment will be held in each of the five universities. In addition to the bibliometrics workshops, each vendor is expected to provide training on the skills to utilize its research management tools. The training provided by vendors will be on the skills required in creating research metrics for the university, issues related to international competitiveness, collecting and interpretation of indicators and benchmarking. Participants at these workshops should include librarians, research office personnel, head of schools or departments, research deans and deputy vice chancellors for research.

Funding was also provided for a workshop on such topics as "pathways to research excellence" or "South-South research collaborations" to take place in year one of the project. The University of Ghana, Legon will host the workshop in September 2012. A final workshop will be hosted by the University of the Witwatersrand to include selected African universities with demonstrated research strengths. Dissemination of information was channelled via the university and library blogs, Facebook, e-mails and the university's internal news bulletins.

7. Evaluation Plan

Participating institutions will report on the qualitative and quantitative outcomes as well as awareness programs deriving from the implementation of the InCites / SciVal on an annual basis. Understandably CCNY would require evidence that supports the outcomes of their investment in the project. Research performance monitoring happens to a large extent at Research offices, Faculty and School levels where there are dedicated personnel involved in tracking research output. However, at the University of the Witwatersrand, it is anticipated that the assistance expected from librarians to extract needed reports to support strategic research decision-making will continue. The project is still in the early stages of the roll out but institutions are committed to the approach proposed by Webb (2007), who concluded: "We strongly support the model of the reflective practitioner, taking time to reflect on work not only after completion but also while it is in progress." The priority placed on the sustainability of the project by the library is heightened by the expectations of the institution's research community and the funding body of the initiative.

8. Conclusion

Libraries have critical roles to play in the aspiration of their universities for better results that lead to improved performance and international recognition.

Library collaboration efforts in South Africa have proved that libraries are well positioned to play a strong supporting role in the research performance evaluation and analysis of their institutions. From the outset of the collaboration initiative, it became clear that a project of this nature requires energetic library leadership and skills in relationship building to ensure successful

implementation. As the project is still in the early stages of implementation, a further investigation in the final stages in 2014 will reveal the exact application of InCites and SciVal in the university's internal research assessment and external comparative evaluations of research output.

It is envisaged that some of the outcomes of this collaborative project will include the leveraging of librarians skills and experience to position or reinforce the position of the library at the centre of the institution. This will enhance the visibility and recognition of the value of librarians within their institutions. This will involve re-skilling and the forging of collaborative relationships with colleagues in the research office. The project provides an opportunity for librarians to show that they can add value to their institutions.

References

Carnegie Corporation of New York. (n.d.). Higher Education and Libraries in Africa. Retrieved from: http://carnegie.org/programs/higher-education-and-libraries-in-africa/

Gannon-Leary, P., Bent, M. and Webb, J., (2008). A Destination or a Place of Last Resort. Library and Information Research, 32, 3-14.

Harle, J., (2009). The Nairobi Report: Frameworks for Africa-UK Research Collaboration in the Social Sciences and Humanities: African University Perspectives. The Association of Commonwealth Universities, London, UK. Retrieved from: http://www.acu.ac.uk/member_services/research_and_policy_analysis/africa_social_scie nces/strengthening_research#nairobi

Harle, J., (2011). The Nairobi Process: Foundations for the Future, Supporting the Early Careers of African Researchers. The Association of Commonwealth Universities, London, UK. Retrieved from: http://www.acu.ac.uk/view_news?id=131

Kaniki, A.M., (2003). Information Needs for Basic Research: an African Perspective. Symposium on Open Access and the Public Domain in Digital Data and Information For Science. UNESCO Headquarters, Paris, France, 10 November 2003. Retrieved from: http://www.nap.edu/html/openaccess/81-84.pdf

Kaniki, A. M., (2007). The South African Research Environment and the National Research Foundation. Presented at the Library Academy of the Research Libraries Consortium Funded by the Carnegie Corporation of New York, Mont Fleur, Stellenbosch, 16 – 22 September 2007.

Key Perspectives Ltd., (2009). A Comparative Review of Research Assignment Regimes in Five Countries and the Role of Libraries in the Research Assessment Process. Report commissioned by OCLC Research. Retrieved from: http://www.oclc.org/research/publications/library/2009/2009-09.pdf

Moed, H. F., (2010). Citation Analysis and Research Evaluation. Springer, Dordrecht, The Netherlands.

National University of Ireland. (n.d.). Measuring your Research Impact. Tutorial. Retrieved from: http://www.ndlr.ie/myri/MyRI_Tutorial/player.html

Pouris, A., (2007). The International Performance of the South African Academic Institutions: A Citation Assessment. Higher Education: the International Journal of Higher Education and Assessment, 54, 501 – 509.

Research Information Network. (2008). Ensuring a Bright Future for Research Libraries: A Guide for Vice-Chancellors and Senior Institutional Managers. Retrieved from: http://www.rin.ac.uk/our-work/using-and-accessing-information-resources/ensuring-bright-future-research-libraries

Salmi, J., (2009). The Challenge of Establishing World-Class Universities. World Bank, Washington, DC. Retrieved from: http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079956815/547670-1237305262556/WCU_summary.pdf

The Times Higher Education World Rankings 2011 – 2012. Retrieved from: http://www.timeshighereducation.co.uk/world-university-rankings/2011-2012/top-400.html

Webb, J., Gannon-Leary, P. and Bent, M., (2007). Providing Effective Library Services for Research. Facet publishing, London.