Scholarly Communication at the University of Botswana

Case Study Report

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Henry Trotter
Catherine Kell
Michelle Willmers
Eve Gray
Angelina Totolo
Thomas King

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Abbreviations

AG	Advisory Group
AGORA	Access to Global Online Research in Agriculture
APC	article processing charge
BCA	Botswana College of Agriculture
BIDPA	Botswana Institute for Development and Policy Analysis
BOTEC	Botswana Technology Centre
CC	content coordinator
CC-BY-SA	Creative Commons – Attribution and Share Alike
CERN	European Organisation for Nuclear Research
CESRIKI	Centre for Scientific Research, Indigenous Knowledge & Innovation
CET	Centre for Educational Technology (UCT)
CHAT	Cultural Historical Activity Theory
CHED	Centre for Higher Education Development (UCT)
CHET	Centre for Higher Education Transformation (South Africa)
Comm	Faculty of Commerce (UCT)
CRIS	current research information system
CS	civil society
CSIR	Council for Scientific and Industrial Research (South Africa)
DHET	Department of Higher Education and Training (South Africa)
DLIS	Department of Library and Information Studies (UB)
DOI	digital object identifier
DRPC	Departmental Research and Publications Committee (UB)
DVC	deputy vice chancellor
EC	European Commission
EIFL	Electronic Information for Libraries
EMS	enterprise management system
ERC	European Research Council
est.	estimated
EU	European Union
FHSS	Faculty of Humanities and Social Sciences (UNAM)
FoH	Faculty of Humanities (UB)
FoS	Faculty of Science (UoM)
FTE	full-time equivalent
GDP	gross domestic product
GER	gross enrolment ratio
GNI	gross national income
HEI	higher education institution
HERANA	Higher Education Research and Advocacy Network in Africa
HINARI	Health InterNetwork Access to Research Initiative
HoD	head of department
HOORC	Harry Oppenheimer Okavango Research Centre (now ORI)
HSRC	Human Sciences Research Council (South Africa)
HTML	hyper-text mark-up language
ICT	information and communications technology
IDRC	International Development Research Centre (Canada)
IF	Impact Factor
IMF	International Monetary Fund
int'l	international

IP	intellectual property
IR	institutional repository
ISI	Institute for Scientific Information
IT	information technology
JISC	Joint Information Systems Committee
JPG	Joint Photographic Experts Group
MIST	Ministry of Infrastructure, Science and Technology
NGO	non-governmental organisation
NHS	National Health Service (UK)
NIH	National Institutes of Health (USA)
NIHR	National Institute for Health Research (UK)
NRF	National Research Foundation (South Africa)
OA	open access
OARE	Online Access to Research in the Environment
OCS	Open Conference System
OJS	Open Journal System
OpenDOAR	Open Directory of Open Access Repositories
ORD	Office of Research and Development (UB)
ORI	Okavango Research Institute (UB) (formerly HOORC)
PALM	Publishing and Alternative Licensing Model
PDF	portable document format
PERii	Programme for the Enhancement of Research Information
PHEI	private higher education institution
PI	principal investigation
PLOS	Public Library of Science
PMS	Performance Management System
QA	quality assurance
R&D	research and development
RA	research assistant
RC	research coordinator
RCP	research and communication practice
REF	Research Excellence Framework (UK)
ROAR	Registry of Open Access Repositories
RSA	Republic of South Africa
RSS	really simple syndication
SABINET	Southern African Bibliographic Information Network
SADC	Southern African Development Community
SALDRU	South African Labour and Development Research Unit (UCT)
SAPSE	South African Post Secondary Education
SARUA	Southern African Regional Universities Association
SCAP	Scholarly Communication in Africa Programme
SDF	staff development fellowship (UB)
TEC	Tertiary Education Council
TEI	tertiary education institution
THE	Times Higher Education
TIFF	tagged image file format
UB	University of Botswana
UBRISA	University of Botswana Research, Innovation & Scholarship Archive
UCT	University of Cape Town

UNAM	University of Namibia
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISA	University of South Africa
URL	uniform resource locator
USD	United States dollar ($)
VC	vice chancellor
WoS	Web of Science
WSIS	World Summit on the Information Society
YRE	years of research experience

Project group

Programme management
Ms Eve Gray (Programme Lead)
Ms Michelle Willmers (Programme Manager)

Researchers
Dr Catherine Kell (Research Lead)
Mr Garry Rosenberg (Research Lead)
Mr Henry Trotter (Research Officer)
Ms Samantha Richmond (Researcher)
Mr Thomas King (Research Assistant)

Research site collaborators
Dr Angelina Totolo (University of Botswana Research Coordinator)
Dr Olugbade Oladokun (University of Botswana Content Coordinator)
Mr Motswaiso Motswaiso (University of Botswana Research Assistant)
Mr Retlaohan Motsemme (University of Botswana Research Assistant)

Dr Girish Kumar Beeharry (University of Mauritius Research Coordinator)
Ms Roumita Seebaluck (University of Mauritius Research Assistant)
Ms Helina Dookhee (University of Mauritius Research Assistant)
Mr Vinand Prayag (University of Mauritius Research Assistant)

Prof Kingo Mchombu (University of Namibia Research Coordinator)
Mr Wilson Yule (University of Namibia Content Coordinator)
Ms Ndeshi Namupala (University of Namibia Research Assistant)
Mr Jacob Jacques Mushaandja (University of Namibia Research Assistant)
Ms Johanna Absalom (University of Namibia Research Assistant)

Dr Thomas Bossuroy (University of Cape Town Research Coordinator)
Mr Lighton Phiri (University of Cape Town Content Architect)
Ms Alison Siljeur (SALDRU/DataFirst Technical Administration)
Ms Clare Hofmeyr (University of Cape Town Content Coordinator)

Advisory panel
Dr Alma Swan (Key Perspectives Ltd)
Dr Cameron Neylon (PLOS)
Assoc. Prof Laura Czerniewicz (University of Cape Town)
Dr Leslie Chan (University of Toronto-Scarborough)
Ms Piyushi Kotecha (Southern African Regional Universities Association)
Prof Sten Ludvigsen (University of Oslo)
Mr Tony Carr (University of Cape Town)

Consultants
Mr Francois van Schalkwyk (CompressDSL)
Ms Patricia Liebetrau (University of KwaZulu-Natal)
Dr Dale Peters (University of KwaZulu-Natal)
Mr Hilton Gibson (Stellenbosch University)

Project assistance
Ms Shirley Rix (UCT Centre for Educational Technology Administrator)
Ms Leigh Wentzel (UCT CHED Faculty Finance Officer)
Ms Ruth Andrews (Financial Administration)
Ms Candice Kotze (Financial Administration)
Ms Susan Jacobson (Travel Guru)
Ms Lara Sierra-Rubio (Data Processing)
Ms Jamy Felton (Data Processing)
Ms Renée Elworthy (Transcription)
Ms Yassira Abrahams (Transcription)

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Executive summary

The problem

African scholarly research is relatively invisible for three primary reasons:

1. While research production on the continent is growing in absolute terms, it is falling in comparative terms (especially as other Southern countries such as China ramp up research production), reducing its relative visibility.
2. Traditional metrics of visibility (especially the ISI/WoS Impact Factor) which measure only formal scholar-to-scholar outputs (journal articles and books) fail to make legible a vast amount of African scholarly production, thus underestimating the amount of research activity on the continent.
3. Many African universities do not take a strategic approach to scholarly communication, nor utilise appropriate ICTs and Web 2.0 technologies to broaden the reach of their scholars' work or curate it for future generations, thus inadvertently minimising the impact and visibility of African research.

Visibility in this context amounts to more than just "accessibility" – it means *digital* accessibility. It means that a scholarly object is profiled in such a way that makes it easily findable by search engines or databases through a relevant search string. Thus, it requires a communications strategy, one of the ingredients missing in many African universities' and scholars' approach to research dissemination.

A key way to enhance Africa's research visibility, reach and effectiveness is by communicating it according to open access principles. Making all African research outputs clearly profiled, curated and made freely available to the public would give African research a higher likelihood of not only shaping academic discourse because it would be more visible to scholars, but of getting into the hands of government, industry and civil society personnel who can leverage it for development.

This approach is already taking root in the global North. In the past few years, major funding bodies in the EU, the UK and the USA have legislated open access mandates, requiring that all research funded by them must be made open access. This will raise the visibility of those regions' research while (comparatively) lowering the visibility of Africa's research, which is not produced under a similar mandate.

However, most of the technologies required for engaging in open access communication are either already available at African institutions, freely available on the internet, or relatively inexpensive to purchase. Most also have access to the same free Web 2.0 technologies that allow individual scholars to enhance their scholarly profiles and collaborative opportunities. But these have not been incorporated into a strategic plan concerning scholarly communication, nor have enough African universities dealt with the skills and capacity challenges that new scholarly communication imperatives demand.

The research

The Scholarly Communication in Africa Programme (SCAP) was established to help raise the visibility of African scholarship by mapping current research and communication practices in four Southern African universities and recommending technical and administrative solutions based on experiences gained in implementation initiatives piloted at these universities. The universities that SCAP engaged were the:

- University of Botswana (UB)
- University of Cape Town (UCT)
- University of Mauritius (UoM)
- University of Namibia (UNAM)

Funded by the Canadian International Development Research Centre (IDRC), the three-year programme built on the findings of previous studies to address the particular challenges faced by African universities as they attempt to align their scholarly communication practices with rapidly evolving global standards in a manner that still reflects their core institutional values. The two questions driving SCAP's research were:

1. What is the current state of scholarly communication in (Southern) African universities?
2. How can the use of ICTs, technology platforms and open access publishing models contribute to the improvement of strategic scholarly communication, and what institutional structures are needed to support such an approach?

To answer these questions, SCAP conducted extensive research at our four partner institutions. At UB, we worked with the Faculty of Humanities (FoH) as our research and pilot site. Over the course of four site visits, we obtained information through "change laboratory" workshops (where pilot site participants analysed their scholarly communication ecosystems), surveys, interviews, day-recalls, conversations and ethnographic observation. These methods provided us with rich data for understanding communication activity at UB FoH.

This research was informed by Cultural Historical Activity Theory (CHAT), a methodology that encouraged us to view scholarly communication as occurring in an ecosystem, where a change to any element impacts all of the elements in the system. This allowed to us to approach these sites as historically dynamic and culturally complex systems, requiring us to understand them as comprehensively as possible before recommending interventions aimed at raising the visibility of their research outputs.

Research and communication practices

To understand the state of scholarly communication in the UB Faculty of Humanities, we explored FoH scholars' values, research production, outputs, communication practices, networks and collaboration preferences.

Values

We learned that, while UB FoH scholars are motivated to conduct research by both intrinsic and extrinsic factors (such as earning promotion, generating new knowledge and aiding national development), they are most highly motivated by UB's institutional mandate to produce it. This is because UB has historically been a teaching-oriented university where many of the faculty members (of whom the majority are over the age of 50 in the FoH) developed their academic identity according to a teaching mission. It has required a research mandate – ratified in 2008 – to push many scholars beyond their teaching-oriented activities. Also, for a variety of historical, cultural and practical reasons, the management plays an overwhelming role in defining UB's institutional culture. Scholars are comparatively sensitive to the directives given by the administration because these directives emanate from a source of substantial power.

However, while the institutional mandate has served to ramp up research production from a previously low base, it remains an open question whether a "research culture" can develop from such a top-down source of motivation.

Research production

Even with the mandate, UB FoH scholars say that they spend the majority of their time engaged in teaching-related activities while also shouldering significant administrative duties. This negatively impacts the amount of time they can devote to pursuing research projects, especially with any regard for quality and consistency.

Outputs

Nonetheless, UB FoH scholars produce a wide array of outputs (articles, books, conference papers, seminar papers, reports, briefs, etc.) which are recognised in the university's Performance Management System (PMS). These diverse outputs are aimed at local and international audiences, as well as scholars and non-scholars. This coincides with the fact that many faculty members produce outputs that are interpretive, derivative or applied, as opposed to original or empirical. This is often due to financial reasons (lack of funding), but it is also an inevitable feature of a scholarly communication ecosystem in transition from a teaching-oriented mission to a more research-oriented one.

Communication

While the UB FoH staff members have been slowly ramping up their research production to meet the standards required of a "research university", they have ben far less responsive to the changing communication opportunities that new ICTs offer for disseminating their work. For the most part, they confine their communication activities

to traditional modes, such as reading their papers at regional conferences, sharing drafts with colleagues who request copies, incorporating insights from their research into classroom teaching or submitting their articles for publication in journals. While the open access movement and availability of free online tools have radically expanded the opportunities for individual academics to profile their work on the internet and seek out collaborative partners, most UB FoH scholars have yet to take advantage of them.

This means that UB FoH scholars typically do not have a strategic dissemination plan that leverages the online platforms that would give greater visibility to their outputs. Nor are they encouraged to do so by UB, as they receive no rewards or incentives for publishing in open access journals or making their work available on UB's institutional repository (IR). One of the consequences of this is that UB research often does not reach audiences that could most benefit from it, such as government, industry or civil society.

Networks and collaboration

Moreover, UB FoH scholars do not network, collaborate or share much with each other. This is largely due to the fact that they lack the seminar series platforms for sharing their work with colleagues; they lack the time to prepare research presentations for collegial engagement; and many worry that their ideas might be "stolen" by their colleagues. They prefer, rather, to share their work at regional conferences where they're able to meet with internationals who share their research interests.

While some of these face-to-face interactions at regional conferences lead to research collaboration, they do not do so as often as FoH scholars would like. They find that they face significant financial and practical obstacles in pursuing research collaborations with African partners, thus they often end up collaborating with Northern-based research projects that are looking for someone from Africa to partner with them. UB FoH scholars find it easier – for financial and practical reasons – to collaborate with scholars in the global North than in Africa.

Policy

National and institutional policies also play an important role in shaping UB FoH scholarly communication practices. Nationally, the Botswana government has created an integrated set of development policies to help transform the country into a more diversified knowledge-oriented economy. They seek to do this by embracing technology, innovation, research, collaboration and connectivity. While these policies do not deal directly with scholarly communication per se, the government hopes that they will be broadly accessible to the national populace.

UB's Research Strategy is closely aligned with these national policies and includes useful strategies for rewarding research production. However, due to a challenging transition in the vice chancellor's (VC) office (which has impacted strategic engagement by the administration) and certain internal inconsistencies within the various policies (most of which were rolled out in 2008), many UB policies have been articulated without being properly implemented.

Open access

UB has incorporated an open access ambition in its Digital Repository Policy while the Office of Research and Development (ORD) provides financial support for the payment of scholars' article processing charges (APCs). Considering that this does not exist at many southern African universities, UB is a leader in this regard. However, this open access (OA) ambition is not reinforced in the Research Strategy or the PMS, the two most important policies regulating scholarly research and communication activity. Currently there is no reward or incentive given for scholars who publish in an OA fashion or submit their outputs to the institutional repository. Essentially, UB supports OA dissemination in one policy, but not the other policies that shape academics' behaviour. This dampens UB scholars' interest in sharing their research openly and confuses administrators as to which policy they should focus on implementing.

Rewards and incentives

The university's rewards and incentive structure – expressed in the PMS – successfully balances the university's desire for scholars' research to aid national development, secure international recognition and reach a broad national audience. It is successful in the sense that it awards points (for annual assessments and promotion) for multiple output types (articles, reports, etc.) that can reach multiple audiences and be leveraged for a variety of purposes. However, while this is useful for increasing the "production" of research that could achieve these goals, it fails to tie these in with strategic (open access) "communication" mechanisms that would assure that these outputs are available for international and local audiences to access.

Institutional culture

This disjunct emanates from an institutional culture at UB that is best described as "managerial", in that there is a strong, centralised authority (which has grown quite large over the years) that wields power in a paternalistic, top-down fashion. This concentration of power has been useful in helping to speed up the process by which the entire institution falls in line with the new research mission and the open access ethic that the administration has partially embraced. Without such a strong central authority to elaborate its vision in detailed policy documents, these processes would take a lot longer.

However this managerial approach has also bred resistance by faculty members who feel that their voices are not being heard by the administration. Many believe that the various initiatives that the management is pushing – such as the IR and OA – are for the glory of the administration, not the benefit of the academic staff. This means that, even good ideas lose credibility if the process by which they were initiated is viewed cynically.

Research culture

This coincides with a university research culture that is relatively nascent. While a number of individual academics have enjoyed years of research experience, many others have focused almost exclusively on the teaching enterprise. Moreover, the university has only recently committed to becoming a research-oriented institution, which makes the

current period something of a transitional one. But according to scholars, other factors also contribute to this state of affairs, such as the fact that: scholars do not share their work with each other very often due to fears of intellectual theft and the heavy teaching loads that occupy most of their time; academics are expected to spend their work hours in their offices rather than, say, out in the field conducting research; and it is difficult to get funding for researching "risky topics" (a point that speaks to the kind of intellectual environment created by narrow funding opportunities).

Infrastructure and capacity

The government's vision for a knowledge economy requires a functional, modern, ICT-based infrastructure that can be utilised by an educated population. Tertiary education plays an important role in this vision, as institutions such as UB are tasked with capacitating large numbers of knowledge workers.

Skills and capacity

As the university takes on more of a research mission, UB scholars and librarians understand that they need to adjust their priorities. Scholars say that they would benefit from training in how to publish materials online, in books, in journals and in an open access fashion. UB librarians say that they need to continue receiving training to keep up with changing scholarly communication trends. But, at the time of writing, UB was highly reliant on the library staff to promote new forms of scholarly communication even though they were not quite prepared for that role, as many were educated to be "traditional" librarians, dealing with paper materials and rigid classification procedures. The move to digital and open processes has upended the certainties of the field, requiring a new strategy and set of skills for leveraging human capacity at the university.

Implementation initiative

With the insights above gained largely through our research efforts, SCAP implemented an intervention focused on piloting a quality assurance (QA) process that would help with assessing and profiling alternative research outputs via the IR. This was a process that had been envisioned by the UB management, but which had yet to be implemented. We hoped that this process would be able to serve as model for similar QA efforts in other departments. Some of the insights we gained from the initiative were that:

- Most UB FoH scholars feel virtually no incentive to submit their outputs to the IR, a fact which determines the amount of energy scholars are willing to expend in revising outputs that have gone through a QA process: where small revisions are required, scholars will make the effort; but for large revisions, they will not.
- Scholars must be given financial, temporal or symbolic incentives for submitting their outputs to the IR. They must be rewarded for publication *and* dissemination.
- Academic departments can serve as powerful quality assurance entities, even opening a space for structured mentoring between senior and junior scholars.
- The UBRISA management team does not have the time, resources, incentives or capacity (yet) to run the IR in an efficient and responsive manner.

Recommendations

Based on the insights yielded by the research and implementation activities above, SCAP believes that four stakeholders can play a key role in improving UB's dissemination activity, to whom we offer the following recommendations:

To the national government

Establish a national research foundation so that scholars can seek local funding from more sources than just the UB research budget.

Design a virtuous research funding cycle in which, for each recognised output produced by a scholar and disseminated in an open access fashion, funds are directed into that scholar's faculty research budget to spur further research activities.

To the UB administration

Mandate that all publicly funded research be made open access.

Continue to grow the university research budget.

Establish or identify support service providers who can translate scholars' research for government and community-based audiences.

Offer a reduction in teaching time to scholars who demonstrate ambitious research activity and *reduce administrative duties for academics – such as registering students and invigilating exams – to an absolute minimum.*

Train and incentivise scholars to use Web 2.0 platforms so that they can share in the responsibility of making their own research more visible.

Continue to invest in training for library staff so that they can operate effectively in the new scholarly communication paradigm.

Establish digital platforms for sharing publication success by UB scholars.

Base performance assessments on what scholars deposit or profile in UBRISA.

Induce academic staff to create personal profiles on their departmental web pages.

Expand the piloted QA workflow process to more departments.

Collaborate in the construction of short-term regional exchanges for administrators and librarians.

To UB scholars

Share responsibility with the administration for research visibility. Communicate research findings to the audiences that could best leverage it for developmental purposes.

To research funding agencies

Determine the feasibility of developing a regional megajournal.

Chapter 1.
Programme overview

The Scholarly Communication in Africa Programme (SCAP) was established to help raise the visibility of African scholarship by mapping current research and communication practices in four Southern African universities and by recommending and piloting technical and administrative innovations at these sites based on open access dissemination principles.

SCAP was founded with the understanding that African scholarly research is relatively invisible for three primary reasons:

1. While research production on the continent is growing in absolute terms (Metcalfe, Esseh & Willinsky 2009; Mouton 2010; Tijssen 2007), it is falling in comparative terms (especially as other Southern countries, such as China,[1] ramp up research production), reducing its relative visibility.
2. Traditional metrics of visibility (especially the ISI/WoS Impact Factor)[2] that measure only formal scholar-to-scholar outputs (i.e. journal articles and books) fail to make legible a significant amount of African scholarly production, thus under-estimating the amount of research activity on the continent.
3. Many African universities do not take a strategic approach to scholarly communication, nor utilise appropriate ICTs and Web 2.0 technologies to broaden the reach of their scholars' work or curate it for future generations, thus inadvertently minimising the impact and visibility of African research.

The first challenge listed here speaks to a global phenomenon that is defined by macro-level disparities in resources, infrastructure, capacities and population sizes. These disparities help make sense of Africa's various higher education predicaments, but they cannot be changed by a small research project such as SCAP. Thus, while the SCAP team

[1] Juliana Chan (2011) Asia: The growing hub of scientific research, *The Asian Scientist*, 3 April 2011. Available at: www.asianscientist.com/features/asia-future-hub-scientific-research/

[2] The Impact Factor – a metric devised by the Institute for Scientific Information (ISI) in the 1960s and now maintained by the Thomson Reuters Web of Science (WoS) – purports to measure the "impact" of a journal within a given academic field and, by proxy, suggest an evaluation of the relative impact of the articles published within it. The Impact Factor is a number representing the average number of citations that a journal's articles collectively receive during a two-year period. Thus if the impact factor for a journal in 2011 is 4, then the articles published in that journal in 2009 and 2010 collectively averaged four citations each in 2011.

was always cognisant of this overriding context that structured the scholarly communication possibilities in Africa, we did not focus on tackling them, but rather on the latter two challenges, which were located in our sphere of influence.

The second challenge – concerning scholarly visibility metrics – is also a global phenomenon, but largely confined to the academic community and a matter of intense debate. Traditional scholarly metrics are under threat by funders, research assessment officers, open access publishers and alternative metrics advocates who seek to utilise the capacity of Web 2.0 platforms to gain a more accurate and comprehensive sense of the impact that a scholarly output has (beyond the blunt journal citation aggregations that WoS provides). Because many scholarly outputs from Africa are not published in WoS-listed journals – but rather in a plethora of other outlets – they do not get measured in the prestige-based indices that render so much of African research (including reports, briefs, conference papers, seminar presentations, consultancy work, etc.) invisible.[3] The conclusion that many analysts draw from this is that no research of value is taking place on the continent – an inappropriate conclusion given the limited perspective it provides of African research production. Therefore, in our effort to raise the visibility of African research, we advocated for scholars worldwide to use a more comprehensive, precise and "complementary" set of metrics than those currently used to assess scholarly visibility.

The third challenge – concerning the lack of strategic engagement with scholarly communication by African universities – was the main issue that SCAP hoped to change. This is a challenge located largely within the boundaries of the continent, the product of choices and priorities by African governmental ministers, university managers and academics. As a research and implementation initiative located in Africa, committed to locally appropriate solutions, SCAP decided to intervene at this level where we could have the greatest effect. It was our belief that if we could research and advocate a more strategic approach to scholarly communication, we could not only raise the visibility of Southern African research, but also offer a model to other African universities seeking to do the same. This would be based on strategic policy innovations, open access principles and Web 2.0 ICT platforms.

The universities that SCAP engaged were the:

- University of Botswana (UB)
- University of Cape Town (UCT)
- University of Mauritius (UoM)
- University of Namibia (UNAM)

[3] Mouton (2010: 8) states that "international publication in the ISI-journals (19,154 articles for the total period 1990–2007) only constitutes about one third of total social science scholarship in the [Southern African] region." This corresponds with the ratios given by UNAM in a recent research report that says, "the year under review has seen a total output of 394 publications from the University, 23% of which are peer-reviewed journal articles and 11% are books and book chapters" (UNAM 2009: 6), meaning that 66% of outputs were "other" types (2009: 9), guaranteed to be invisible according to the ISI/WoS index. This high production ratio of non-indexed materials in the region is discussed in more detail in Chapter 5.

Scholarly in/visibility

Scholarly communication comprises a broad range of activities "including the discovery, collection, organisation, evaluation, interpretation, and preservation of primary and other sources of information, and the publication and dissemination of scholarly research" (Cullyer & Walters 2008: 1). In this report, it will largely focus on the communication activities necessary for research collaboration and output dissemination. However, the effectiveness of this communication – especially output dissemination – is shaped by the fact that audience attention is a scarce resource. There are more scholarly outputs produced than can be equally engaged by the academic community, meaning that scholarly outputs are in a state of competition with each other, with some achieving greater "visibility" than others.

According to Abrahams, Burke and Mouton (2010: 22), "visibility is comprised of a number of features including visibility of authors and content through abstracting and indexing databases, through availability in library collections, through web-based publishing, and visibility of research performance as measured through various bibliometric measures such as citation counts and impact factors." It is not simply publication in a journal listed by the Thomson Reuters WoS, which has for a long time been the standard by which visibility is assessed. Rather:

> *Visibility of scholarly communication means that specific knowledge and authored works can be discovered because they are traceable. More importantly, in this regional context, visibility means that research on subjects and themes of local interest should be made public in ways that will enable the relevant actors (researchers, students and development practitioners) to easily identify local research that can be a valuable contribution to society, whether for future knowledge production or for development practice.* (Abrahams, Burke & Mouton 2010: 22–23)

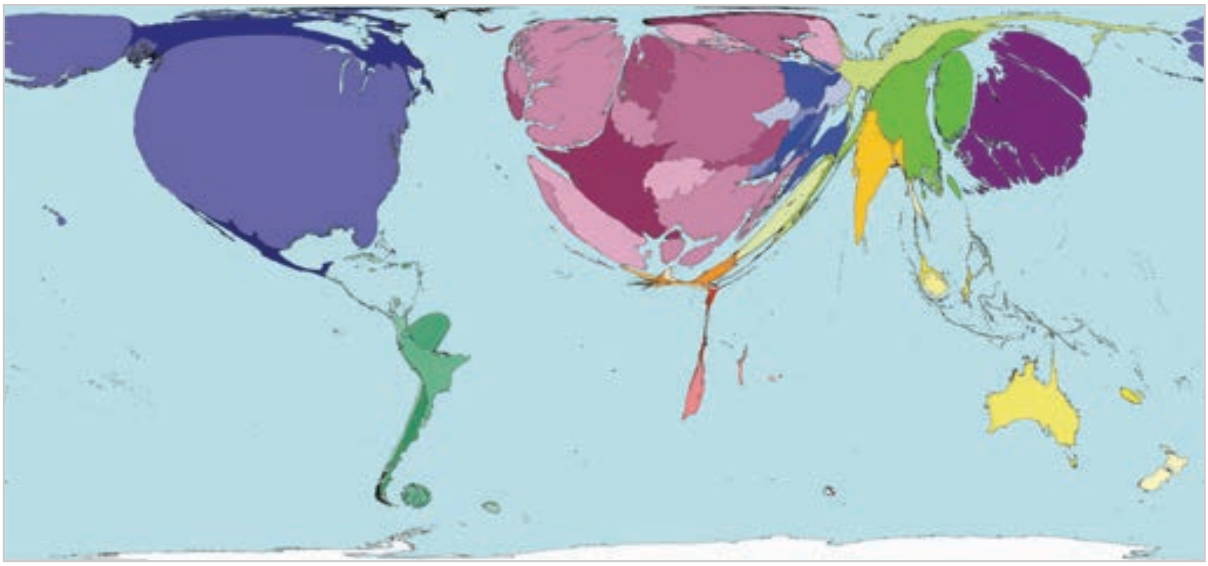
This means that visibility amounts to more than just "accessibility" (such as when an object is available in hard copy at a university library). It means *digital* accessibility. Moreover, it means that a scholarly object is profiled (usually through metadata) in such a way that makes it easily findable by search engines or databases through a relevant search string. Without such metadata, or without the object shared in a format that allows crawlers to search its text (such as PDFs and HTML pages rather than TIFFs and JPGs), then the digital object remains virtually invisible. In those cases, it is technically accessible, but essentially invisible because it is not locatable using standard searching procedures. Thus, visibility requires a communications strategy, one of the ingredients missing in many African universities' and scholars' approach to research dissemination.

This lack of strategy is partially responsible for the disorienting image in Figure 1.1 which visually represents the relative contributions made by each country to global scientific research output as published in ISI-listed journals (in 2001). The fish-eye effect of this perspective squeezes the massive African continent down to the size of a narrow peninsula, thus begging for explanation. However, this startling representation is indicative not of the absence of research activity per se, but of the continent's lack of

representation in "international" journals and its inefficiency at disseminating research findings in a more strategic, representational manner. As Tijssen (2007: 307) points out:

> *It is important to keep in mind that these diminishing shares of African science do not reflect a decrease in an absolute sense, but rather an increase less than the worldwide growth rate. During the last 15 years, African output has in fact risen by 38%, up to some 46,000 articles in 2001–2004.*

Figure 1.1 Representation of global scientific output, by proportion of ISI article production[4]



Chan, Kirsop and Arunachalam (2011: 1) further caution against an over-simplified reading of this cartographic representation, in that "this inequity has led to the misguided notion that little, if any, research of substance is generated in the global South, and that the needs of researchers in poor countries are therefore met solely by information donation from the North."

However, given that this map is based on data from 2001, it likely shows Africa in a "thicker" visual profile than if the numbers were current. It does not account for the explosion of research production from places like China, which would render Africa's profile even "skinnier", despite the continent's absolute increase in high-rated scientific publications.[5] Thus the challenges regarding Africa's visibility remain a persistent concern even as scholarly communication trends evolve.

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[4] The map illustrates the relative proportions of ISI-rated scientific papers published per million people in 2001. This covers articles in physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering, technology, and earth and space sciences. The number of scientific papers published by researchers in the USA was more than three times greater than the number published by the second-most-publishing nation, Japan. Source: www.worldmapper.org/display.php?selected=205 [accessed 2 September 2010]. Image copyright SASI Group (Univ. of Sheffield) and Mark Newman (Univ. of Michigan). Permission has been granted to reproduce this figure under the terms of the Creative Commons Attribution License.

[5] This particular Worldmapper image has not been updated since 2001 according to Professor Mark Newman (private communication), one of the creators of the map. Other evidence that we have drawn from Tijssen (2007) and Mouton (2010) suggests that an updated map would make Africa appear even less visible. Indeed,

Furthermore, as Mouton (2010: 6–7) explains:

> *The ISI-journals have a distinct Anglophone bias which leads to poor coverage of Francophone and (to a lesser extent) Lusophone countries in SSA [sub-Saharan Africa]. In addition the ISI's coverage of small journals in developing countries is not good. The latter is a result of the policy of the ISI to include only the highest impact journals in the world which means that many journals in the developing countries (which have small circulation lists and hence restricted readerships) are thereby automatically excluded. All of this means that a significant proportion of African social science is simply not visible in international indexes.*

Hence, because so much African scholarship remains outside of the ISI/WoS index, and because continental institutions and scholars have not applied a cohesive or strategic approach to disseminating outputs, "there is a preponderance of unpublished research, including conference and advocacy papers, technical and consultancy reports, theses and dissertations ('grey' literature) which is not easily accessible because it is generally not held in university libraries or available online" (Abrahams, Burke & Mouton 2010: 29).

Of course, institutions around the world face new imperatives to increase investment in research production and knowledge management. For research institutions, this means adapting a strategic focus on content curation and profiling so as to boost institutional reputation, remain competitive in global institutional rankings, provide support services that academics rely on to conduct research and collaborate internationally, and maintain compliance with grant funder mandates.

For African research higher education institutions (HEIs) there are additional pressures for developing scholarly communication practice and ramping up the institutional content curation effort. For instance, faced with limited research grant funding and constrained by international publishing opportunities, African HEIs must choose whether they want to support local (particularly niche) research by making outputs from that effort freely and openly available. Doing so would encourage the production of local scholarship and ensure that African scholars have access to locally relevant content by authors embedded in the context. But failing to do so would wither nascent research buds on the continent, forcing greater reliance on externally produced research. As Abrahams, Burke and Mouton (2010: 24) point out:

> *Students, researchers and practitioners are likely to cite and utilise authored works from abroad over work from the region because of high versus low visibility in particular areas of study, such as in genetics, education and environmental engineering, where research output is particularly low. Thus, low visibility and low accessibility are major factors in slowing down research production on the sub-continent, thus limiting the application of knowledge for development purposes.*

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due to its comparatively low level of outputs in ISI-rated journals, Africa is often lumped into a "rest of the world" category in various research impact reports. (See for instance the National Science Foundation's *Science and Engineering Indicators 2012 Digest* section on "Research Outputs: Publications and Patents" at: www.nsf.gov/statistics/digest12/outputs.cfm#1)

The need for research to address development is not unique to the African context, but the links between dissemination, innovation and development increase the imperative (and prospective return) for African universities to profile and curate their own research. In line with this approach, the knowledge production enterprise funded by taxpayers needs to move beyond a "closed" academic enterprise (in which knowledge exchange typically happens on a scholar-to-scholar basis by means of the traditional journal article or book chapter) to an "open" exchange process that includes scholar-to-community and scholar-to-government activities (utilising a broad range of content formats and genres).

Open access for development

A key way to enhance the visibility, reach and effectiveness of African research is by communicating it according to open access principles. By "open access", we mean that scholarly research outputs are made freely available:

> *on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles [and other output types], crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.* (BOAI 2002)[6]

Making all African research outputs clearly profiled (through metadata), curated (on stable digital platforms) and freely available to the public (at no cost to the user) would give African research a higher likelihood of not only shaping academic discourse because it would be more visible to scholars, but of getting into the hands of government, NGO, industry and civil society personnel who can leverage that research for economic growth and development.[7]

According to Chan, Kirsop and Arunachalam (2011: 1), the growing volume of open access resources "provides a far greater degree of freedom for researchers to exchange and collaborate, for knowledge to be translated into useable forms by frontline health workers, and for emerging technologies such as text mining and semantic tagging for faster knowledge discovery to be used." Moreover, research shows that open access publication increases the likelihood that a scholarly output is both read and downloaded at a higher rate than non-open access publications (Gargouri *et al.* 2010).

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[6] A number of groups and organisations – in Budapest (2002), Bethesda (2003) and Berlin (2003) – have defined open access from slightly different perspectives. For a useful discussion of open access, see: Suber (2012); Peter Suber's "Open Access Overview" available at: http://legacy.earlham.edu/~peters/fos/overview.htm; and the OASIS (Open Access Scholarly Information Sourcebook) article, "Open Access: what is it and why should we have it?" Available at: www.openoasis.org/index.php?option=com_content&view=article&id=130&Itemid=390

[7] For example, "The publicly funded Human Genome Project and its freely reusable data generated a massive 141-fold return on investment in economic returns alone [and] 30% more new clinical products than the privately funded, closed genome-sequencing project of the US biotech firm Celera Genomics" (Neylon 2012).

However, at the moment, "many research publications by African researchers, especially those focused on domestic or regional African issues and problems, are not accessible through the modern ICT facilities" (Tijssen 2007: 324). Furthermore, "multiple stakeholders including university presses, libraries, and central IT departments are challenged by the increasing volume and the rapidity of production of these new forms of publication in an environment of economic uncertainties" (Harley 2008: 2).

This means that African universities – many of which are only now beginning to develop research agendas of their own – must also establish new capacity, processes, governance structures, business models and policy frameworks for open access communication. This is not a trivial matter, nor is it easily achieved. Yet despite the burden that a move to a strategic engagement with open access would mean for most African universities, SCAP remains convinced that it must proceed.

Consider the broader open access context in which African scholars must chart their path: in the past few years, major funding bodies in the EU, the UK and the USA have legislated open access mandates, requiring that all research funded by them must be made open access (see Chapter 4 for more details on funder mandates). This will raise the visibility of the North's own research outcomes while (comparatively) lowering the visibility of Africa's research, which is not produced under a similar mandate. The flood of research that will emerge from the North will further marginalise the relatively small volume of outputs coming from Africa. This research will not only be openly shared, but will be curated and described with metadata, making content interoperable, searchable and indexable at unprecedented levels.

These global developments – which will likely be matched in other parts of the world soon – require urgent action from African institutions. SCAP believes that this marks an opportunity for African universities to move beyond playing "catch-up" with the North to leveraging new technologies and approaches to address local ambitions while participating in the international scholarly landscape.

Technology and capacity

Africa's response to this changing communications environment will require not only strategic dissemination policies and open access publishing practices, but appropriate use of new technologies that are reshaping the scholarly communication environment. The advances in ICTs over the past years – such as broadband internet, Web 2.0 platforms and inexpensive digital storage devices – have transformed scholarly communication, yet, to date, many ICT innovations have failed to act as an equalising force in academic collaboration and contribution on the continent. In some ways, they have reinforced familiar global inequalities that resemble a "digital divide" (Fuchs & Horak 2008) between the visible and the invisible.

However, this need not be the case in the future. Most of the technologies required for engaging in open access communication and visibility-raising dissemination are either already available at African institutions, freely available on the internet, or relatively inexpensive to purchase. For instance, many African universities possess high-resolution

scanners, institutional repositories, websites, computers, servers and access to the internet. They also have access to the same free Web 2.0 technologies[8] – such as Academia.edu, ResearchGate, Mendeley and FigShare – that have allowed individual scholars elsewhere to enhance their scholarly profiles and collaborative opportunities. The problem is that these have not been incorporated into a strategic plan concerning scholarly communication. They have been utilised in an ad hoc fashion, often the pet project of a lone innovator, but not part of a systematic approach to an institutional issue. Thus the solution is not simply to have "access" to current technologies, but to have a plan for how to use them.

Moreover, the incorporation of new ICTs into an existing scholarly ecosystem requires the skills and capacity to support and maintain them. This is often lacking at African universities where training efforts focus on other aspects of a job (such as book cataloguing for librarians rather than DSpace metadata capturing of alternative outputs). It is also due to a lack of funding to hire and train new people.

Thus, each of these elements is important for raising the visibility of African scholarship: an open access dissemination strategy, access to and use of Web 2.0 technologies and the human capacity and skills to use them. Each of these exists within reach of most African universities, but only if they are made a priority. The SCAP project was initiated to help achieve that.

Project description

Funded by the Canadian International Development Research Centre (IDRC), the three-year SCAP programme, which commenced in 2010, built on the findings of a number of previous studies and interventions[9] to address the particular challenges faced by African universities as they attempt to align their scholarly communication practices with rapidly evolving global standards in a manner that reflects their core institutional values.

SCAP was a research and implementation initiative that sought to demonstrate, through the use of case studies and the development of a research evidence base, the financial, institutional and technical feasibility of universities in Southern Africa to assume greater responsibility for publishing their research in an open manner. Its central aim was to increase the visibility of African research and scholarly communication.

The primary question driving SCAP's research was:

> *What is the current state of scholarly communication in (Southern) African universities?*

[8] Web 2.0 (or Web 2) in the context of this project refers to advanced internet technology and applications such as blogs, wikis, social networking, bookmarking and RSS (Really Simple Syndication) feeds. These technologies are commonly associated with web applications that facilitate interactive information-sharing, interoperability, user-centred design and collaboration.

[9] At the local level, these included UCT Centre for Educational Technology projects funded by the Shuttleworth Foundation in the period 2006 to 2009, namely the OpeningScholarship project and the UCT Open Educational Resources initiative, as well as other initiatives such as the IDRC-funded PALM Africa project. At the regional level, the programme was strongly informed by prior research and networking activity of the Southern African Regional Universities Association (SARUA) and the activities of the IDRC Open African Innovation Research and Training (OpenAIR) intellectual property research programme.

To answer this, SCAP visited each partner university four times over the course of two years in order to conduct interviews with scholars, librarians and managers, and to gather data through seminars, "change laboratory" workshops and surveys (a process discussed in detail in Chapter 2).

A secondary question driving our research was:

> *How can the use of information and communication technologies (ICTs), technology platforms and open access publishing models contribute to the improvement of strategic scholarly communication, and what institutional structures are needed to support such an approach?*

To answer this, SCAP engaged in a series of institution-based implementation initiatives at each pilot site, stimulating the research environment and observing the results (discussed in detail in Chapter 6).

The specific objectives of the project were to:

1. Map the current status of research dissemination in four selected universities from four Southern African countries.
2. Understand the policy, ICT infrastructure and administrative support systems needed to integrate scholarly publishing and dissemination at these universities.
3. Work with partners from selected universities to support the use of open source platforms that could interface with outputs such as journals, books and conference proceedings.
4. Build capacity in managing and sustaining an integrated scholarly communication system.
5. Explore the costs and benefits resulting from open access communication.
6. Develop complementary metrics that could align quality concerns, recruitment, recognition and rewards systems in order to promote greater access to knowledge.
7. Engage with institutional and governmental policymakers to raise the visibility of African research.

SCAP was originated in response to the need to grow the profile and global competitiveness of African research output. The project's primary concern was with dissemination out of universities, rather than issues around building research capacity. That said, it acknowledged the intrinsic link between research processes and communication, and the importance of examining current scholarly communication policy, practice and infrastructure against the institution's wider cultural historical context.

The complex nexus of issues and the interrelationships between low research productivity, declining annual national expenditure on research and development, and other national and regional factors affecting scholarly productivity has been documented in other studies, such as those by Abrahams *et al.* (2008), ASSAF (2006), Bailey, Cloete and Pillay (2011), Cloete, Bailey and Maassen (2011), Habib and Morrow (2007), Harle (2010), Kotecha, Walwyn and Pinto (2011), Kotecha, Wilson-Strydom and Fongwa (2012), Mouton (2010) and Mouton *et al.* (2008). The SCAP research and implementation process built on this complex-systems approach seeking not only to

understand institutional scholarly communication activity systems across micro (department/faculty/unit), meso (institutional) and macro (national/regional) levels, but also to grasp how these systems have been shaped by historical factors over time.

SCAP operated on the assumption that although African higher education environments faced a myriad of challenges, there was an opportunity to increase the production and visibility of scholarly outputs in Africa through the use of Web 2.0 technologies, digital publishing and curation platforms, and confederated computing and content hosting structures.

But before these opportunities could be harnessed, each institution's scholarly communication ecosystem had to be described, analysed and understood – a process necessitating significant research (the results of which are discussed in Chapter 5). It also required an ambitious advocacy component that required us to engage with university scholars, librarians and managers, as well as other higher education stakeholders in government and civil society.

This report shares the results of SCAP's research and advocacy efforts, describing not only the scholarly communication ecosystem that currently exists at this partner institution, but the opportunities available for raising the visibility of its scholarship. It concludes with a discussion of our research findings and a series of recommendations – aimed at the national government, university management, university academics and research funding agencies – that we believe would enhance the communicative and developmental potential of the university's research.

Chapter 2.
Project components and methodology

The SCAP programme arose from an 18-month scoping process that took place in 2008/2009 under the direction of Eve Gray, an African scholarly communications and open access expert (Gray 2006, 2010; Gray & Kahn 2010; Gray, Trotter & Willmers 2012). Hosted jointly by the Centre for Educational Technology and the Research Office at the University of Cape Town, SCAP was launched in March 2010.

Selection of pilot sites

One of SCAP's first tasks was to identify the three other universities – along with UCT, SCAP's host institution – to participate as partner sites. Though SCAP hoped that our work would be able to impact the discourse on scholarly communication throughout Africa, for practical (financial, logistical and linguistic) reasons, we decided to focus our research on universities in the Southern African Development Community (SADC) region. Through a collaborative process with the Southern African Regional Universities Association (SARUA),[10] SCAP assessed potential university partners against a series of criteria such as level of research engagement, history of dissemination activity, as well as other characteristics such as size and language.

The four institutions in the SCAP sample happened to be in the most research-productive countries in the SADC region according to the Thomson Reuters ISI indexes. As Mouton *et al.* (2008) show, South Africa is the most productive country in the region, producing an average of 80% of all output in SADC for the period 1990–2007 (119 papers per million of population compared to the regional average of 29 papers per million). Botswana was the second most productive country, with 96 papers per million, while Mauritius and Namibia were the only other two countries with productivity levels above the regional average.

[10] SARUA is a regional higher education and vice chancellors forum operating in the SADC region with a strong open access strategic focus. See: www.sarua.org/

Table 2.1 Ranking of SADC countries in terms of ISI papers per million of the population (2007)

Country	Total population millions (2007 est.)	ISI papers (2007)	Papers/million of population
South Africa	47.0	5,505	119.3
Botswana	1.8	172	95.5
Mauritius	1.2	47	39.1
Namibia	2.0	70	35.0
Zimbabwe	12.3	251	20.4
Swaziland	1.1	18	16.4
Malawi	13.6	209	15.4
Zambia	11.5	155	13.5
Tanzania	39.3	492	12.5
Madagascar	19.4	150	7.7
Lesotho	2.1	13	6.2

(Source: Mouton *et al.* 2008)

Despite concerns about the value of the ISI system (which we detail in Chapter 3), these indicators were useful in terms of categorising the study sites in relation to other SADC higher education institutions (HEI) and their apparent research productivity. The fact that SCAP was working with the four most research-productive HEIs in the region meant that we could explore correlations between size, output productivity and capacity in determining how feasible it was for regional institutions to profile the knowledge they produce. Though many differences exist between SADC institutions, if the most productive of these faced visibility challenges, then it stood to reason that the others would face similar problems, perhaps even more acutely.

Once the universities of Botswana, Mauritius and Namibia were nominated, SCAP reached out to their vice chancellors to propose a partnership. We sought to obtain senior management's mandate to engage with its academic community and to create the necessary buy-in for us to research this community's scholarly activity. Institutions were invited to designate research coordinators (RCs) – senior academics with an interest in open access practices – who would facilitate identification of pilot sites within the institution and to appoint research assistants to assist with data collection and other project work.

We believed that it was not feasible, given time frame and resource constraints, to research the scholarly communication practices of academics throughout the entire university; therefore we focused on pilot sites that were (hopefully) to act as microcosms of the institution, allowing us to extrapolate lessons learned and recommendations for sharing with the rest of the institution – and to other African institutions.

We realised that scholarly communication in these contexts would be impacted by varying institutional, disciplinary and cultural norms; we therefore always tried to

remain clear as to which structural forces were doing the most to shape a particular activity. While this minimised our capacity to generalise across all four sites in certain respects, it also allowed us to understand the diversity of these contexts and gain a nuanced sensibility about their challenges and opportunities. With this point in mind, the following served as our pilot sites:

- UB: Department of Library and Information Studies (DLIS) in the Faculty of Humanities (FoH) – 18 members
- UCT: Southern African Labour and Development Research Unit (SALDRU) – an independent research unit in the Faculty of Commerce (Comm) – 32 members
- UoM: Faculty of Science (FoS) – 55 members
- UNAM: Faculty of Humanities and Social Sciences (FHSS) – 77 members

SCAP approached each of the study sites as unique contexts with independent historical legacies and research communication cultures. Therefore efforts were made to ensure parity in project activity across the sites. However, the principal investigation (PI) team acknowledged that the approach to UCT would be slightly different because we were already "embedded" in the institution, a fact that both limited and expanded the kinds of insights we could gain about it.

Moreover, we understood that UCT was atypical in both Africa and Southern Africa. As the highest-ranked university on the continent[11] with a history stretching back to the 1820s,[12] UCT enjoyed significant financial, infrastructural and human capacity advantages over the other three universities. It also boasted a significantly larger academic staff: according to the most recent public figures, UCT[13] had 2,200 academic staff, UB[14] had 877, UNAM[15] had 340 and UoM[16] had 293. Nevertheless, these differences did not invalidate a comparison across institutions, but simply begged for continued recognition of the structural and historical differences that defined them.

The principal investigation (PI) team

SCAP research was led by a PI team based in the Centre for Educational Technology (CET), a department in the Centre for Higher Education Development (CHED) at UCT. This team comprised a research lead, a research officer, a research assistant, the programme manager and the programme director. All research work was undertaken in consultation with RCs at participating sites, but the ability of RCs to formulate and conduct independent research was constrained by the fact that they held academic posts with concomitant teaching and administrative loads. In addition, the RCs had been placed in the role because of their interest in the area, not necessarily their expertise.

[11] According to the 2012–2013 Times Higher Education World University Rankings, available at: www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/region/africa
[12] Ages of participating institutions – University of Botswana: 30 (founded 1982), University of Cape Town: 183 (founded 1829), University of Mauritius: 47 (founded 1965), University of Namibia: 20 (founded 1992).
[13] UCT (2012c)
[14] UB Facts and Figures (2013), available at: www.ub.bw/content/id/1989/Facts-and-Figures/
[15] SARUA profile of UNAM, available at: www.sarua.org/?q=uni_University%20of%20Namibia
[16] UoM: History (2011), available at: http://sites.uom.ac.mu/induction/index.php?option=com_content&view=article&id=46&Itemid=1

There was therefore significant capacity development entailed in the exchange between the PI team and institutional research teams.

The SCAP programme was designed around four rounds of institutional site visits to each of the participating sites. These visits allowed the PI team to build institutional relationships, collect research data and formulate a framework for implementation activity. The PI team also gave presentations, ran workshops, conducted interviews and engaged in individual conversations with a wide range of stakeholders on each visit in order to stimulate discussion around scholarly communication.

The site visits also gave the PI team a more nuanced, ethnographic understanding of the lived reality of the pilot academics. Team members were able to see (and sometimes experience) first-hand the administrative, technological and social qualities defining scholarly communication activity at our partner sites. (For instance, by using the internet at some universities, we could see what scholars meant when they complained of low bandwidth; or by trying to source official information from certain universities, we could identify with their scholars' "red tape" woes.)

Methodology

SCAP's overall research design was based on the case study approach. We adopted this so that we could conduct in-depth research at four universities in four countries across different faculties and disciplines and so that we could experiment with a diverse set of intervention strategies. The case study approach allowed us to probe deeply into the different field sites (Flyvbjerg 2011; Mitchell 1984) while at the same time ensuring that some of our data would be comparable across them.

SCAP's methodological approach could be categorised as "developmental intervention-based research", as it went beyond a concern for only data collection to that of research as praxis, aiming to enable participants to understand and change their realities. To help develop capacity and stimulate our pilot environments, the programme incorporated implementation processes for experimenting with new approaches to open scholarly communication that ran alongside our research process.

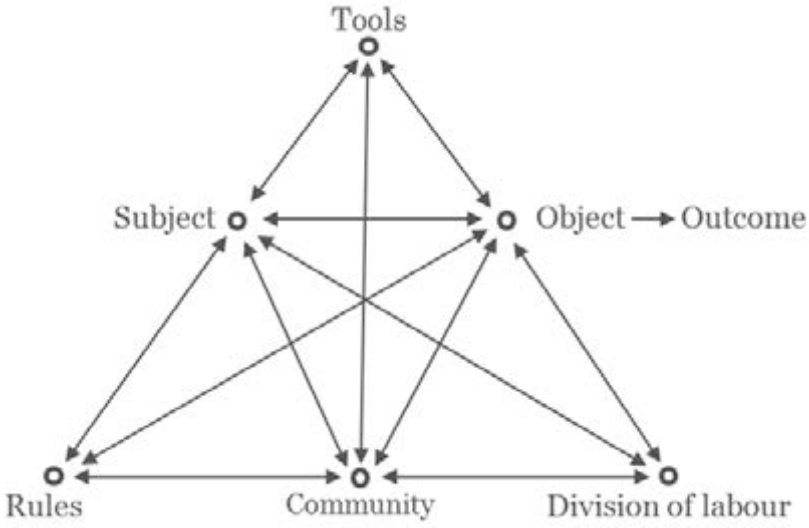
Cultural Historical Activity Theory (CHAT)

SCAP used Cultural Historical Activity Theory (CHAT) to inform our research approach. We chose CHAT because it is useful for identifying obstacles in complex activity systems, especially those that are structured by deep, complicated and sensitive cultural and historical elements.

With its origins in Soviet social psychology in the earlier part of the 20th century – in particular the work of Vygotsky and Leont'ev (Chaiklin & Lave 1993; Daniels 2008) – the key tenets of early Activity Theory is that activity is mediated action and that the social and the technical are mutually constituting. These tenets were then developed by Engeström (1987, 2000; Cole & Engeström 1993) into the CHAT approach that we utilised, which locates the activity systems concept at its centre.

An activity system is a collective formation in which a *subject* (here referring to a group, not an individual) acts purposefully towards the fulfilment of an *object* and a set of *outcomes*. Figure 2.1 shows a representation of an activity system with its constituent nodes placed at distinct points on the triangle.

Figure 2.1 Representation of an activity system in the CHAT tradition



The diagram above represents the different nodes that constitute an activity system. Starting with the top horizontal line, a *subject* seeks to achieve a purpose (the *object*) which will result in an *outcome*. In our research, the subjects were academics seeking to produce and disseminate research (the object) so that they could contribute to national development, secure promotion, comply with an institutional mandate, etc. (outcomes).

During this process, subjects utilise *tools* (the top node) such as computers, books, personal credentials and other artefacts to achieve their purpose. This means that all action is "mediated" by the use of such tools.

Along the bottom horizontal line are three further nodes that also serve to mediate action: rules, community and division of labour. According to Engeström (1996: 67), the *rules* refer to the explicit and implicit regulations, norms and conventions that enable and constrain action within a system. In our context, these *rules* were often disciplinary norms (informal) and institutional policies (formal).

The *community* comprises the people and groups sharing the same general object as the subject. In our context, these were typically funders, colleagues, librarians, managers and students.

Lastly, the *division of labour* refers to the horizontal division of tasks between members of the community and the vertical division of power and status. In the case of academics, the horizontal division involves relationships with peers (inside and outside the university) in the production and communication of research, while the vertical division involves relationships with research and university managers, as well as national research structures. The various non-academics listed in this node also have their own

activity systems that are devoted to different objects. These other activity systems exist in fluctuating states of tension and alignment with the first activity system, depending on how they are structured and engaged.

A key virtue of this design is that it presents activity systems as "ecosystems", in which stimulation or change in one node leads to transformations throughout the entire system. For instance, the introduction of new tools (repositories, etc.) or the alteration of rules (policies, etc.) would impact the entire system. Thus, we thought of these activity systems as ecosystems that were unique, dynamic and sensitive to change.

CHAT principles

In CHAT theory, activity systems are defined by five key principles:

1. *Collective activity*: "A collective, artifact-mediated and object-oriented activity system is taken as the prime unit of analysis. Activity systems realise and reproduce themselves by generating actions and operations" (Engeström 2001: 136).
2. *Multi-voicedness*: "An activity system is always a community of multiple points of view, traditions and interests. The division of labour in an activity creates different positions for the participants [and] the participants carry their own diverse histories" (Engeström 2001: 136).
3. *Historicity*: "Activity systems take shape and get transformed over lengthy periods of time. Their problems and potentials can only be understood against their own history" (Engeström 2001: 136).
4. *Contradictions*: Instability (internal tension) and contradictions are the "motive force of change and development" (Engeström 1999: 381). "Contradictions are not the same as problems or conflicts. Contradictions are historically accumulating structural tensions within and between activity systems" (Engeström 2001: 137).
5. *Expansive learning*: "Activity systems move through relatively long cycles of qualitative transformations. As the contradictions of an activity system are aggravated, some individual participants begin to question and deviate from its established norms. In some cases, this escalates into collaborative envisioning and a deliberate collective change effort. An expansive transformation is accomplished when the object and motive of the activity are reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of the activity" (Engeström 2001: 137).

Change laboratories

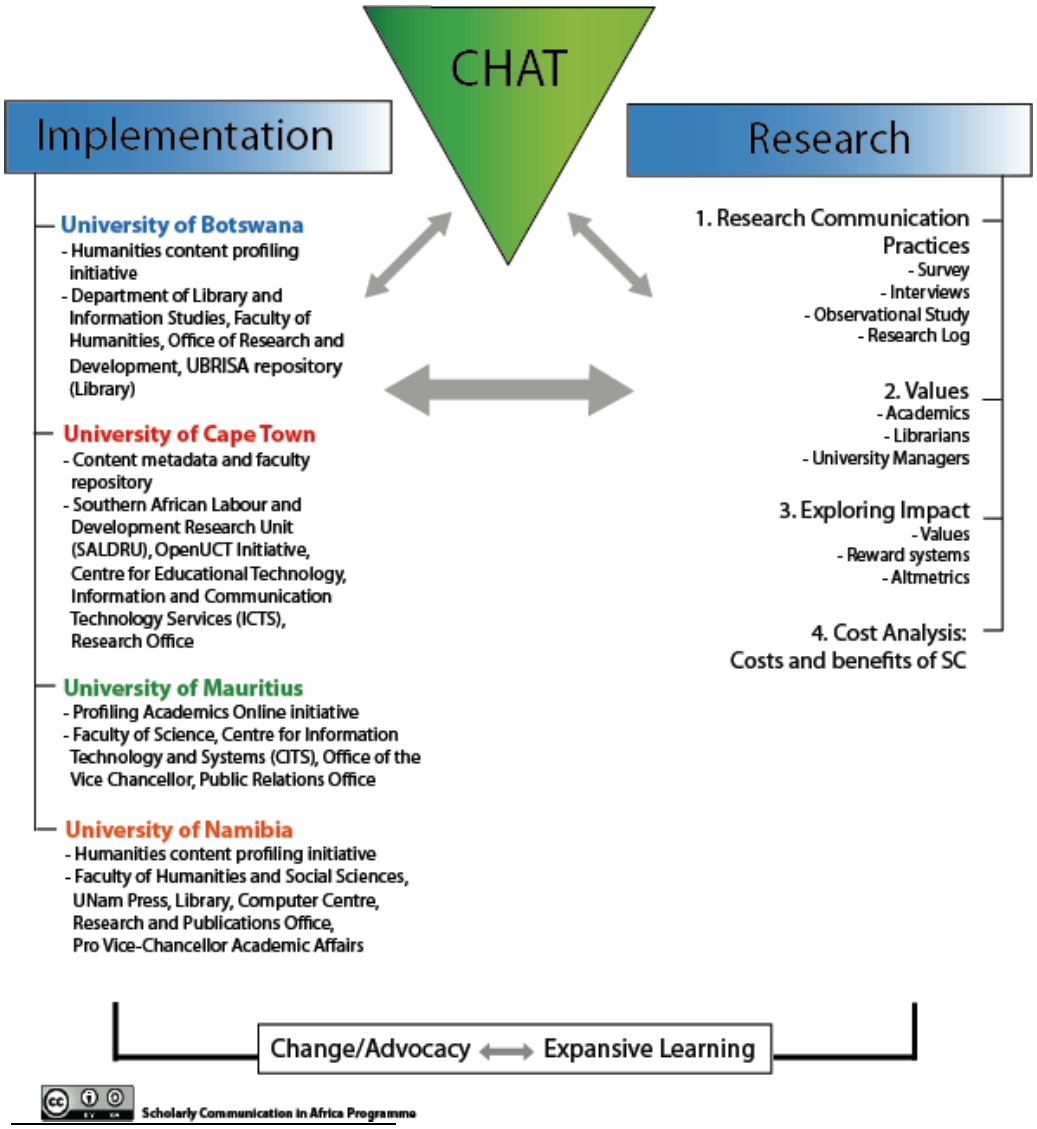
Key to the CHAT methodology are "change laboratories" (Engeström, Miettinen & Punamäki 1999). These are workshop-like events where participants collectively identify contradictions in their activity systems. In this manner, they explore interventions that would align those systems so they can better achieve their object. SCAP took it as axiomatic that each of our pilot sites had misalignments that could be identified and re-aligned so that they could operate optimally. For many change lab participants, the CHAT approach offered a useful method for comprehending the complexity of their scholarly communication ecosystems, inspiring them to look beyond technical (tools-oriented) solutions to their challenges and to consider them from the vantage of each

node and connection.[17] The knowledge we gained from our change labs was contextualised through data from our research strands. Together these generated rich descriptions of the conditions under which scholars conduct and communicate research.

Research components

SCAP's research comprised three interlinked components: expansive learning and change/advocacy; research strands; and implementation initiatives. These components are shown in Figure 2.2. With CHAT at the centre, the four research strands are listed on the right, the four implementation initiatives are listed on the left and the expansive learning element connects the two at the bottom. But as the arrows show, these were mutually constituting components, reflexively influencing each other as they progressed.

Figure 2.2 Diagrammatic overview of the SCAP operational approach



[17] SCAP's adoption of CHAT was unusual in that our study sites did not specifically request interventions around scholarly communication, as typically occurs with CHAT/change lab engagements. In fact, many participants only became aware of the contradictions in their activity systems by exploring them with us.

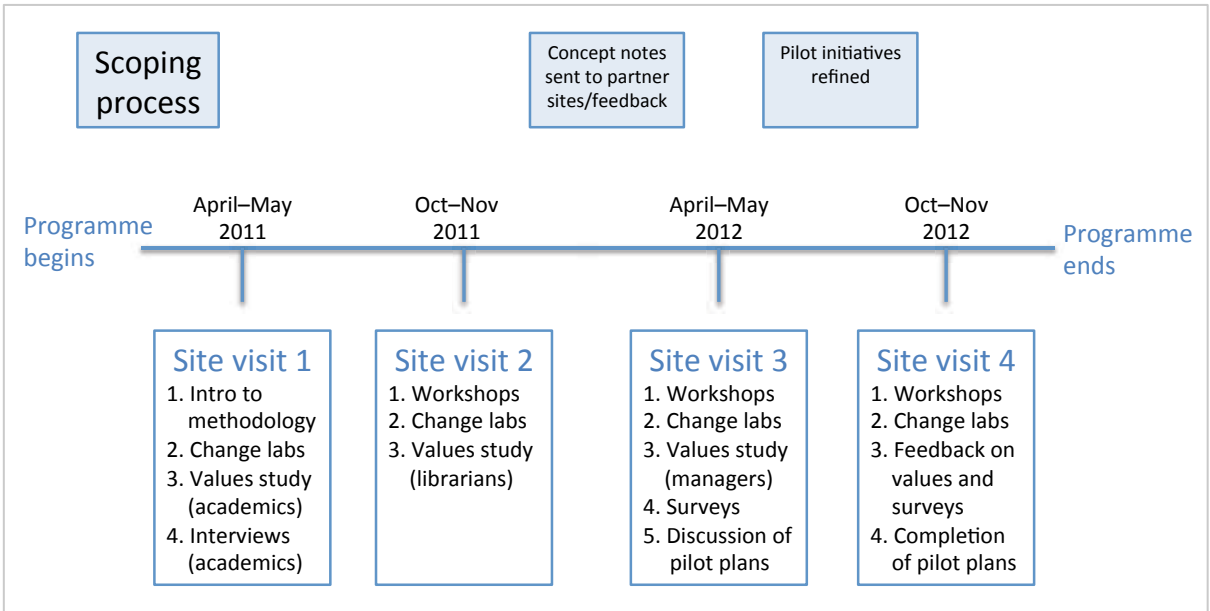
Expansive learning and change/advocacy

The expansive learning component involved SCAP's use of CHAT with its emphasis on conscious stimulation of and reflection on the scholarly communication activity system amongst staff members in each study site. This was implemented through iterative change laboratories, workshops and advocacy work. These CHAT "techniques" animated and integrated the other two components: the research strands that examined the scholarly communication ecosystem in each site and the technology implementation initiatives.

This research component involved rigorous documentation of the participatory processes involved in the change laboratories and site visits. SCAP tried to incorporate the analytical power of CHAT into every activity and interaction. But most pilot site participants' experience of CHAT was most keenly felt in the change laboratory workshops that we held at each institution. It was on those occasions that we explained the CHAT methodology and how its discursive tools could help us to elucidate the pilot site's scholarly communication activity system and develop an intervention that improved its functionality.

At each university, the change lab participants were typically members of the relevant pilot site, although university managers and librarians also attended sessions. Numbers varied between seven and 13, with a small core who participated throughout and others who came and went. The change lab workshops were full-day sessions, contributing to a broader research and advocacy programme during the PI team's week-long site visits. Figure 2.3 shows when we conducted the change labs and how this coincided with other research we were carrying out at the host institutions.

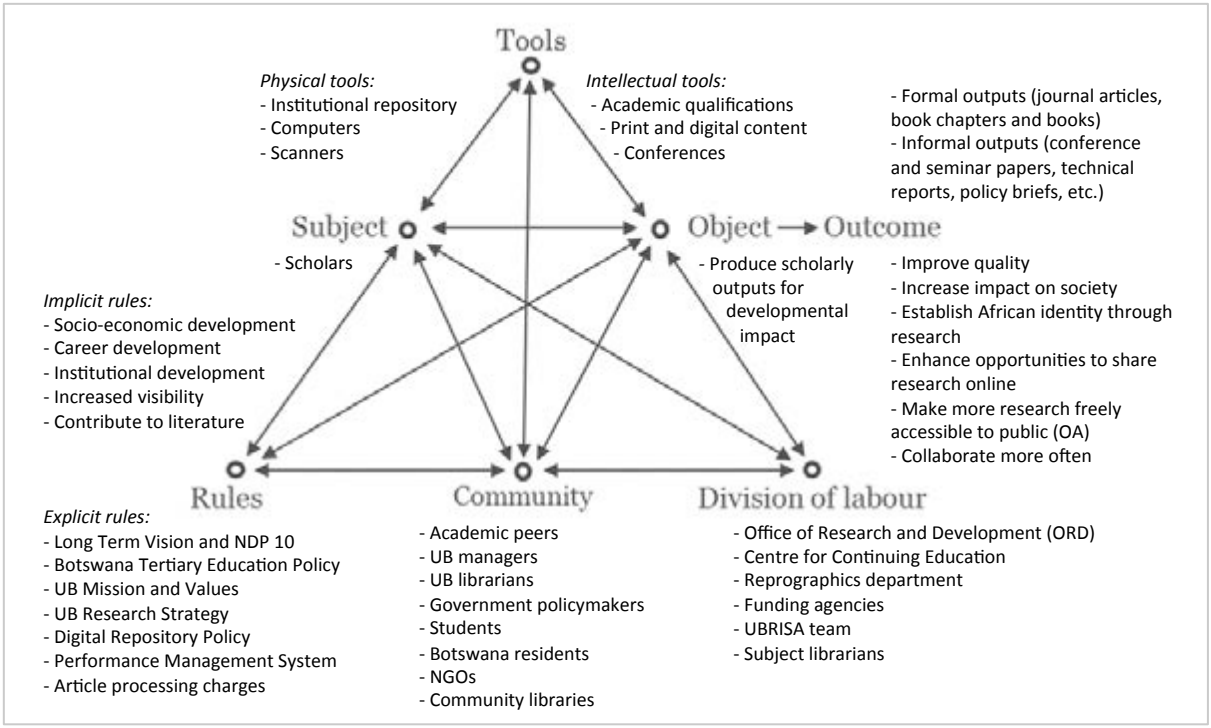
Figure 2.3 Overview of SCAP research and implementation schedule



In the first change lab workshops we held at each institution, we started by introducing the participants to the idea of scholarly communication as an activity system. We explored CHAT principles, discussed the virtues of the CHAT triangle as a heuristic and analytical device, and asked participants to identify areas where there were challenges or tensions in their scholarly communication ecosystems.

In the second workshops, we started populating the activity system triangles with the information given by the pilot participants, identifying the subject, object and outcome of the system, as well as the tools, rules, community and division of labour. Once all of the fields were populated, we started identifying the challenges, contradictions and opportunities within the activity systems so that we could understand where misalignments were occurring and how we could re-align them through an implementation initiative. The data from these workshops gave us a lot of the information we required to write up concept notes for the various implementation initiatives that we ended up pursuing. While most participants initially found this CHAT triangle process awkward, they quickly began to see its descriptive and explanatory power; however, once we established how each node was impact the others, it allowed them to see their work activity in a different light. Figure 2.4 shows a completed triangle.

Figure 2.4 UB FoH activity system triangle populated with change laboratory material



In the third set of workshops we re-presented the fully populated activity system triangles so that participants could amend and verify them. The PI team also shared the concept notes for the implementation initiatives, eliciting useful feedback in the process.

In the fourth and final set of workshops the PI team presented preliminary findings from the research strands, which enabled a "mirroring" process (i.e. the final stage of the

expansive learning cycle implicit in the CHAT process). By "reflecting" scholars' activity systems to them in a descriptive and analytical fashion, we were able to secure crucial feedback from them for eventually arriving at our concluding findings (which are contained in this report). During that final visit, the participants also assessed the progress of the implementation initiative.

The change laboratory process provided significant data on each site's scholarly communication activity system and proved to be an invaluable forum for engaging with academics, librarians and managers.[18] For many, our workshops provided a much-needed space for participants to be self-reflexive about their scholarly communication activity. A number also took advantage of the episodic attendance of high-ranking managers to share their (often critical) perspectives with administrators with the clout to change policy.

As part of the expansive learning cycle, in addition to the change labs that we conducted, we collected institutional data through the many meetings, conversations and informal interactions we had with institutional stakeholders during our site visits.

Research strands

SCAP's research revolved around four strands: research and communication practice, values, impact and costs. Here we discuss the processes employed to carry out this research and how we integrated the materials in our analysis.

Research and communication practice

The primary question driving our research was "what is the current state of scholarly communication in Southern African universities?" To answer this, we utilised multiple research mechanisms to gather data – namely surveys, interviews, day-recalls, personal observations and informal conversations.

Because of the transformations taking place in the field of scholarly communication – due to changes in global research activity (Cooper 2009, 2011; Etzkowitz 2004; Gibbons 1997; Gibbons *et al.* 1994) and Web 2.0 technologies (Palmer 2005; Procter *et al.* 2010; Tenopir 2003; Thorin 2006; Weller 2011) – we felt it was important not only to establish baseline indicators for scholars' activities, but to examine their day-to-day practices.

We viewed the "practice turn" in the social sciences as offering us an approach that was compatible with our CHAT methodology in that practices can be seen as "arrays of human activity" that are materially mediated and "organised around shared practical understanding" (Schatzki 2001: 2, quoted in Palmer & Cragin 2008: 169).

We also built a "research and dissemination cycle approach" into our data collection instruments so that we could understand our research subjects' scholarly communication practices at each stage of the research and dissemination process. By breaking their activity down into discrete elements of a larger cycle, we believed we could identify how disciplinary norms, output genres, funding circumstances and personal values played

[18] All of our change lab workshops, seminars and formal meetings were digitally recorded and fully transcribed.

into their research and communication practices. It would also help us to identify possible contradictions in their activity systems, while pointing to potential opportunities for improvement. Furthermore, as Palmer (2005: 1140) states, "In the cycle of scholarly communication scholars play the role of both consumer and contributor of intellectual works within the stores of recorded knowledge." Hence we utilised Czerniewicz's (2013) research and dissemination cycle model because it incorporates an understanding of how open access and Web 2.0 technologies are transforming scholarly communication opportunities (which we discuss in Chapter 5).

In the context of that cycle, we also explored what enables or constrains the flow of scholarly communication by seeking to understand what difficulties scholars may experience with regard to access to and searching for scholarly work, as well as their dissemination choices.

This research strand therefore included quantitative and qualitative methods of data collection, aiming to produce "thick descriptions" of these practices in each of the study sites. We hoped to obtain "insider accounts" of African scholars' day-to-day practices as they went about producing, accessing and sharing research.

The first method that we used in this strand was a survey that was prepared with reference to the questions and findings from a number of international scholarly communication studies and surveys (Houghton, Steele & Henty 2004; Maron & Smith 2008; Palmer, Teffeau & Pirmann 2009; Procter *et al.* 2010; Rowlands, Nicholas & Huntingdon 2004; Rowlands & Nicholas 2006). In particular, we drew on Houghton, Steele and Henty's (2004) study, which focused on three key areas of research activity: communication and collaboration; information search and access; and dissemination and publication. We adapted these, however, to take account of our focus on the stages in the research cycle. The survey included the following categories of questions:

- General information
- Research and dissemination activity
- Collaboration and communication
- Information access and searching
- Forms of Web 2.0 engagement
- Faculty attitudes and support

At UB, the SCAP research assistant administered the survey to 29 academics in the Faculty of Humanities. The data was coded and cleaned, entered and analysed within the PI team. The results are reported in Chapter 5.

The second research instrument we used was a semi-structured interview aimed at gaining a more granular feel for day-to-day research practices and what enabled or constrained them. The interviews covered:

- A discussion of their answers to the survey form
- Questions about the individuals' general background and history
- Narratives of three recent research projects or pieces of research that they had undertaken

At the same time, they sought to account for the social and organisational infrastructure within which research projects unfold, in particular the nodes in the activity system. In these narratives academics were encouraged to focus on the stages in the research cycle, such as:

- How the research started and what motivated it
- What it consisted of
- What enabled or constrained the production of outputs from the research
- What forms of interaction and networking were involved
- The uses of Web 2.0 technologies
- Dissemination choices (journal articles or other genres)
- Feedback on these outputs

The CVs of the interviewees were collected, analysed and viewed in relation to the scholarly shadows and footprints research undertaken as part of the third research strand.

The third research method we used in this strand was the "day-recall". This involved visiting a sample of the interviewees 24 hours after the first interview and asking them to narrate everything work-related they had done in those 24 hours, in order to elicit specific critical incidents that might shed light on what enabled or constrained research communication. In some cases this was repeated once more.

At UB we conducted five interviews each lasting about an hour and a half. The interviewees were all academics who were seen to be active researchers and who had some understanding of open access issues and of the affordances of Web 2.0 platforms for scholarly communication.

Table 2.2 Total number of participants in SCAP's formal research processes

Interviewees/participants	UB	UCT	UoM	UNAM	Totals
Survey respondents	29	28	30	50	**137**
Change lab participants [1/2/3/4]	12/7/11/11	10/10/7/8	13/8/4/7	13/9/11/11	**152**
Values interviews (academics)	13	6	14	13	**46**
Values interviews (librarians)	5	4	5	3	**17**
Values interviews (managers)	5	5	5	5	**20**
RCP interviews (academics)	5	6	6	7	**24**
Totals	**98**	**84**	**92**	**122**	**396**

Values

The second strand of our research explored the values motivating university academics to conduct and communicate research. Drawing inspiration from a number of recent attitudes and behaviours studies focusing on academics in the global North (Archer 2008; Harley *et al.* 2007; Harley *et al.* 2010; JISC 2012; King *et al.* 2006; RIN 2009,

2010; Rowlands & Nicholas 2005), we sought to understand the foundational values driving research production in the Southern African context.

At UB, this entailed the PI team conducting focus group interviews with 13 academics, individual interviews with five librarians and individual interviews with five managers. This qualitative research was conducted during the course of the recurring site visits, with the focus group interview lasting about an hour-and-a-half and each in-depth individual interview lasting between 30 minutes and one hour. We recruited informants through convenience sampling (i.e. a process that is "convenient" for the researcher), typically relying on our research coordinator at the university to identify and contact the appropriate people for SCAP to engage.

For each category of university personnel interviewed, SCAP created a set of standardised questions (which were also asked at the other institutions), prompting respondents to reflect on their own and their institutions' research values. Through this, we were able to gather the data necessary for comparing scholars' values across the four universities we profiled. Below is the list of questions that interviewees were asked:

To academics (in focus groups)

- Why do you currently do research?
- Why would you want to do research?
- How much does our African context influence these motivations?
- Are there different motivations driving basic and applied research? Do you feel that these motivations change in a developing context?

To university librarians (individually)

- What role do you currently play in the scholarly communication process?
- What role would you like to play in that process?
- Does the African context influence the role you currently play, or would like to play, in this process?

To university managers (individually)

- Why do scholars at your institution conduct research?
- How does the African context impact their research motivations?
- What challenges do they face in fulfilling their motivations?

Through these questions, we sought to understand not only the values animating the production of local research, but how they were shaped by the African context and its various challenges and opportunities. The questions also formed the basis of sustained discussions concerning a variety of topics that organically arose through the respondents' reflections, such as university rewards and incentive structures, national development imperatives and consultancy work. This material generated data that was useful not only to our values research but to the other research strands as well.

In addition, we were able to obtain values-related information from our change laboratory workshops, surveys, day-recall sessions, interviews, implementation initiatives and personal observations gained through casual conversations and on-site

experiences. The fact that we were able to draw from multiple data sets, each with its own approach, was crucial for allowing us to get a comprehensive and complex view of scholarly values. The results of these values analyses are discussed in Chapter 5.

Impact

Academic research is one of the central concerns in a new, more accountable global academic environment. Traditionally conceptualised as peer-to-peer communication, the impact of a scholarly research object used to be tied solely to its importance in the academic community and not its importance in terms of socio-economic development. This has partly been a technological issue. Until recently the only quantitative measure of research impact was the Thomson Reuters ISI/WoS Impact Factor.[19] It was also due to an understanding of university practice as separate from the civil society and commercial world, and thus subject to a different set of rules. The professionalisation of the sector has brought with it interest from funders and governments about the demonstrable returns from investing in higher education (Power 1997; Raza 2009; Shore & Wright 1999; Strathern 2000).

Technological advancement in tracking tools now permits institutions to track a range of research object performance metrics, from traditional citation counts to downloads, bookmarks, page views and social media reports. Using these new methods, known as Altmetrics (alternative metrics), it is possible to obtain not just metrics and statistics, but to develop usage narratives that show how academic research is being used by civil society, making it possible to demonstrate the value of research to non-academic audiences and to track how it is being used. This information could help institutions to focus on refining their engagement with society, identify areas in which they are succeeding and determine where they could provide the most value to the community.

In order to experiment with Altmetrics in Africa, we initiated an output tracking exercise at our four study sites. Data was collected over a six-month period (May to October 2012) by research assistants at each site who were asked to acquire lists of publication outputs from their respective institutions. The data was examined to identify potential "impact narratives" as well as to identify any interesting or unusual characteristics.

This resulted in two policy briefs spearheaded by Cameron Neylon, a SCAP advisor:

Neylon C, Willmers M & King T (2014) *Illustrating Impact: Applying Altmetrics to Southern African Research*. Scholarly Communication in Africa Programme (SCAP) Brief No. 1 for the International Development Research Centre, January 2014, University of Cape Town. Available at: http://openuct.uct.ac.za/sites/default/files/media/SCAP_Brief_1_Neylon_et_al_Illustrating_Impact.pdf

Neylon C, Willmers M & King T (2014) *Impact Beyond Citation: An Introduction to Altmetrics*. Scholarly Communication in Africa Programme (SCAP) Brief No. 2 for the International Development Research Centre, January 2014, University of Cape Town. Available at: http://openuct.uct.ac.za/sites/default/files/media/SCAP_Brief_2_Neylon_et_al_Impact_Beyond_Citation.pdf

[19] Thomson Reuters, Journal Citation Reports, at: http://thomsonreuters.com/journal-citation-reports/

Cost-benefit

Our fourth research strand focused on the costs of scholarly communication in the African context, as well as the implications of moving to an open dissemination model. We saw this as a useful research effort because we wanted to be able to reduce a technologically and ethically complex proposal into a potentially simpler set of economic denominators that would allow institutions to judge the financial value of such a transition. We understood that for many institutions open access would only be of interest if it were cost-effective.

We explored a number of economic methodologies to help explicate the costs and benefits of African scholarly communication, namely Cost-Benefit Analysis, Cost-Effectiveness Analysis and Cost-Utility Analysis. The initially envisioned process was to uncover institutional financial data during the period October 2011–October 2012. However, the PI team, in consultation with the relevant RC, discovered that institutional financial reporting structures were insufficient for providing the granular detail required for any cost-utilising analysis. Moreover, data confidentiality concerns would have prevented it from being made available even if scholarly communication had been traceable through institutional reporting systems.

We therefore abandoned this line of research (because it was beyond the scope and capacity of the PI team and our partner universities) and instead focused on assessing the relationship between national development priorities, university mission commitments and open access strategies. This culminated in the production of an advocacy document lead by Alma Swan, a SCAP advisor, which showed how open access could support African institutions' desire to contribute to national development imperatives while preserving their intellectual patrimony through digital profiling and curation strategies:

Swan A, Willmers M & King T (2014) *Opening Access to Southern African Research: Recommendations for University Managers*. Scholarly Communication in Africa Programme (SCAP) Brief No. 4 for the International Development Research Centre, January 2014, University of Cape Town. Available at: http://openuct.uct.ac.za/sites/default/files/media/SCAP_Brief_4_Swan_et_al_Opening_Access.pdf

Implementation initiative

SCAP's research design called not only for the collection of data from our pilot sites, but for these sites' active stimulation through customised implementation initiatives (or "interventions") that sought to improve the state of scholarly communication within the sites. Five principle assumptions underpinned these initiatives. They would:

1. Be treated as experiments
2. Address a challenge articulated by project participants and institutional stakeholders
3. Be publishing-oriented, addressing content profiling and dissemination through new tools and technologies
4. Utilise open approaches (including open source software) wherever possible
5. Yield insights that could be extrapolated to the rest of the institution, developed in line with institutional strategy, e-infrastructure and international standards and protocols around interoperability

SCAP scoped and fulfilled the implementation initiatives during our four site visits to the institutions. The first visit aimed to surface the contradictions in the scholarly communication ecosystem, while the three subsequent visits sought to create consensus around the nature of the initiative, identify stakeholders and policy frameworks, and implement the agreed-upon pilot process.

While the formulation process was participatory, the PI team played a considerable role in interpreting and translating the desires of informants into a feasible intervention. This was due to two factors. First, while informants had a clear sense of institutional challenges, they were often unable to articulate desired solutions because they were unaware of the new technologies that might overcome these challenges. Second, the PI team also had the responsibility of protecting the funder's interests and ensuring that the implementation activity adhered to open access principles.

The Faculty of Humanities (FoH) served as the SCAP pilot site at UB. After identifying its scholarly communication challenges, needs and desires, our intervention focused on developing and implementing a quality assurance workflow process that would get DLIS materials from the scholars hands onto the institutional repository. The results of this process are detailed in Chapter 6.

Integration and analysis of data

Through these multiple research strands, implementation initiatives and other information-gathering instruments, we were able to obtain a substantial amount of data for answering our two key research questions. To analyse the data, we utilised the inductive "grounded theory" approach and the "constant comparative" method. The process generally went as follows (although this was not uniform across all data sets):

- Reduce inputs to text (i.e. transcribe change labs and interviews, tabulate surveys)
- Identify and extract assertions from texts (listed initially according to research strand and university).
- Tag assertions with an intuitive notation system that allows us to keep track of their speaker, context of production and university affiliation.
- Code assertions according to thematic categories (which are derived organically from the data).
- Analyse (in narrow focus) meaning of assertions in relation to each other within their thematic category, research strand and university context.
- Frame (in widening focus) implications of assertions from one theme with those of others, helping them make sense of each other, but still within a given strand and university.
- Integrate analytical insights from research strands on a particular university (including from secondary literature and personal observations) to gain a nuanced and comprehensive understanding of the institutional scholarly communication ecosystem.
- Compare integrated analyses from each university, revealing similarities among and differences between the universities' scholarly communication ecosystems, thereby yielding a clearer picture of regional communication practices.

In between these steps, we also stepped back and embarked on a more deductive process, which involved checking our data against key concepts and insights in the relevant secondary literature, as well as exploring "hunches" based on immersion in the sites and the data, which were then tested against the developing themes and frames. This analytical process was largely carried out by the PI team, but once key insights and preliminary findings had been established, they were shared with participants in the pilot sites – especially the RCs – so that they could interrogate, amend or verify them.

Conclusion

Our research methodology ultimately combined a number of approaches so that we could obtain data at our pilot sites from multiple angles. We realised early on that no single approach would yield us the detail that we desired from the institutions; thus, we took multiple, overlapping approaches to the sites so that we could understand them in a comprehensive way.

The first element defining our multifaceted research approach was the fact that we engaged with the pilot sites as "case studies": that is, each of them comprised one of four sites in our broader research effort. Researching these different sites using similar methods and obtaining comparable data meant that they were able to contribute to our comparative synthesis report which offers a view of scholarly communication for the entire Southern African region (Trotter *et al.* 2014). Yet we never forgot that each of these sites bore their own unique histories, traditions and practices; therefore we sought to gain nuanced understandings of each site so that, when we compared them, we were able to grasp precisely where their similarities and differences were located.

The second element of our approach was our use of the CHAT methodology as our primary analytical device. This influenced not only the metaphors that we utilised to assess these sites – thinking of them as activity systems (or ecosystems) – but also the style of engagement that we had with participants. We deployed an important CHAT data-gathering device, the change laboratory, which allowed us to work with university stakeholders to identify contradictions in their scholarly communication ecosystems. In this way, participants were not simply research subjects, but were co-partners in our quest to understand and change their reality. Their "buy-in" to this process was critical to the success of the project as they took a degree of ownership in it.

The third element of our approach was that we were able to obtain a quantitatively rich description of our pilot sites, primarily through the 25-page survey that we had participants fill out, but also through various change lab exercises that we deployed during our site visits. This formed a crucial "objective" layer of data that provided a foundation for cross-comparison between sites.

The fourth element of our approach was that we were also able to obtain a qualitatively rich understanding of these activity systems through our interviews, day-recall sessions, conversations and observations during our four rounds of site visits. We believed that this layer of ethnographically informed information was crucial for us being able to understand the complexity of these sites.

The final element of our research approach, which ended up yielding a number of our more subtle and durable insights, was our use of implementation initiatives to stimulate the pilot sites' activity systems. Through these, we experienced first-hand the bureaucratic, political, social and technical challenges involved in operating in those environments. By bringing money and resources into our engagement, we initiated a much more complicated set of relationships than if we had simply operated as a research programme. This often led to significant discomfort on both sides, but it helped to reveal the "actual", as opposed to the simply "discursive", commitments that both sides brought to the relationship.

Chapter 3.
The University of Botswana context

In this section, we will analyse the broader contexts shaping activity at the University of Botswana. First, we will discuss the higher education context in sub-Saharan Africa so as to appreciate how the broader continental environment impacts UB. Second, we will explore how the Southern African context reflects, and inflects, broader continental conditions with regards to higher education. Third, we will hone in on the Botswana national setting to understand the most immediate political context shaping UB. And lastly, we will assess UB's institutional context, which will give us greater insight to the faculty and departmental discussions later. This four-tier nested approach – analysing the continental, regional, national and institutional settings – will allow us to locate more precisely which contexts shape the different elements of our pilot site's activity system. In each section, we will focus on the context's history, demographics, funding, human capital, infrastructure, research and management, giving us a detailed impression of each. Because this chapter includes a lot of information, readers should feel free to skip to the sections they believe will be most helpful for understanding the later analytical chapters. We have included this thick description here so that readers can have the necessary supporting information for grasping the complexity of this nested ecosystem. Thus it can be read now – drawing down from the macro to the micro – or consulted later as needed.

The African higher education context

One of the key challenges to understanding higher education in Africa is finding reliable, up-to-date statistics and information that render the continent legible for analysis. As Tijssen (2007: 304) states, even getting hold of standard data sets is "often problematic, mainly because official national statistics on magnitude and distributions of resources and research personnel are often missing, outdated, or the existing statistics fail to meet international quality standards and statistical manuals." This means that the image we paint of the higher education sector in Africa will be, to a certain extent, impressionistic rather than definitive. But the data that is available does provide a clear picture of certain challenges facing this field.

History

Higher education in sub-Saharan Africa is "mainly a post-colonial development" (Mamdani 2011a),[20] though a number of "colleges, university colleges and/or fully developed universities existed before independence in countries such as Sierra Leone, Ghana, Nigeria, Ethiopia, Uganda, Senegal, Rhodesia and Nyasaland … and South Africa" (Mouton 2010: 2). Many of these were established in the final years of the colonial period after World War II and were shaped as "an artifact of colonial policies" (Teferra & Altbach 2004: 2). These institutions trained up small numbers of students to serve in the lower orders of the colonial administration, emphasising subjects that were seen as appropriate to administrative work, especially in the humanities and social sciences.

With the majority of African states gaining independence in the 1960s, the new national governments took a strong interest in higher education institutions (HEIs) as agents of social change and development, leading to the conceptualisation of the "developmental university" (Ajayi, Goma & Johnson 1996). The extent of governments' interest was such that, according to Zeleza (2002: 10), "more schools and universities were established in the first 25 years after colonialism than in a century of imperial rule."

The key question at the time was: how do young universities contribute to "development" in a nascent independent context? Mkandawire (2011: 15) argues that "African governments tended to view universities as intended for the production of 'manpower' necessary to indigenise the civil service. And if they thought about research at all, they wanted research that was relevant to 'development and nation building'." Yet even with this seemingly narrow focus on producing graduates for the civil service (which in many respects reproduced the prior mission of the colonial powers to train up administrative functionaries), the calibre of the scholars that these institutions delivered was quite high. According to Sawyerr (2004: 226), "the 'first generation,' educated mostly in the 1960s and earlier, were generally trained to the highest international standards at public expense, both at home and abroad, and had embarked on academic careers under conditions that respected and provided adequate means for the cultivation of knowledge."

The rapid growth in tertiary education during this early honeymoon period, buoyed by government spending and a strong market for African raw materials, was later stifled by the economic crises of the 1970s that changed how governments and international funding agencies viewed universities on the continent (Mkandawire & Soludo 1998). The problem for many governments was that they "had no coherent development model", so government "steering" of the university turned into outright political "interference and universities became sites of contestation. States and academics became sceptical of the role of universities in development, and higher education came to be seen as a 'luxury ancillary' – nice to have, but not necessary" (Cloete, Bailey & Maassen 2011: xv). Sawyerr (2004: 226–227) argues that the African scholars who graduated during this period became part of a broader "brain-drain" to the West: "The 'second generation' came of age in the 1970s and early 1980s, when it was still common to supplement local degree work

[20] Mamdani (2011a) suggests that the reason why higher education was not developed more robustly during the colonial period was because, "Lord Lugard, Britain's leading colonial administrator in Africa, used to say that Britain must avoid the 'Indian disease' in Africa–that is, the development of an educated middle class, a group most likely to carry the virus of nationalism."

with graduate study abroad. But so harsh were economic conditions at home that almost anybody who could remain abroad after graduating did so."

As a long period of economic stagnation set in, African governments turned increasingly to the World Bank and the International Monetary Fund (IMF) for assistance and loans. These bodies began to impose serious conditionalities on those African states seeking debt relief, making them abide by Structural Adjustment Programmes that significantly reduced government spending.

In response, African governments made substantial cutbacks in tertiary education budgets (Harle 2010), which the World Bank saw as providing less cost-effective benefit than primary and secondary education (Bloom, Canning & Chan 2005). According to Cloete, Bailey and Maassen (2011: xv):

> *spending per student fell from USD6,800 in 1980, to USD1,200 in 2002, and later to just USD981 in 33 low-income sub-Saharan African countries. Lack of investment in higher education delinked universities from development, led to development policies that had negative consequences for African nations, and caused the closure of institutions and areas of higher education that are critical to development.*

This pervasive reduction of funding, resources and opportunities characterised almost two decades of higher education in Africa. Sawyerr (2004: 226–227), describing the generational cohort emerging from this period, states that:

> *by the mid-1980s, access to opportunities for study abroad, especially in Europe, had so diminished that most had to undertake their entire education, from first degree to doctoral studies, at home. This occurred at a time when the range and currency of library holdings, as well as the quality of teaching and research at most African universities, were in decline. It is this "third generation," currently staffing our universities, that has borne the brunt of these severe declines.*

African economies have largely recovered since that period, but the revival in the higher education sector has been challenged by rapid demographic growth within each country, especially by the number of secondary school-leavers who demand access to higher education (Teferra & Altbach 2004). But African governments, universities and international funding agencies have learned from the policies of the recent past, pledging to make higher education and research a greater priority moving forward.[21]

[21] According to Cloete, Bailey and Maassen (2011: xv–xvi), "During the 1990s and early 2000s some influential voices (including the World Bank) started calling for the revitalisation of African universities and for linking higher education to development. Ahead of the UNESCO World Conference on Higher Education in 2009, a group of African education ministers called for improved financing of universities and a support fund to strengthen training and research in key areas."

Demographics

Sub-Saharan Africa's population of 874 million is serviced by over 500 universities.[22] However, this is a relatively small number of universities to handle such a large population. According to UNESCO (2012: 2), "with its average gross enrolment ratio (GER) in tertiary education of just 6% … sub-Saharan Africa lags behind the rest of the world where ratios range between 13% in South West Asia and 72% in North America and Western Europe, though the ratios for most developing regions are between 20% and 40%." Moreover, due to the previous focus on primary and secondary education – combined with a rapidly growing continental population – massive numbers of school-leavers are seeking entry into higher education. In response, governments have placed significant pressure on universities to increase enrolment rates (Harle 2010) and to retain a greater portion of students in postgraduate education, such that these have become key figures for institutional and national-level reporting. With an annual growth rate of 8.4%, nearly twice the global average of 4.3%, the growth rate since 1970 has seen a 20-fold increase in the number of students enrolled (UIS 2010).

There are currently about 3 million students attending African HEIs. Unlike in the rest of the world, where females tend to enrol at a higher rate in tertiary studies than males, male enrolments in African HEIs remain slightly greater than female. The ratio between male and female students is about 1:0.68 (UIS 2010: 3). But this is changing as more females enter the sector each year.

The majority of students in sub-Saharan Africa attend public institutions, but a substantial number are now enrolled in private higher education institutions (PHEIs). According to Varghese (2009: 3), "private higher education is one of the fast expanding segments of higher education in Africa. In 2009, there were around 200 public and 468 PHEIs in Africa", although most of these institutions are small in size and in total account for less than one-third of total enrolments. The majority (53%) of these institutions are based in French-speaking areas of the continent (Varghese 2009), provide business-related courses and are located in urban areas. There is also a substantial number of faith-based PHEIs – the highest-growing component of PHEIs in the last decade (Karram 2011) – run on a non-profit basis and supported by international denominational bodies that provide higher education with a religious focus. These tend to be less market-driven than other PHEIs and offer liberal arts and humanities courses from a Christian or Islamic perspective.

Funding

The economic situation in many African countries makes it difficult for governments to provide increased funding for higher education (Teferra & Altbach 2004), even as student enrolments soar. Spending as a percentage of gross domestic product (GDP) ranges from 0.1% (Lesotho) to 0.9% (South Africa), averaging around 0.7%, though rarely coming close to the 1.3% that characterises the expenditure of high-income nations (OECD 2012). This means that with this level of spending, sub-Saharan African countries can only provide tertiary education to a tiny fraction of their citizens compared to

[22] For a list of all African HEIs (including North Africa), see: www.webometrics.info/en/Ranking_africa

developed nations (5% vs over 60%). In terms of total education expenditure, the legacy of underfunding for the higher education sector persists – most countries spend between 10% and 20% of their total education budgets on tertiary education, still focusing on primary and secondary education.

The lack of higher education funding has predictable consequences. Many African institutions lack adequate facilities, particularly laboratories and scientific equipment (Urama *et al.* 2010). Library subscriptions do not always cover the full range of publications desired by their academics. Scholars are often unable to pursue a broad range of research topics, especially those requiring international travel.

Tight funding can also result in relatively low salaries for the staff, which often encourages them to seek external sources of financial support, such as through private tutoring, after-hours instruction (at other private colleges) or consultancy research. For instance, consultancies offer resources that financially strapped institutions may not be able to provide and offer attractive stipends for work that is primarily quantitative and answer-orientated in nature (King 2006). Sometimes these consultancies contribute to national development (Sawyerr 2004), but according to Mamdani (2011b: 1), they can also divert from the construction of a long-term, sustainable research culture towards a market-driven, short-term and externally controlled research environment, where academics are reduced to "native informers". The level of external, private and international research funding may end up undermining African institutions' ability to set their own research agendas and nourish deep theoretical and intellectual research development. Despite this, most African universities want their academics to engage in consultancy work because it brings revenue into the institution.

The relatively low levels of higher education expenditure are mirrored by the low levels of research and development (R&D) expenditure across the continent. According to the African Science, Technology and Innovation Indicators Initiative (ASTII 2010: 8–9):

> *R&D activities in Africa are to a large extent financed by international donors and other foreign sources. Among the countries surveyed, Mozambique is currently the most dependent on foreign donors, in that more than 50% of its R&D is financed from abroad, followed by Mali (49.0%), Tanzania (38.4%), Senegal (38.3%) and Malawi (33.1%). By contrast, Nigeria and Zambia show very low dependence on foreign funding. In countries such as Ghana, South Africa and Malawi, the business enterprise sector accounts on average for 40% of R&D funding, while in most other countries its share of funding is less than 10%.*

Human capital

In conjunction with these financial challenges, most countries face both a relative and absolute lack of skilled professionals to drive development internally. They are able to staff their governmental and civil service bureaus, as was intended by the creation of the higher education system, but the best and the brightest often migrate abroad, seeking greater incomes, opportunities or political stability. This is the well-known "brain drain" phenomenon. The consequences of the export of African labour are not universally

negative (UNESCO 2012), but with up to 30% of African scientists lost due to out-migration (Crush & Pendleton 2012; Mouton *et al.* 2008; Te Velde 2005), African countries are forced to rely to a great extent on international "experts" for pursuing their development goals. It has also meant that many African institutions suffer from endemic staff shortages, as Tettey (2009: 13) relates:

> *Academic staff shortage has become a huge challenge for African universities, and no respite seems to be in sight. In fact, observers of the higher education scene on the continent unanimously identify this issue as one of the most critical challenges to the mission of these institutions. They contend that, if urgent concerted action is not undertaken soon enough to address the problem, the African academy will not only lose its ability to produce the requisite number of personnel to support the countries' human resource needs, but the quality of intellectual life will continue to erode.*

This is reinforced by low levels of postgraduate enrolment at African universities, a fact that threatens to prolong the continent's skills shortage indefinitely.

Infrastructure

The provision of various types of infrastructure across Africa – roads, buildings, electricity connections – is patchy, though universities tend to be located in better-resourced urban areas where certain basic standards are usually met. The key infrastructural challenge in the higher education sector is access to broadband internet.[23]

Compared to the developed world, internet access in Africa is frequently more expensive and at a lower bandwidth (Fuchs & Horak 2008; Harle 2010; Oyelaran-Oyeyinka & Nyaki Adeya 2004). Moreover, Africa's internet penetration percentage of 15.6% is less than half of the global average of 34.3%.[24]

However, the provision of broadband internet has improved significantly in recent years, particularly as a result of two new undersea fibre-optic cables[25] that were laid along the east coast of Africa in 2009. The establishment of national research and education networks – fibre-optic backbones dedicated to the academic and research sector – in many African countries has also served to extend internet provision and boost much-needed computation capacity for research. The UbuntuNet Alliance, established in 2006 as a central coordinating network for these network structures, has played a significant role in supporting the development of terrestrial broadband and interconnectivity

[23] Former UN secretary general Kofi Annan believes that ICTs have become such a core infrastructural component for full engagement with contemporary economies that "being cut off from basic telecommunications services is a hardship almost as acute as deprivation of jobs, food, shelter, health care, and drinkable water." Annan K (1999) Speech at the ITU Telecom Opening Ceremony. 9 October 1999. Available at: www.itu.int/itunews/issue/1999/09/telec99.html

[24] Internet World Statistics (2013) Internet Usage Statistics for Africa. Available at: www.internetworldstats.com/stats1.htm [accessed 26 February 2013]

[25] The SEACOM cable connects Djibouti, Kenya, Tanzania, Mozambique and South Africa to Europe and India while the TEAMs cable connects Kenya to the United Arab Emirates. These operate at a bandwidth capacity of 1,280 gigabits, dramatically increasing internet speeds as users connect to content that is typically hosted in Europe or North America.

between these national networks and with international networks outside the continent (Harle 2010).

Nonetheless, there is "a digital divide, not only between rich and poor countries, but also within nations" (InfoDev 2008: 23). Thus, within Africa, internet penetration can be as low as 1.1%, as it is in Ethiopia, or as high as 35% in Mauritius.[26] Within countries, urban populations often enjoy reasonable internet access with the widespread presence of internet cafes while rural access is far less common (Nyambura-Mwaura & Akam 2013).[27]

In academia, African universities have greatly improved their internet connectivity, albeit from a low base (Echezona & Ugwuanyi 2010), but they remain generally slower than universities abroad (Barry *et al.* 2008). The historically low levels of ICT provision have hampered the development of skilled ICT professionals at African universities, especially in libraries which should be at the forefront of the digital revolution (Mutula 2008). Students often have to deal with limited computing resources, broadband access and internet-use training, compounded by a lack of familiarisation with computers during primary and secondary schooling.

This low provision of bandwidth has limited scholars' engagement with online platforms that would enhance their academic profiles, broaden their research networks and open up new collaborative opportunities with scholars elsewhere.

Research

As discussed in Chapter 1, research production in sub-Saharan Africa has been growing over the last decade (at least with regard to ISI/WoS-rated journal articles), but it has been declining as a proportion of global outputs. This means that African research production is improving in absolute terms, but becoming less competitive in comparative terms. The positive increase is due to African governments' reinvestment in higher education as a site for development-enhancing activity. Moreover, many African universities have moved beyond their traditional teaching-oriented mandates to include research missions that encourage local scholars to produce more published outputs. They have also strengthened the size and profiles of their graduate programmes so as to build greater research capacity internally. This is a slow and uneven process, but these changing institutional norms are impacting every university on the continent.

In the sub-Saharan region, South Africa and Nigeria dominate WoS-listed research production (Adams, King & Hook 2010) while Tanzania is the most prolific producer in East Africa. Nevertheless, this research output is extremely low compared to that of the developed world; in 2008, the Netherlands alone produced approximately 27,000 ISI-ranked papers, nearly 50% more than the sub-Saharan total (Adams, King & Hook 2010).

Moreover, as Harle (2010) points out, substantial investment in journal access and associated areas of training and capacity-building has also raised Africa's research

[26] International Telecommunication Union (ITU) ICT Facts and Figures 2013, available at: www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
[27] For Africa bandwidth maps, see: www.africabandwidthmaps.com/

potential. Through donor-supported and collaborative initiatives, academics in many universities now have free or subsidised access to current and back issues archives. The Programme for the Enhancement of Research Information (PERii) has negotiated access to over 18,000 full-text journals (a further 7,000 are abstract only), while the Health InterNetwork Access to Research Initiative (HINARI) offers over 6,400; the Access to Global Online Research in Agriculture (AGORA) offers 1,278 and Online Access to Research in the Environment (OARE) offers over 2,990. While it is difficult to calculate the total number of free or discounted titles available to some African institutions, Harle (2010: 5) confirms that the total figure is certainly substantial, stating that "Kenyan libraries, which before the advent of affordable e-resources had collections averaging 3,000 print journals, now have an average of 35,000 titles via online access. Moreover, they have made average savings of 80% in their budget, while receiving over tenfold the number of titles."

Management

Historically, the strong interest taken by post-colonial African governments in tertiary education has led to a close (and sometimes contentious) working relationship between universities and their governments. This has often been due to competing notions of what role the university should play in society. While both parties have typically believed that the university should serve national development at some level, they have often disagreed about what constitutes "development" and the best means to achieve it. According to Lindow (2011: 89):

> *Universities strive to be partners to government in the name of development, but their relationship to the state is in fact complicated. If universities are indeed bound up in a pact with government and society, they must also shine a light of critical inquiry on the relationship between the two—a role which sometimes puts academics at odds with authorities, in Africa and elsewhere around the world.*

However, in many African countries where civil society remains generally weak and the local universities lack meaningful autonomy, higher education institutions often resemble branches of the civil service (training up workers and loyally supporting the government) rather than sites of independent and critical thought (an ideal that many scholars hold). Zeleza (2002: 16) critiques this situation, explaining that:

> *Governance structures often mirror those of the state, partly because, in many cases, senior university administrators are state appointees, who in turn appoint unit heads down the administrative hierarchy. The decision-making process tends to be discretionary and authoritarian, which is manifested through recruitment, screening, promotions, allocations of work loads, provision of leave and sabbaticals, scaling of staff, gate-keeping, policing and closures of campuses, surveillance, sexual harassment, and the administration of welfare facilities. Research is often enmeshed in patron–client networks, and it is employed as a weapon for punishing radicals, rewarding sycophants, and settling scores. Faculty is also sometimes*

> *humiliated and harassed through the use of accounting procedures. In short, authoritarianism, corruption and discrimination on ideological, intellectual, national, ethnic, religious and gender bases are quite widespread in institutions dominated by the academics themselves. This breeds censorship and encourages the "brain drain" of those, usually younger scholars, able to find greener pastures elsewhere, locally or abroad.*

The Task Force on Higher Education and Society (2000: 62) reinforces this picture of state-controlled institutions, stating that "with the government in many countries having assumed the power to appoint and dismiss the Vice Chancellor, governance in the universities has thus become a purely state-controlled system …. There are countries where even deans and department heads are also appointed by government and where heads of institutions change with heads of government."

That said, the structure and practices of university management do not derive from the example of national governments alone, but through the institution's constant comparison with and reference to international norms. The standards set by other universities have a powerful effect on how research agendas are set, how administrators evaluate academics and how they go about improving research productivity.

Conclusion

It is tempting to interpret this history negatively, as a period of lost opportunities and strategic mistakes. Indeed, we could provide significant evidence to support such a conclusion. As Zeleza (2002: 10) reminds us, "today, Africa remains the least educated continent in the world, able to provide higher education to only 3.5% of the college-age population, as compared with 60% in the industrialised countries."

Even more troubling, some scholars believe that education in Africa has irrevocably damaged Africans' psyches and "souls", a process started by the colonisers and continued by the inheritors of independent state power. According to Nyamnjoh (2012: 129–130):

> *In Africa, the colonial conquest of Africans – body, mind and soul – has led to real or attempted epistemicide – the decimation or near complete killing and replacement of endogenous epistemologies with the epistemological paradigm of the conqueror. The result has been education through schools and other formal institutions of learning in Africa largely as a process of making infinite concessions to the outside – mainly the western world. Such education has tended to emphasise mimicry over creativity, and the idea that little worth learning about, even by Africans, can come from Africa. It champions static dichotomies and boundedness of cultural worlds and knowledge systems.*

Nevertheless, it is worth remembering that, despite the ups and downs of this history, Africa has progressed significantly since independence, especially in terms of literacy:

> *Since 1960, the putative year of African independence, only 9% of the African population was literate, rising to about 50% three decades later. Taking the*

> *sub-Saharan region alone … enrolment ratios rose from 45% in 1965 to 74% in 1995 for primary schools and 5% to 35% for secondary schools. The rapid expansion of education not only led to a massive improvement in the African human capital stock, it also laid the institutional basis for the social production of African intellectual capacities, communities and commitments*. (Zeleza 2002: 10)

Africa's prospects have also drastically improved according to numerous other indicators:

- In 1960, there were only about a dozen HEIs that black Africans could attend, but in 2013 there were over 500.
- There has been a 20-fold increase in higher education enrolment since 1970 (Chien & Chiteng 2011: 6).
- While higher education was almost completely male-dominated at the end of colonialism, today the region enjoys substantial levels of female participation.

Education in sub-Saharan Africa is recovering from a long period of neglect and, along with many other institutions in the region, is experiencing considerable difficulties. However, the region is also taking important steps to improve the situation. One of the more impressive areas in this regard is Southern Africa, where conditions are such that they challenge any casual understanding of the "African context" and provide a greater appreciation for the diversity of circumstances on the continent.

The Southern African context

While within the geographical boundaries of sub-Saharan Africa, Southern Africa (here defined as the countries within the Southern African Development Community, or SADC) conforms to some of the above issues while deviating in others. Home to 14 countries[28] and 253 million people, the region hosts 54 universities and makes a significant contribution to continental research production (though only a marginal one to the global literature). As the four SCAP study sites were all located in Southern Africa, it is valuable to consider the region's specific context, both to avoid the all-too-common problem of writing about "Africa" as an undifferentiated, essentialised monolith and to develop a more concise understanding of the geopolitical environment in which the four study sites are located.

Southern Africa spans South Africa in the south to the Democratic Republic of Congo (DRC) in the north, and includes the south-eastern Indian Ocean islands of Madagascar, Mauritius and Réunion. It contains the continent's biggest economy (South Africa), its most innovative economy (Mauritius[29]) and the four most unequal countries in the world (Namibia, South Africa, Botswana and Lesotho[30]).

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[28] SADC member states: Angola, Botswana, the Democratic Republic of the Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.
[29] Global Innovation Index 2013, available at: www.globalinnovationindex.org/content.aspx?page=data-analysis
[30] Kevin Lincoln (2011) The 39 Most Unequal Countries in the World, *Business Insider*, available at: www.businessinsider.com/most-unequal-countries-in-the-world-2011-10?op=1

History

Southern Africa follows the general pattern of post-colonial tertiary education development, with the significant exception of South Africa. While the majority of the region's universities were established after the 1960s, many of South Africa's most highly ranked universities were established in the first two decades of the 20th century. As such, the country has been a centre of academic excellence and attracts many students from throughout the region. These universities were able to avoid the crisis in sub-Saharan African higher education due to the presence of national funding capacity, a fact that has contributed to South Africa's regional dominance in research production.

Demographics

Southern Africa's tertiary enrolment rate was 6.3% in 2012, comprising 1.3 million students, 51% of whom were female (Wilson-Strydom & Fongwa 2012: 19). Within the region the gender profile is mixed: Lesotho, Mauritius, South Africa, Namibia and Swaziland follow the global trend of higher female enrolment, while the other SADC countries conform more to the general African trend for greater male participation in tertiary education. These figures are comparable with African higher education enrolment in general. The majority (84%) of tertiary education is based on contact-tuition (Wilson-Strydom & Fongwa 2012: 18) and is largely urban in nature.

Funding

Within the region there is a large differentiation in terms of national expenditure on education, which is not directly correlated with educational outcomes. Lesotho, for example, spends 13.4% of its GDP on education and fares second "in respect of the availability of scientists and engineers for research and development" (Richards 2008: 4) yet ranks lower than South Africa in terms of innovation, in 117th place vs South Africa's 54th (Global Innovation Index 2012).

Research funding in the region is generally low, and heavily dependent on international funding agencies:

> *A very substantial 42% of all respondents from SADC (RSA excluded) indicated that they source between 70 and 90% of their research funding from overseas compared to only 6% of South African respondents. The responses very clearly show the dependence of SADC scientists on international funding for their research; and conversely how little domestic funding is available for research. We should also point out that this picture is even worse if one keeps in mind that the scientists in our sample were identified because they are the most active and productive scientists in their fields in their countries.* (Mouton 2010: 23)

Excluding South Africa, which spends 0.9% of its GDP on R&D (DST 2013), the average regional expenditure is closer to 0.3%. Institutions themselves often struggle to provide sufficient funding for their academics' proposed research budgets, contributing to short-term, introspective and derivative research work.

In such a funding environment, consultancies offer an attractive alternative for researchers struggling with inadequate institutional and national funding systems, and "more than two thirds of all academics in the fourteen SADC countries regularly engage in consultancy" (Mouton 2010: 15). As with sub-Saharan Africa in general, the influence that consultancy work exerts on Southern African research agendas can be seen in both positive and negative lights – offering on the one hand the opportunity to conduct well-funded and relevant research, while on the other taking time away from basic or theoretical research, and locating executive control over the region's research agenda outside of the academic community itself. Even national governments have comparatively little control over the shape of public science (Mouton *et al.* 2008).

Human capital

The "brain drain" problem so common in sub-Saharan Africa is also felt in Southern Africa, but with the caveat that, along with international emigration, there is also a good deal of intraregional migration, mostly to South Africa. Student migration can be as high as 87% and 65% in Botswana and Namibia, respectively, while "South Africa has the highest inbound mobility rate with nearly 50,000 foreign students studying in the country in 2005" (Mouton 2010: 20).

The brain drain phenomenon has historically been driven by multiple factors, including the declining quality of life across Africa from the late 1970s to the early 1990s, the lack of knowledge-intensive industry to provide desirable employment, the deterioration of the higher education sector, political instability and the lack of local postgraduate programmes (Barclay 2002; Mouton *et al.* 2008).

Infrastructure

Although SADC has the "most pervasive regional terrestrial fibre network" (SADC 2012: 27) on the continent, its access to and use of bandwidth is relatively low compared to global standards. "An average of only 4% of the SADC region's population are internet users today" (SADC 2012: 21). "These generally low levels of internet penetration, are partly the result of the high cost of access, combined with low income levels, and the lack of fixed line infrastructure, combined with the relatively short period that lower cost wireless internet services (mainly 3G and WiMax) have been available in major urban areas" (SADC 2012: 22). Furthermore, with regards to the average growth in internet penetration, the SADC region is "falling behind compared to the rest of the world (although it is ahead of the average for Africa as a whole)", with the "region being almost 10 years behind the world average" (SADC 2012: 22).

In contrast to the low level of internet users, mobile telephony usage rates are quite high. "Encouraged by the early introduction of prepaid services (which now account for 80–90% of subscribers in the region), mobile uptake stood at an average of 60% of the population in 2010" (SADC 2012: 18). However, this figure "obscures fairly large variations (about 5 times) between SADC Member States, with the DRC and Malawi at only around 20% penetration while Seychelles, Botswana and South Africa are over 100% (due to the use of multiple SIM cards)" (SADC 2012: 18).

While the universities that we profiled enjoyed reasonable access to the internet and could enhance their scholarly communication activities even with their present level of access, the low levels experienced by other members of the population decreased the educational potential of the internet, especially at the basic education level.

Research

Although Southern Africa research production is impressive by continental standards, most countries in the region still produce fewer than 1,000 ISI/WoS-ranked publications per year, with only Tanzania and South Africa producing more prolifically (Kotecha, Walwyn & Pinto 2011). Productivity per full-time-equivalent (FTE) researcher varies across the region, ranging from Namibia and South Africa producing close to 0.8 WoS-ranked publications per researcher per year and Botswana and Zimbabwe averaging close to 0.6 per researcher per year, to the DRC, producing very little ranked research (Kotecha, Walwyn & Pinto 2011). Even the higher performing countries in the region underperform relative to the developed-country average of 1.2–1.5 WoS articles per FTE researcher per year. Within the region, South Africa dominates: of the approximately 11,000 research publications reported in the region in 2009, some 9,000 were produced by scholars in South Africa.

PhD qualifications are another metric of national research development. In 2010, the region produced 1,546 doctorates, of which only 125 were outside South Africa, which "accounts for 89% of PhDs in the region" (Kotecha, Walwyn & Pinto 2011: 12). Aside from Mauritius and South Africa, which produce between 0.3 and 0.4 PhDs per FTE researcher per year, the production of new doctorates is very low. In general, the education profile is biased towards undergraduate studies, as explained by Wilson-Strydom & Fongwa (2012: 38):

> *The regional graduation profile is even more heavily skewed towards undergraduate qualifications, with 79% of graduations being at the undergraduate level, 15% at postgraduate level, 6% at the masters level and only 1% at doctoral level. If the South African data are removed, the proportion of undergraduate graduations increases to 88%, postgraduate graduation below masters level is 5%, and masters and doctoral qualifications together represent 5% of the total.*

South Africa's dominance in PhD production is partly due to internal intellectual migration. As many universities lack capacity for postgraduate supervision, South Africa is an attractive destination for regional postgraduate students. As PhD qualifications are strongly correlated with research production (Cloete, Bailey & Maassen 2011), the region's lack of endogenous PhD development is therefore a negative factor in intensifying research, especially the development of local epistemologies.

Management

In many Southern African countries, the establishment of national universities coincided with independence and was one of the markers of a functioning, independent nation-

state. In this environment, "the major purpose for establishing universities in these countries was, and still is, for the institutions to play a pioneering role in addressing problems of poverty, social disorganisation, low production, hunger, unemployment, illiteracy, disease, that is, the problems of underdevelopment" (Mosha 1986: 1).

As such, universities (especially in single-university countries) have always been strongly aligned with national governments. Academic freedom was even seen in some cases as "a petty bourgeois claim, a sort of luxury that poverty- and crisis-ridden societies cannot afford" (Sall 2001: 1). Yet this remains a situation in flux, as academics continue to voice concerns about the perceived detrimental effects of government interference in the academic enterprise, calling for universities to exert greater control over their own work.

Conclusion

As this brief description of the Southern African context makes clear, the region shares many of the features of the continental higher education picture, yet diverges from it in significant ways as well. This is mainly due to the presence of South Africa, an outlier that skews the numbers and generates substantially more capacity and opportunity for the region compared to what the continental figures would suggest. However, the small population sizes and high levels of political stability in the other countries SCAP profiled (Botswana, Mauritius and Namibia) have also made the region a more robust and productive educational environment, comparatively speaking. With this in mind, we can now turn to the national context shaping this particular partner university.

The Botswana national context

Botswana is a sparsely populated country north of South Africa, sandwiched between Namibia and Zimbabwe. It hosts a population of just over two million in a land about the size of Madagascar. One of the poorest countries in Africa at the time of its independence in 1966, it has since shown consistently strong rates of economic growth, driven primarily by mining and cattle farming, but increasingly diversifying into the finance, service and manufacturing industries. Today, Botswana has the highest credit rating in Africa[31], the lowest rate of corruption on the continent[32] and a history of strong representative democracy (Sebudubudu & Botlhomilwe 2012). Nevertheless, like its neighbours Namibia and South Africa, it experiences a highly unequal distribution of wealth and an unemployment rate of 17.8%.

[31] See the continuously updated table at the bottom of this *Guardian* article for each country's credit rating. *The Guardian* (2013) Credit ratings: how Fitch, Moody's and S&P rates each country. Available at: www.guardian.co.uk/news/datablog/2010/apr/30/credit-ratings-country-fitch-moodys-standard [accessed 3 June 2013]

[32] According to Transparency International's *Corruption Perception Index* of 2012, Botswana ranks 30th out of 174 nations surveyed (tied with Spain) and 1st in Africa. In comparison, Mauritius ranks 43rd internationally and 3rd in Africa; Namibia ranks 58th internationally and 6th in Africa; and South Africa ranks 69th internationally and 9th in Africa. See www.transparency.org/cpi2012/results

History

Botswana since independence has followed an unusual trajectory in Africa, with an unbroken history of democratic governance, no military or ethnic unrest, and no warfare with foreign countries (Sebudubudu & Botlhomilwe 2012). Though quite poor at independence, the nation enjoyed a long and sustained period of high growth – one of the highest in the world for nearly 20 years – which has led to its emergence as a middle-income country. As such, it has avoided some of the negative consequences of civil unrest, such as population displacement and infrastructural destruction that have set back development in other parts of the continent. However, it has not escaped the ravages of the HIV/AIDS pandemic that is prevalent across southern Africa.

The history of higher education in the country is largely synonymous with the University of Botswana up until recent years when private education providers entered the scene and the government started to expand public higher education options. At the time of writing, UB was still the largest single tertiary education provider, educating 40% of all higher education students.

Demographics

According to the Tertiary Education Council (2012: 2), there are close to 47,000 students of higher education in Botswana, of which 34,000 go to public HEIs and 13,000 go to private HEIs. This amounts to a gross enrolment rate (GER) of the 18–24 population of 16.4% (TEC 2012: 24), which compares to an 18% rate in South Africa and 45% in Mauritius.[33]

Table 3.1 Botswana indicators

Population	2 million
Size	600,370 km² (just smaller than France)
Public universities	2
Human Development Index	0.634
Gini coefficient	61
Gross National Income per capita	$14,550

Funding

Botswana spends approximately 20.2% of its national budget on education, amounting to 2.2% of the country's GNI (UNESCO 2012). According to the TEC, "the share of tertiary education expenditure is estimated to be around 4.1% of the GDP. Contribution of non-government funding has not been calculated, but seems depressingly low" (TEC 2012: 34).

[33] Baboki Kayawe (2013) Botswana aims at 20% tertiary education intake. *MmegiOnline*. Available at: www.mmegi.bw/index.php?sid=1&aid=504&dir=2013/January/Thursday24

However, the government provides full education subsidies to tertiary students from within Botswana, including cost of living and tuition, while international students pay for all of their expenses. In addition to the University of Botswana, the country supports 21 other publicly funded HEIs. The private sector also supplies five PHEIs that cater to 41% of tertiary education students in the country, though the government also provides the tuition costs for students at these institutions.

For research, the government proposed the creation of a National Research Council in the Botswana Long Term Vision 2016 (PTG 1997), which would have coordinated national-level research funding. However, that body has yet to be established. Thus most national research funds come from the various governmental ministries and bodies, such as the Tertiary Education Council, which provided "P10 million for tertiary research funding in 2011 (TEC 2012: 47).

Human capital

According to Mouton (2008: 28), "available figures from Botswana indicate that over 90% of doctors, 61% of pharmacists, and 64% of the radiography cadre in the health sector facilities are expatriates. As a result the country is making great efforts to expand local training capacity and to increase the number of health students to address the problem."

Infrastructure

Botswana has a dearth of fixed line telephony at seven lines per 100 residents, but a much higher rate of mobile telephony penetration, with 140 lines per 100 people. The use of internet services is dominated by urban populations while the rural areas receive little to no fixed-line bandwidth (Oladokun & Aina 2011).

Research

Botswana is one of the top producers of rated research in Southern Africa. According to Teng-Zeng (2008: 71), "Botswana produced 880 articles in ISI-journals between 1995 and 2004, an average of 88 per year (of which 95% were produced by UB staff)." However, it is also characterised by a:

> *small extent of international and even within-country level collaboration as measured by co-authorship … The overall profile shows that academics are not typically involved in collaborative efforts. Whether this is due to historical reasons (relative recent establishment of the University), or ICT-barriers, lack of funds or other factors, is not clear.* (Teng-Zeng 2008: 71)

In addition to UB and the Botswana College of Agriculture (BCA), a number of research centres and institutes contribute to the national research effort, such as the Botswana Technology Centre (BOTEC), Botswana Institute for Development Policy Analysis (BIDPA) and the famous Okavango Research Institute (ORI).

Management

While the governance of the higher education sector is spread over multiple ministries and departments, the Tertiary Education Council (TEC), established in 2002, is nevertheless responsible for overseeing the higher education sector in general.

> *The functions of the TEC are similar to those of other higher education councils around the world. Among others, they involve advising Government on policy matters pertaining to tertiary education, co-ordination of the long term planning and overall development of tertiary education, liaising with both public and private sectors of the economy on all matters relating to human resources requirements and development. Furthermore, they entail development of plans and funding of public tertiary education and research, allocation of funds to public tertiary education institutions, registration of private and public tertiary education institutions. Additionally, TEC is responsible for accreditation of programmes of study of private tertiary education institutions and auditing of programmes of study in public TEIs.* (TEC 2012: 3)

The growth in responsibilities of the TEC marks an important maturation process in the higher education sector in Botswana, although, as mentioned in Chapter 4, the fact that it still does not have a National Research Council to "to promote, facilitate and fund research in Botswana" (PTG 1997: 27–28) limits its ability to diversify the country towards a more knowledge-oriented economy.

The University of Botswana institutional context

As the flagship university, UB "is closely involved in the national development process of Botswana", mainly through teaching and "the research and development, consultancies and information services which they undertake."[34]

History

The University of Botswana began operating in 1964 as the University of Basutoland, Bechuanaland and Swaziland. Over the next 18 years, Swaziland and Lesotho developed their own tertiary education institutions, after which, in 1982, the university became an entirely Botswanan institution and was renamed the University of Botswana. In 1990, the university went through a substantial re-organisation, increasing the number of faculties from four to eight (Malete & Kobedi 2012). The university has for most of its history been a teaching-oriented institution, though it has a number of well-known research centres, such as the ORI, which attract international scholars and produce a large portion of the university's research output.[35]

[34] About UB, available at: www.ub.bw/content/id/1895/About-UB/
[35] UB History, available at: www.ub.bw/content/id/1366/History/

Demographics

UB is the country's only publicly funded university with 17,678 students. 40% of the higher education enrolments in the country are at UB (TEC 2012: 2).

Table 3.2 University of Botswana indicators

Faculties	Business Education Engineering and Technology Health Sciences Humanities Science Social Sciences
Academic staff numbers	877[36] (31% of total)
Academic:Administrative staff ratio	± 1:3.2
Enrolment	17,678
Student:staff ratio	20:1
Female:Male student ratio	56:44
Total expenditure	P1,005,744,000
Production of ISI/WoS Index journal articles (per annum)	0.12 per academic staff member per annum average (Bunting & Cloete 2012)
Library volumes (books)	459,956
Periodical titles Full-text journals	1,200 123,236
International rankings: Times Higher Education (THE) Quacquarelli Symonds Shanghai Jiao Tong University Webometrics	 Not listed Not listed Not listed 3,127 (43rd in Africa)[37]

UB academics utilise English in their formal communication and in much of their daily interactions with students. This is the official language of the country and the university, but it is not the first language of most people on campus. This impacts communication in uneven ways, sometimes hindering it (if any of the parties has difficulty with it) and sometimes enhancing it (if the language provides access to a concept that is not well formulated in other known languages).

[36] See UB Facts and Figures, available at: www.ub.bw/content/id/1989/Facts-and-Figures/. In addition to the 877 academic staff, UB has 1,500 support staff, 412 industrial staff and four executive management members, for a total institutional staff of 2,793 [accessed 15 August 2013]

[37] Webometrics Ranking Web of Universities, Africa, available at: www.webometrics.info/en/africa [accessed 7 November 2013]

Funding

The bulk of publicly sourced funds for research come from UB's internal research budget (which is almost totally derived from government subvention). Over the past years, with the university's decision to move from being a teaching-oriented to a research-oriented institution, UB faculties and departments have dramatically increased their research budget requests from P3.5 million (USD424,000) in 2008 to P7.5 million (USD909,000) in 2009. However, the actual amount distributed increased only from P1.6 million (USD194,000) to P2.6 million (USD315,000).[38] According to the UB Annual Research Report (UB 2008d: 23), "during the financial year 2008–2009, internal research funding was more than doubled to P3.5 million, and the budget for 2009/10 allocates P4 million."

However, the university does receive money from external sources as well for research.

> *The University's sponsored research funding increased by almost 30% from P16,618,194 in 2006 to P23,353,650 in 2007. The major donors were the European Union, UNDP, USAID, NUFU and DANIDA. Industry funding was received from the Botswana Telecommunications Corporation, Microsoft Corporation and the Debswana Diamond Company. UB also received P12 million from the National Institutes of Health (NIH)(USA).*
> (UB 2008d: 23)

On campus, the Office of Research and Development (ORD) "currently supports over 150 active internally and externally funded projects" while "in 2008, Humanities got around P140,000 in research funding" (UB 2008d: 24).

However, many scholars and managers note that they would still like to see more research funding made available. For instance, the maximum for conference travel funds was P7,000 while the ORD recently stated, "UB funding whose ceiling is P200,000, a very small amount for national researches."[39]

Human capital

Over the last few years, UB has considerably expanded its postgraduate studies programme. The university enrolled 127 students for PhD studies in 2009/2010, out of a total postgraduate cohort of 1,499. The School of Postgraduate Studies at UB predicts that PhD enrolments will increase by 18% per year for the next seven years (Malete & Kobedi 2012). As of 2009/2010, 90% of UB enrolments were undergraduate and 10% were postgraduate (CHET 2012: 1). "Masters enrolments more than doubled over this period, increasing from 493 in 2000/01 to 1,249 in 2009/10. Doctoral enrolments remained low, growing from 8 in 2000/01 to 61 in 2009/10" (CHET 2012: 3).

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[38] On 3 April 2013, the exchange rate between the Botswana Pula and the USD was 8.25 Pula per dollar (and 0.9 Pula per South African rand).

[39] UB Deputy Director-Research, Dr Jose Jackson-Malete, quoted in Arnold Letsholo (5 May 2013) Stakeholders develop Manual for Botswana Research Fund. *Sunday Standard*, available at: www.sundaystandard.info/article.php?NewsID=16822

On the staffing side, "in 2008/9 UB's permanent staff were comprised of 59% PhD holders and 41% Masters holders" (CHET 2012: 12).

However, the university has been experiencing challenging staff shortages. In 2011, with an academic staff cohort of over 800 personnel, there were still 163 unfilled posts (UB Academic Staff 2012). Yet there were nearly 2,000 support staff, many of whom were perceived to cost the institution disproportionately to the value they provided. Attrition of staff both to overseas institutions and to the private sector has been particularly challenging, driven by both more attractive wages and low morale of academics in the institution (UB Academic Staff 2012: 24).

Infrastructure

At UB, bandwidth constraints remain a problem even as the university has considerably increased its investment in computer hardware. UB possesses an institutional repository, called the University of Botswana Research, Innovation and Scholarship Archive (UBRISA), which contained 936 objects as of June 2013. Moreover:

> *The University of Botswana, which currently accounts for about 40% of the tertiary education enrolment, has experienced further growth in terms of construction of facilities such as the Faculty of Health Sciences, Multidisciplinary Offices, Classrooms and lecture theatres which were completed by end of 2011/12. The Faculty of Engineering and Technology and Campus Indoor Sports facilities are planned to complete during the course of the year 2013. These developments will not only increase access but also create diversified capacity for tertiary education.* (MFDP 2013: 52)

Research

UB does not produce annual research reports (despite the use of the word "annual" in its periodic publications), thus it is difficult to obtain up-to-date information on research trends. However, this data from 2008 provides some sense of UB's research activities: in that year, "the Faculty of Science was leading with 134 refereed journal articles, followed by the Faculty of Education with 51 articles, after which Social Sciences and Humanities had 34 and 30 articles respectively. The Faculties of Engineering and Technology and Business had 13 and nine refereed journal articles respectively while HOORC had 28 refereed journal articles (UB 2008b: 16).[40]

Furthermore, as the report continues:

> *At the Faculty level, in 2007 research outputs showed a slight increase from 740 in 2006 to 753 in 2007. If we note that there were 579 research outputs in 2005 and only 474 in 2004, then there is a clear upward trend in research outputs. The performance management system (PMS), which was piloted in 2006 and fully operational in 2007 may have some linkage with this.*

[40] "It should be noted that the data reflects reports made to ORD and it is undoubtedly incomplete, as reporting of research outputs is not mandatory for staff" (UB 2008b: 16).

> *Essentially, PMS links performance with rewards and the effect of this is two-fold. Firstly it improved the reporting of the research outputs by staff and secondly, it visibly increased the number of those research outputs that have higher points in the PMS such as refereed journal articles. At the Faculty level, the analysis of the outputs shows the Faculties of Science (204) and Education (203) leading with a contribution of 27% each, followed by Humanities at 24% (177), and 11% (86) of Social Sciences among the big Faculties. The smaller and newer Faculties of Engineering and Technology and Business contributed only 3% (26) and 2% (16), respectively. The only dedicated research centre, HOORC, contributed 5% (41) of the overall research outputs. An interesting picture emerges when focus is on quality. At the top of the list are refereed journals in which the Faculty of Science is leading with 134 journal articles, followed by the Faculty of Education with 51 articles, after which we have Social Sciences and Humanities with 34 and 30 articles respectively.* (UB 2008b: 16)

What is curious is that while the Science faculty predominates with refereed journal articles, "with respect to books and book chapters, the Faculty of Humanities is leading with 12 books and 39 book chapters" (UB 2008b: 17), which shows how important disciplinary differences are in assessing research outputs and why ISI rankings miss so much of Africa's output.

Indeed, according to CHET (2012: 12–13), "the average ratio for the eight-year period is 0.12 [ISI-ranked articles per year], which implies that Botswana's permanent academic staff produce on average one research publication every eight years" which is below the one-in-two years benchmark. Of course, this does not tally with scholars' own CVs, which show a far greater level of activity though their work may not be visible to the ISI/WoS.

However, while UB is trying to develop a more intensive research environment, it provides a number of research support services, the primary one being the Research Capacity Development Programme that is

> *targeted at early career researchers and graduate students; although any academic at any stage is welcome to attend. The programme involves a series of workshops with internal and external facilitators on a range of topics that may assist the researcher with either the attainment of their graduate degree, to begin their career as an independent researcher or to increase research output and externally funded grants.*[41]

The workshops deal with topics such as pre-award internal funding, ethical conduct in research, the roles and responsibilities of mentors and mentees in mentoring relationships, grant proposal writing, research communication, manuscript writing, research methods, design and supervision, intellectual property and innovation, identifying funding opportunities, and post-award internal funding.

[41] Research Capacity Development Programme, available at: www.ub.bw/content/id/1958/pid/1800/ac/1/fac/8/Research-Capacity-Development/

Management

The university administration operates according to what can be characterised as a "managerial" institutional culture (Bergquist & Pawlak 2008) in that it has a strong, centralised authority that wields power in a paternalistic, top-down fashion. However, a large portion of the academic staff want the university to re-focus on its "academic" mission because they believe that it has become too focused on the administration's interests. A number of scholars recently collaborated to write a critique of the managerial culture at the university. They conducted a survey amongst the academics and presented a report to the staff union, which contained multiple criticisms of the university's operation, namely the poor working conditions for academics, the top-heavy bureaucratic system and the growing deficit in academic staff numbers. The authors (UB Academic Staff 2012: 1) complained that:

> *the present structure has never been reviewed, instead it has grown bigger and bigger, which is why presently there are more than twenty five directors, numerous deputy directors, assistant directors and managers. The governance structure is top heavy and therefore contradicts the vision and mission of the University and is not properly aligned to its core business.*

In addition to this, the government plays an important role in guiding public institutions such as UB. For instance, the government appoints the university's vice chancellor and writes the national strategic development policies that the university must reference in planning its own goals and strategies.

An important part of the UB management regarding scholarly communication is the Office of Research and Development (ORD) which helps scholars search for and find research funding opportunities, apply for funding, comply with funding requirements, commercialise research outputs (through the Research Commercialization Unit)[42], and develop long-term research funding strategies.[43] In addition it recruits post-doctoral fellows, sets up quality assurance frameworks for research plans, establishes partnerships for collaborative research, reviews and endorses funded project proposals, negotiates and accepts awards on behalf of the university, offers training in research management to academic staff and graduate students, and assists with a number of other pre-award and post-award administration services.[44]

Conclusion

The University of Botswana faces some of the challenges that characterise higher education in the rest of the continent – such as relatively low levels of research funding, infrastructure deficits and staff attrition – but it remains one of the better resourced, managed and networked institutions in the region. For instance, UB is the second-most productive research producer per capita in the SADC region with 96 research papers per million, coming just behind South Africa's 119 papers per million (Mouton *et al.* 2008).

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[42] The ORD Research Commercialisation Unit, available at: www.ub.bw/content/id/1856/pid/1740/ac/1/fac/8//Commercialization/
[43] The Office of Research and Development, available at: www.ub.bw/home/ac/1/fac/8/
[44] ORD Funding, available at: www.ub.bw/content/id/1952/pid/1740/ac/1/fac/8//Funding/

Despite being located in a country with a very small population, UB is making an important contribution to research production in the country and, in some respects, across southern Africa.

With this understanding of UB in mind – as an African, southern African and national institution – we now turn to assessing the policy environment that shapes the institution.

Chapter 4. Scholarly communication policy landscape at UB

In this chapter, we will provide a snapshot of the policy landscape shaping UB FoH research and communication activities. We will do so by viewing this landscape from three different vantage points: the international context, the national context and the institutional context. Through this nested approach, we will get a clearer idea of how the university's scholarly communication activities respond to their surrounding policy environment. Through a thick description of this landscape, we will be able to offer some light analysis concerning institutional scholarly communication, though this chapter mainly serves to set the stage for a more comprehensive analysis of the relationship between scholarly communication practices and the policy environment in later chapters.

The international context

The scholarly communication policy environment in Southern Africa remains highly influenced by academic norms established in the global North. This is not only due to the historical foundations of the universities themselves – derived from British models in the cases we studied – but the nearly hegemonic position that European and North American universities enjoy in setting global academic standards. This helps to explain why, even though Northern and Southern universities are often animated by different values and missions, their scholarly communication methods are largely the same, even if those divergent missions might be better served by different communication strategies.

The scholarly communication norm up until recently has been characterised by three prevailing features. In this "traditional" model, scholarly communication is:

- Disseminated primarily through journal articles, books and book chapters, thus equating to scholar-to-scholar communication
- Published by third-party commercial publishers that charge subscription fees (for institutions) or purchase costs (for individuals) to access their publications
- Often assessed according to a work's Impact Factor, the metric purporting to

measure a work's prestige and "importance" based on the average citation rate the publishing journal's articles collectively achieved during a two-year period

However, these normative standards are in a massive state of flux as the open access (OA) and alternative metrics movements challenge the utility of the traditional scholarly communication model and the arithmetic sensibility of the Impact Factor. These challenges emanate largely from within the institutions of the global North, but they also shape Southern scholarly communication opportunities, offering new possibilities for greater visibility and social "impact".

Open access goes mainstream

Over the last five years, global scholarly communication discourse has changed dramatically, moving from a discretionary consideration in academic research activity to an integral component of that process. In many ways, this is due to the achievements of the open access movement, which gained the scholarly, institutional and governmental support necessary to move from the activist fringe to the mainstream. This transition was signalled by the raft of policies adopted by major research-funding bodies, which required that all research funded by them was made open access, such as:

- European Commission[45]
- European Organization for Nuclear Research (CERN)[46]
- European Research Council (ERC)[47]
- Max Planck Society[48]
- Research Council UK (RCUK)[49]
- UK government[50]
- UK Department of Health (NHS/NIHR)[51]
- UNESCO[52]
- US government agencies[53]
- US National Institutes of Health (NIH)[54]
- World Bank[55]

[45] European Commission MEMO/12/565 (17/07/2012) Open access to scientific data – Communication and Recommendation – background, available at: http://europa.eu/rapid/press-release_MEMO-12-565_en.htm?locale=en
[46] CERN Scientific Information Service, Supporting Open Access Publishing, available at: https://oldlibrary.web.cern.ch/oldlibrary/OpenAccess/PublicationPolicy.html
[47] Open Access Guidelines for researchers funded by the ERC, available at: http://erc.europa.eu/sites/default/files/document/file/open_access_policy_researchers_funded_ERC.pdf
[48] Open Access and the Max Planck Society, available at: http://edoc.mpg.de/doc/help/mpg_oa.epl
[49] RCUK Policy on Open Access, available at: www.rcuk.ac.uk/research/outputs/
[50] Finch J (2012) *Accessibility, Sustainability, Excellence: How to Expand Access to Research Publications*. Report of the Working Group on Expanding Access to Published Research Findings: The Finch Group. Available at: www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf
[51] Statement on DH/NIHR-funded research and UK PubMed Central, available at: www.nihr.ac.uk/files/pdfs/OpenAccessPolicyStatement.pdf
[52] Swan A (2012) *Policy Guidelines for the Development and Promotion of Open Access*. Paris: UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002158/215863e.pdf
[53] John Holdren (22 February 2013) Memorandum for the Heads of Executive Departments and Agencies, available at: www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf
[54] NIH Public Access Policy Details: http://publicaccess.nih.gov/policy.htm

With these major funders[56] requiring that their research outputs to be made freely available to the public, scholars and universities have had to think beyond the traditional scholarly communication paradigm, a reality with which our partner universities in Southern Africa were just beginning to grapple.

Another key implication of these mandates is that while some funders such as the European Commission focus their open access requirements on traditional scholarly outputs (such as peer-reviewed journal articles), others such as the World Bank require it for all types of research outputs (including reports, working papers, policy briefs, data, etc.), thereby broadening the very notion of what constitutes scholarly communication. SCAP argued for this enlarged approach to scholarly communication throughout its engagement with Southern African universities, but it will likely only become a mainstream proposition through the continued production and dissemination of such alternative outputs by the scholarly community in response to incentives such as funder mandates and institutional reward systems.

Along with these funders, many universities have also adopted open access policies governing the dissemination of their faculty members' research outputs, including Concordia, Dartmouth, Duke, Edinburgh, ETH Zurich, Harvard, MIT, Princeton, UC Berkeley and the University College London.[57] These universities are contributing to a groundswell of institutionally based action endorsing open access principles.

While funder mandates have given a major financial and policy incentive for scholars to communicate their research openly, the growth of open dissemination platforms (such as OA journals and institutional repositories) has also made such a choice more feasible. For instance, according to Laakso and Björk (2012), between 2000 and 2011, the number of open access journals has grown significantly, as has the number of articles published in an OA fashion. In 2000, 744 open access journals published 20,700 articles. In 2011, 6,713 full open access journals published approximately 340,000 articles. Each year, the proportion of open access articles rises by about 1%, totalling approximately 17% of the 1.66 million articles listed in the Scopus journal article index in 2011. The fact that many smaller OA journals are not even featured in indexes such as Scopus or the Web of Science suggests that the proportion of OA publishing is even higher than often recognised, a fact that confirms the considerable impact that OA outlets are having on scholarly publication (Laakso *et al.* 2011).[58]

This growth has been matched by the expansion of open access IRs where universities curate, profile and disseminate their scholars' research, some of which has been formally published elsewhere. According to the Open Directory of Open Access Repositories (OpenDOAR), the number of IRs worldwide has increased from 128 in December 2005 to

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[55] World Bank Open Access Policy for Formal Publications, available at: http://documents.worldbank.org/curated/en/2012/04/16200740/world-bank-open-access-policy-formal-publications

[56] For a more comprehensive list of funder open access mandates from BioMed Central, see: www.biomedcentral.com/funding/funderpolicies

[57] For a list of universities worldwide with open access policies from BioMed Central, see: www.biomedcentral.com/funding/institutionalpolicies

[58] For an incisive summary of Laakso and Björk's article, see Ben Mudrak (10 November 2012) New study tracks growth of open access publishing, *AJE Expert Edge*, available at: http://expertedge.journalexperts.com/2012/11/10/new-study-tracks-growth-of-open-access-publishing/

2,454 in October 2013.[59] This includes 81 repositories currently in Africa (3.3% of the global total)[60] of which 69 are located in sub-Saharan Africa (40 of these are in Southern Africa). The proliferation of repositories worldwide offers new possibilities for universities to take greater control of their scholarly communication destinies.

These two dissemination mechanisms – open access journals and open access IRs – are the subject of an intense debate concerning which platform offers the most viable, sustainable and affordable OA dissemination mechanism going forward. This debate is known as that between the "gold route" and the "green route".

According to the Joint Information Systems Committee (JISC), the *gold route* involves "publishing in a fully open access journal or website. Subjected to the same peer-review procedures as a traditional journal, the open access journal will usually be available online. Authors may need to pay for their work to be published, although this is very rare as it is often provided for by the research grant. Some institutions even pay these fees out of a central fund to account for the differences between research councils."[61]

The *green route* involves "self-archiving in a repository." While this can lead to logistical challenges (such as getting scholars to upload their own materials), "repositories offer a number of benefits. They increase the availability of some published journal works with restrictions on reprinting or text mining, and may enable work to be propagated across the internet and used for novel applications. Repositories also allow authors to keep track of who is downloading their data."[62]

While SCAP believes that there are merits to both approaches, we did not promote one over the other in our engagements with our partner universities. We were more interested in helping to establish an open access ethos where scholars, managers and librarians could identify and pursue OA strategies in line with their own interests and capacities. Because of this, during the course of our research and interactions with these universities, project participants became attuned to the ways in which international open access trends were impacting scholarly communication opportunities.

Revised approaches to assessing impact

Another key debate shaping international scholarly communication discourse and the policies that universities use to assess their own academics' research revolves around the value and utility of the Impact Factor, a common performance assessment metric. The Impact Factor is a number representing the average number of citations that a journal's

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[59] Growth of the OpenDOAR Database – Worldwide, available at: www.opendoar.org/onechart.php?cID=&ctID=&rtID=&clID=&lID=&potID=&rSoftWareName=&search=&groupby=r.rDateAdded&orderby=&charttype=growth&width=600&height=350&caption=Growth%20of%20the%20OpenDOAR%20Database%20-%20Worldwide

[60] OpenDOAR Proportion of Repositories by Continent – Worldwide, available at: www.opendoar.org/onechart.php?cID=&ctID=&rtID=&clID=&lID=&potID=&rSoftWareName=&search=&groupby=c.cContinent&orderby=Tally%20DESC&charttype=pie&width=600&height=300&caption=Proportion%20of%20Repositories%20by%20Continent%20-%20Worldwide; see the distribution of repositories worldwide through this dynamic Google map from Repository66, available at: http://maps.repository66.org/; see also the Registry of Open Access Repositories (ROAR), available at: http://roar.eprints.org/

[61] JISC, Gold and green: The routes to open access, available at: www.jisc.ac.uk/whatwedo/topics/opentechnologies/openaccess/green-gold.aspx

[62] Ibid.

articles collectively receive during a two-year period. Thus if the Impact Factor for a journal in 2012 is 1.5, then the articles published in that journal in 2010 and 2011 collectively averaged one-and-a-half citations in 2012. The point of the Impact Factor – devised by the Institute for Scientific Information (ISI) in the 1960s and now known as the Thomson Reuters Web of Science (WoS)[63] – is to measure the "impact" of a journal within a given academic field and, by proxy, suggest an evaluation of the relative impact of the articles published within it.

For university managers, the Impact Factor offers a handy "objective" means for estimating the quality and "impact" of a scholar's publication. For instance, during a scholarly assessment exercise (such as for promotion), managers can utilise the Impact Factor to help them gauge the level of contribution that a scholar is making to his or her field. Because there are tens of thousands of journals published globally, and because it is difficult for managers otherwise to evaluate the quality of a scholar's output, the Impact Factor provides a seductive shorthand for helping with that process.

However, in the digital age, where individual articles, chapters and books (or any digital scholarly object) can be tracked and measured through internet technologies, the traditional Impact Factor seems to obscure as much as it reveals. As a tool from the print era, it remains wedded to an outmoded citation-averaging technique (at the journal rather than the article level); it narrowly defines impact as citation rather than use (meaning that it privileges an insular form of scholarly impact rather than a broader notion including social, developmental or industrial impact)[64] and it renders countless research outputs invisible because it excludes thousands of journals (many from the global South) from being considered for an Impact Factor score.[65]

Because of these problems, the Impact Factor has been heavily criticised by scholars (Clobridge 2012; COAR 2012; Ernst 2010; Lawrence 2008; Lehmann, Lautrup & Jackson 2003; Patterson 2009; Rossner, Van Epps & Hill 2007; Seglen 1997; Vanclay 2012), leading many of them to express their collective dissatisfaction by writing and signing the San Francisco Declaration on Research Assessment (DORA) in 2012. The primary recommendation it makes is: "Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions."[66]

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[63] Thomson Reuters Web of Science (WoS), available at: http://thomsonreuters.com/web-of-science/

[64] The ISI/WoS rankings are often taken as a proxy for development impact. For example, in an important report into the research effectiveness of African universities, the three output indicators used were graduation rates, production of PhDs and publication of journal articles in ISI journals. The latter metric was justified as follows: "ISI-referenced publications represent a narrow notion of research output, but it is what makes it a flagship university and its academics part of the global knowledge community" (Cloete, Bailey & Maassen 2011: xx). A useful critique of this reasoning can be found in this reflective piece: Sam Wineburg (26 August 2013) Choosing real-world impact over Impact Factor, *The Chronicle of Higher Education*, available at: http://chronicle.com/blogs/conversation/2013/08/26/choosing-real-world-impact-over-impact-factor/?cid=cr&utm_source=cr&utm_medium=en

[65] Thomson Reuters WoS does not monitor all journals published worldwide, but just a selected list of 12,000 journals which it considers "top tier international and regional journals in every area of the natural sciences, social sciences, and arts and humanities." This list excludes thousands of journals from the developing world. For more information on "The Thomson Reuters Journal Selection Process", see: http://wokinfo.com/essays/journal-selection-process/

[66] San Francisco Declaration on Research Assessment (DORA), available at: http://am.ascb.org/dora/

Furthermore, the UK's Research Excellence Framework (REF) – the influential research assessment exercise of British HEIs – has dropped Impact Factors from its evaluation process: "No sub-panel will make any use of journal impact factors, rankings, lists or the perceived standing of publishers in assessing the quality of research outputs. An underpinning principle of the REF is that all types of research and all forms of research outputs across all disciplines shall be assessed on a fair and equal basis."[67]

Meanwhile, as scholars and managers start to move away from the Impact Factor, new opportunities are emerging to assess an output's "impact" in a more precise and comprehensive manner. The most important of these is the alternative metrics (or Altmetrics) movement,[68] which promotes the use of data-harvesting technologies that allow computer programmes to track digital scholarly objects as they are cited, downloaded, viewed, liked, tweeted, bookmarked and shared.[69] This permits scholars and managers to get a far clearer understanding of an output's impact and use than the blunt journal-level Impact Factor citation metric. Altmetrics allows for the evaluation of any type of digital scholarly object (journal article, conference paper, policy brief, ebook, etc.) while the Impact Factor is confined to formal journal articles. Moreover, alternative metrics allow scholars to gain a far deeper insight into how their outputs are being used and shared, leading to them being able to tell "impact stories"[70] that detail the real-world effects of their research (which has become a growing component of academic performance assessments).

While the alternative metrics movement is not yet as mainstream as the open access movement, it is creating new options for the many who seek to do away with or replace the Impact Factor. However, in the Southern African context in which we conducted our research, we found that these discussions were not as robust as they were in the global North. The Impact Factor remained a powerful assessment tool for scholars and managers. But through our advocacy work, we were able to raise an awareness of these competing scholarly measurement paradigms, an awareness that will likely grow as article- (or object-) level metrics become more common worldwide.

The national context

In emerging economies, such as those in Southern Africa, governments expect their universities to play a key role in national development through the production and dissemination of knowledge. This desire is revealed in policy statements by government ministers, in university mission statements and in the social discourse concerning the role of universities in emerging economies. This is very much true at UB where research and national development are meant to go hand in hand.

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[67] Research Excellence Framework 2014 – Frequently Asked Questions, available at: www.ref.ac.uk/faq/all/
[68] The global Altmetrics movement was largely born out of the Public Library of Science's (PLOS) work in pioneering article-level metrics in 2006. This shift to a different locus of measurement opened the doors to wide-scale interrogation of previous metrics and exploration of new tools and methodologies which became mainstream in 2011/2012. For more on the ethics and rationale behind the movement, see "Altmetrics: A manifesto", available at: http://altmetrics.org/manifesto/
[69] The most popular services for this are provided by Altmetric, available at: www.altmetric.com/
[70] ImpactStory, one of the services that emerged from the Altmetrics movement, provides scholars with a variety of usage statistics that allows them to construct a narrative interpretation of their work's impact, available at: http://impactstory.org/

The government of Botswana has written a series of manifestos, plans and policies to guide national development priorities. Key to all of them is the role that education and research is to play in enhancing development opportunities. As the major tertiary education provider in the country, UB is envisaged as playing an important part in these desires, though the government hopes to expand national research capacity beyond what the university can offer. Thus UB is increasingly imagined as one of many components of a national research strategy, though that broader sense of capacity is still being built. The following policy frameworks are the ones that have the most direct impact on shaping UB's own research and dissemination plans: Botswana Long Term Vision 2016; National Development Plan 10; the National Policy on Research, Science, Technology and Innovation; and the Tertiary Education Policy.

Botswana Long Term Vision 2016

The Botswana Long Term Vision 2016 – written in 1997 as an aspirational 20-year guide for future planning – aims to transform the country into an information society (an "educated, informed nation") by the country's 50th anniversary (PTG 1997: 25)

This vision was established just as the ICT revolution was starting to impact Africa, anticipating some of the adaptations that Botswana would require to deal with it. The Vision suggests that the government should "formulate a national information vision, policy and information technology strategies, as well as co-ordinate the currently fragmented information infrastructure in the country" (PTG 1997: 29). To help with the research element of this national information vision, the policy called for the establishment of "a National Research Council to promote, facilitate and fund research in Botswana. The council will be responsible for raising funds from Government and donor agencies, which is crucial for disciplines that do not normally attract research funding" (PTG 1997: 27–28).

Botswana still does not have a National Research Council, but the impetus for enhancing the national research infrastructure remains, and it has been incorporated into the strategies and policies adopted by various ministries and departments that have a stake in research production. More than Vision 2016, they provide practical recommendations for how to ramp up research production and improve scholarly dissemination.

National Development Plan 10

In line with the development aspirations expressed in Vision 2016, National Development Plan 10 (NDP10) identifies the particular strategies it will employ to reach them. While research and dissemination form part of a cluster of strategies for many of the objectives, they form the core strategy in the goal of turning Botswana into a "knowledge society". This ideal is premised on the notion that Batswana "will have easy access to information to improve their lives at home and work. Information about all aspects of the economy, such as education, health, environment and business, will be available through the different information dissemination channels, which include telecommunication, electronic and print media" (MFDP 2009: 115).

Thus, "during NDP 10, Research and Development will be redirected and refocused to meet the challenges facing the nation and contribute to economic diversification and poverty alleviation …. The strategy is to develop and implement research programmes whose outputs will result in socio-economic benefits" (MFDP 2009: 127).

To do this, the government proposes the creation of various centres, funds, hubs and programmes that will be devoted to research and development. It also proposes ways to strengthen the places – such as UB – at which research already takes place.

The Plan suggests that one of the reasons why the research effort until now has not reached its potential is because it was not properly coordinated or commercialised; thus a number of proposals focus on rationalising the national research endeavour and connecting academia with industry so that innovations and inventions can contribute to greater social and economic growth.[71]

National Policy on Research, Science, Technology and Innovation

In addition to National Development Plan 10, which provides the practical steps for making Vision 2016 a reality, a new governmental body, the Ministry of Infrastructure, Science and Technology (MIST), has recently adopted the National Policy on Research, Science, Technology and Innovation, which gives even sharper relief to the government's efforts to foster development through research. One of policy's objectives is "to promote research and innovation in the areas of priority for sustainable, socio-economic development of Botswana, and foster collaborative scientific research among academic and scientific institutions and the private sector" (MIST 2012: 13).

The most relevant priorities in the policy, for our purposes, are those related to research capacity, institutional capacity and knowledge dissemination.

First, according to Strategic Priority 1 of the policy, "the successful conversion of knowledge (scientific and non-scientific) into value for the economy and society at large depends on substantial efforts and investment on research. The importance of research for development is twofold: it generates new knowledge and also increases the absorptive capacity of an economy, that is, the ability to recognise the value of new external knowledge, assimilate it and apply to commercial ends" (MIST 2012: 15). Thus, simply raising research capacity is the first concern.

Second, echoing the desire for something akin to a National Research Council from the Vision 2016 document, the policy calls for the establishment of a "National Research Fund" which should provide "competitive and multi-sectoral funds" and "monitor and evaluate research programmes" (MIST 2012: 19). This would add a crucial layer of support to the national research infrastructure. One of the keys to building dynamic research cultures at an institutional level is having multiple sources of funding from which to draw at the national level.

[71] One of the outcomes of this plan is the Botswana Innovation Hub, which aims "to enhance national competitiveness specifically in areas of Foreign Direct Investment and technology transfer, university and industry collaborations in research and development, and the capacity for innovation" (MFDP 2013: 34).

Third, the policy seeks to "facilitate the systematic dissemination of knowledge" such as through "media and data repositories" (MIST 2012: 20) This is not spelled out in detail, but as we will see, UB has taken elements of this strategy to heart, especially with its establishment of an institutional repository.

Tertiary Education Policy

The Tertiary Education Policy (2008) – dubbed "Towards a Knowledge Society" – also underscores the importance of research and education for the nation. Of the policy's three main goals, the most relevant for our discussion is Policy Objective 2 – Developing a Nationally Relevant and Internationally Competitive Research Capacity.

This objective is informed by the fact that "tertiary level research has almost exclusively been centred on the one public university (UB) with very little capacity or opportunity for research existing in the rest of the system" (MESD 2008: 14). Thus the government would like to expand that research capacity beyond the university, while at the same time recognising that this "requires tertiary education to play a leadership role in (1) creating, advancing, applying, transmitting, communicating, converting and preserving knowledge, (2) embedding a culture of research through every facet of life in Botswana, and (3) the national innovation system" (MESD 2008: 14).

While this policy imagines that it will take until 2026 to build up tertiary research capacity to the levels that it desires, for the moment the UB will have to play the leading role in this regard. As we will see, the University Research Strategy, which was passed in the same year as this policy, identifies this leadership role for itself as well, hoping to make a major research contribution not only to the country but to international scholarship.

In sum, the three national strategies and policies listed above establish a context in which research development is valued, new research opportunities (centres, hubs, etc.) are slowly opening and research activity is gradually being integrated into a broader strategy. And while the documents never use the term "open access" to describe the kind of scholarly communication that they desire, the types of knowledge dissemination that they do propose – not only scholar-to-scholar, but scholar-to-government, civil society, industry, educator, entrepreneur, community leader, etc. – suggest that an open access approach could answer many of these policies' requirements. This is certainly the direction that UB is taking (in measured steps), as we will see below.

The institutional context

At an institutional level, UB's Strategic Plan – "Strategy for excellence" – is closely aligned with the goals of the government's NDP10 as well as the Botswana Long Term Vision 2016. Its scholarly communication approach also emerges from this sense of policy alignment, though the university has had to translate some of the broader national goals when it comes to disseminating scholarly research. These institutional strategies are best expressed in UB's mission and values, the UB Research Strategy, the Digital Repository Policy and UB's Performance Management System guidelines.

UB mission and values

At the heart of the university's mission is a commitment to: (1) national socio-economic relevance; (2) research excellence; and (3) the broad dissemination of knowledge.

> *Mission: The Mission of the University of Botswana is to improve economic and social conditions for the Nation while advancing itself as a distinctively African university with a regional and international outlook. Specifically, the University will:*
>
> - *Provide excellence in the delivery of learning to ensure society is provided with talented, creative and confident graduates.*
> - *Advance knowledge and understanding through excellence in research and its application.*
> - *Improve economic and social development by high impact engagement with business, the professions, government and civil society.*[72]

It will achieve these goals through "advancing scholarship and generating research through the discovery, integration, dissemination and application of knowledge" and by "providing leadership in responding to the nation's cultural, economic, political scientific, social, technological and industrial needs and contributing to the qualitative development of Botswana's higher education system."[73]

These sentiments are in line with the government's desire for tertiary education and research initiatives to play a role in national development. As high-level statements, they are meant to offer a broad guiding framework for the various strategies and plans that emanate from them. But as assertions aimed at capturing the spirit animating the university, they comprise important ideals against which the institution's performance can be measured, especially as they are further enunciated in institutional strategies and plans.

UB Research Strategy

The UB Research Strategy (2008) "indicates how research will be facilitated and coordinated, and what organisational structures and resources will be required to support its management, training and development, within a distinctively African university setting that UB has set itself to reflect without compromising its regional and international outlook."[74]

This Strategy elaborates on and sharpens the focus of the previous Research and Development Policy from 2002 in which the university first intimated its desire to move towards a more research-intensive mission. In that earlier document, UB established three core desires that continue to drive its policy today. It seeks for UB research be locally relevant, internationally recognised and widely shared:

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[72] UB Vision, Mission and Values, available at: www.ub.bw/content/id/1576/Vision,-Mission-and-Values/
[73] Ibid.
[74] UB Research and Development, available at: www.ub.bw/home/ac/1/fac/8/

- "The University shall recognise the value both of internationally recognised research, and of research that is of direct benefit to the country, and will strive for excellence in both" (UB 2002: 5).
- "The University will publicise its research activities, and seek ways to make them available to the wider community" (UB 2002: 7).
- "Encourage and empower staff to manage, conduct, disseminate and report research results" (UB 2002: 3).

The key focus areas of research as suggested in the current UB Research Strategy are culture, economic diversification, environmental systems, health, indigenous knowledge, minerals and social and political development. Scholars are free, of course, to research any topic of interest, but because these fit in with the government's broader development goals, scholars who conduct research on one of these issues are likely to receive greater consideration for institutional funding support.

The UB Research Strategy does not spell out the precise mechanisms by which research outputs should be disseminated. However, due to the three desires listed above – local relevance, international recognition and broad distribution – UB scholars often produce a wide variety of outputs that achieve one or more of those desires. As we will see in Chapter 5, UB FoH academics produce: internationally focused articles, books and papers; locally focused articles, books, papers, briefs and presentations; and some outputs that are disseminated in an open manner for broad consumption.

Key to these outcomes is the presence of an IR and a PMS that rewards them.

Digital Repository Policy

To help the university to achieve its "goal of being a research intensive higher education institution by the year 2021", UB has sought "to create an effective mechanism for storing, managing and processing research information" (UB 2009b: 2), namely by investing in an institutional repository. It is referred to by its acronym, UBRISA (University of Botswana Research, Innovation and Scholarship Archive). Established in 2009, "the initiative is open access and openarchive compliant" and seeks to increase "the institution's visibility, status and public value" (UB 2009b: 2).

The objectives of UBRISA are to:

- promote and encourage the dissemination of research findings.
- increase the level of African content in scholarly publications that is unduly dominated by western academic discourses.
- enhance socio-economic development through research that feeds into national systems of technology transfer and innovation.
- strategically increase UB's visibility nationally and internationally in scholarship and knowledge creation, application and exchange.
- preserve the university's intellectual heritage for future use. (UB 2009b: 2)

The administration's ambition is that "all vetted research outcomes whether published or not, and other works be deposited in UBRISA as soon as possible after completion of the research. The premise of the policy is that knowledge is a public good and that publicly funded research outcomes must be made widely available and accessible, in line with

international practice" (UB 2009b: 2). It will include more than just peer-reviewed journal articles (as is sometimes the case in other IRs) and be comprised of the following research outputs:

- Papers
- Peer-reviewed published articles
- Pre-prints
- Monographs
- Electronic books
- Book chapters
- Vetted conference papers
- Theses and dissertations
- Other research outputs that are not necessarily meant for publication
- Computer programs
- Artistic works (photographs, film/video clips, paintings, etc.) (UB 2009b: 3–4)

Though the policy stops short of mandating that all UB scholars deposit their work on the IR (a strategy that some universities use to motivate scholarly compliance), it suggests that other policies – especially that of the PMS – will be able to achieve that compliance over the next few years.

> *While the PMS and the promotion exercises will rely heavily on UBRISA entries as well as those of the Research Output database, other sources of information will also be considered. It is anticipated that eventually only the UBRISA entries and those from the Research Output database will be the official sources of research data outputs. In view of that, implementation of the Digital Repository policy will be phased in over a few years, before it can begin to be authoritative.* (UB 2009b: 3)

Thus, rather than profiling all of the different scholarly output types listed above from the very beginning, it seeks slowly to ramp up the staff's capacity to do so, focusing first on those outputs that have already been peer-reviewed and published elsewhere: "Implementation will begin with published material, since this type of outputs will normally require less effort and therefore less staff time, given that the outputs will already have been vetted. After experience is gained with published material, processing and uploading of non published documents will follow" (UB 2009b: 3).

During SCAP's engagement with UB, the IR was still operating under this approach, still in the building-up phase. This fact had a major impact on the initiative that we ended up implementing with the Department of Library and Information Studies (DLIS), as discussed in Chapter 6. It also marked a key challenge for the IR, being able to move beyond a library-led, journal-article-profiling workflow process to a more distributed departmentally led, multi-outputs-profiling workflow process. We will discuss these challenges in later chapters.

UB Performance Management System (PMS)

The UB PMS comprises a complex auditing and accountability process that is meant to increase scholars' performance. It is based, in part, on goals that academics individually set with their supervisors. The "PMS was inspired by the New Public Management doctrine emphasising efficiency" (Marobela & Andrae-Marobela 2013: 173) and the "audit revolution" (Deacon, Osman & Buchler 2009; Lomas 2007; Power 1997; Shore & Wright 1999; Strathern 2000; Wood 2010) that has swept across higher education in the global North, especially UK institutions (which go through the quinquennial Research Excellence Framework assessments), trying to make research production more "professional" and "business-like". It asks employees to benchmark themselves, identify production targets and then assess whether they have lived up to their personalised agreements within the allotted time (which at UB is typically one year). However, due to questions raised about its efficacy, certain elements of the PMS were put on hold in 2012 while SCAP was engaged with UB as a partner institution. At the time of writing, the fate of the PMS was unclear.

While the PMS is meant to appraise and motivate scholars in almost every domain of academic activity (teaching, researching, supervising, attending departmental meetings, etc.), we will focus here on those elements dealing with scholarly communication. Of the three key performance areas assessed by the PMS – teaching, research and service – scholarly communication falls under the research category. These areas are weighted thus in the PMS score sheet (approximating the percentage of time that scholars should spend on a given activity):

- Teaching: 55–75
- Research and publications: 20–40
- Service and academic leadership: 5–20

On the following page, Table 4.1 shows the various scores (or values) allocated to each type of research output. It reveals a conventional preference at UB for "high Impact Factor" journal articles (eight points minimum), highly commended books (eight points), books (six points) and articles in nationally listed journals (six points), followed by conference papers, keynote addresses, seminar papers and other types of research outputs (one to four points each). These scores are then tallied and weighted according to the "research and publications" weighting that each scholar uses to assess his or her own performance (a number between 20 and 40, as shown above).

This point system represents an attempt by the administration to balance its desire to achieve both international recognition and local relevance through academic research. As the PMS Manual states: "We recognise our dual responsibility for academic excellence, together with the importance of advancing the intellectual and human resource capability of the Nation. We therefore need to reward outputs that encourage and assist National Development and Capacity Building, without neglecting outputs that contribute to our standing as an Academic Institution in International terms" (UB 2008a: 27).

However, the key elements missing from this scoring system are any recognition of whether an output is open access or not, and whether it is profiled on UBRISA. The university has expressed a general desire for these outcomes, but the fact that these aspects are not included in the PMS means that UB is missing an opportunity to promote the broad accessibility of its research. We will discuss the impact that this strategic lacuna has on dissemination practice in Chapter 5.

Table 4.1 Selected UB PMS scores for research outputs (UB 2008a: 29–31)

Category of output	Quality criteria and validation needed	Value
Book or monograph	Exceptional academic book, receiving excellent reviews from editorial panel and receiving widespread positive reviews	8
	Book arising from the author's research, and published after independent editorial review and receiving good book reviews	6
	Published after independent editorial review	4
	Second edition of book with major revisions	4
	Subsequent book editions	2
	Edited books	4
	Refereed conference proceedings	4
	Non-refereed conference proceedings	2
	Published without editorial review	2
Book chapter or book review	With strong recommendation by independent editorial review	4
	Published after independent editorial review	3
	Published refereed book review longer than 1000 words	3
Journal article or review article	Published paper in high Impact Factor refereed journal Score = 4 x impact (2.0 or more)	4 x Impact Factor
	Listed national journals with special significance, or Impact Factor of 0.4–1.9	6
	Refereed – low Impact Factor below 0.4	4
	Non-refereed, or journal not listed by ORD	3
Presentation	Invited keynote address	3
	Refereed presentation	2
	Poster presentation at conference	2
	Non-refereed presentation at conf/professional meeting/symposia/etc.	1
Conference paper	Invited keynote address refereed and published in conf proceedings	4
	Refereed paper	3
	Non-refereed	2
	UB departmental seminar presentation	2
	Inaugural lectures	3
Commercial products or tech transfer	Patent application registered	4
	Development of commercially available product or process	4
	Prototype development	3
	Institutional consultancy or technical report (with letter from sponsor with special commendation)	3
	Technology transfer proposal	3
	Institutional consultancy or technical report	2
	Individual consultancy	1
Policy impact	Research that changes national/international policy	3
	Research that changes university's policy	3
External research contracts and grants	More than P300,000 income received into UB accounts	4
	P300,000 – P100,000	3
	P99,000 – P40,000	2
	P39,000 – P4,000	1
Creative work and design	Creative work forming the subject or included in peer publications	4
	Award-winning creative work at international competition	4
	Award-winning creative work at national competition	3
	Peer-reviewed portfolio of creative/professional work	2
	Translations of written materials (one point fewer than score for original work)	Depends on original
	Non-peer-reviewed creative work/professional work	1
Other research outputs	Acting as referee for journal or juror at creative work competition	1
	Research proposals and interim reports	1
	Published abstract	1
Enhancing institutional research capacity	Development and/or leadership of collaborative research programs with regional or international linkages	3
	Leadership of multi-disciplinary regional or international project	2
	Leadership of multi-disciplinary national project	1

In sum, while UB's research and dissemination policies are aligned with the government's research and development agenda, they are not necessarily aligned with each other. This is because the university has had to interpret the broad desires of the national interest in line with changing trends in scholarly communication. It has developed multiple strategies simultaneously – such as the UB Research Strategy, the Digital Repository Policy and the PMS – to achieve through its research outputs international recognition, national relevance and broad distribution. However, as we have seen above, these different strategies have not always been tightly integrated: for instance, the Digital Repository Policy promotes open access dissemination of scholar-submitted materials, while the PMS does not incentivise open access dissemination or scholarly submission to UBRISA at all. This ends up rendering the former policy less effective since it is not reinforced by the PMS. Such discrepancies are to be expected in the early phases of a policy roll-out, but it can nonetheless hamper the effectiveness of the institution's research and dissemination effort.

Conclusion

In this chapter, we have tried to provide a snapshot of the policy landscape shaping UB research and communication activities. As we have seen, the international context is being radically reshaped by the open access movement, which has been embraced by numerous funders, institutions and scholars. It is turning conventional understanding of scholarly communication on its head. The global context is also being informed by provocative demands for a new type of scholarly metrics, one that goes beyond the traditional Impact Factor towards alternative or complementary metrics that leverage the data-generating capacity of the internet. These alternative metrics seek to broaden the social and developmental meaning of a scholarly output's "impact".

At the national level, we have seen that the government has created an internally consistent set of policies and plans related to transforming the landlocked country into a capable participant in the global knowledge economy while at the same time diversifying its industrial capacity. This includes a significant focus on research production at both the academic and commercial level. While these policies do not deal directly with scholarly communication (at least as we have defined it here), they usually rely on a traditional understanding of what that communication would ultimately entail. This has an important knock-on effect for the university context in which research is produced.

At the institutional level, scholarly communication is imagined as fitting into the broader national objectives surrounding research production, especially national socio-economic relevance, research excellence and the broad dissemination of knowledge. To help to achieve that, the university has invested in an IR to profile and disseminate research, and a PMS to motivate the production of research. It has not, however, utilised the policy space to leverage these innovations because they are not aligned in terms of promoting OA publication. The IR establishes the technological means to disseminate UB scholarship openly, but because there is no mandate for scholars to submit their outputs to the IR, nor is there any reward (in terms of greater points offered by the PMS) for them to produce OA outputs, these miss a critical opportunity for UB scholars to disseminate their research broadly to the national community.

Chapter 5.
Research & communication practices

SCAP's research examines the scholarly communication ecosystem at four Southern African universities in order to address the primary research question: What is the current state of scholarly communication in African universities?

To answer this question at the University of Botswana (UB), we focused on the scholarly communication ecosystem of the Faculty of Humanities (FoH), the SCAP pilot site.

From an ecosystems perspective, the faculty is a useful unit of analysis for understanding scholarly communication because it reveals the values, norms and practices specific to the relevant discipline (humanities) while at the same time offering crucial insights into the values, norms and practices of the entire institution (UB). A departmental focus would be too narrow (since most of a department's practices are structured by quite insular field norms) and an institutional focus would be too broad (since an institution is shaped by the multiple disciplinary norms within faculties), but a faculty focus provides the necessary access to both micro and macro fields of operation.

The key virtue of the ecosystem approach for understanding scholarly communication is that it is based on the principle of interconnectivity (Benkler 2006; Cronin 2003; Friedlander 2008; Maron & Smith 2008). Every feature of the ecosystem is connected in a web of mutual responsiveness, a fact that has crucial implications for the analysis of that system, and for any proposed intervention in it. The SCAP team was interested in both of these possibilities.

This chapter describes and analyses the UB FoH scholarly communication ecosystem. It does so by assessing the faculty's profile, temporal obligations, values, research production and dissemination activities, rewards and incentives, and perceptions of the African context. Most of the chapter is concerned with detailing the elements of this ecosystem and how scholars act within it, providing a "thick description" of this particular environment. The rich detail that we provide – full of both numerical and textual evidence – allows for some important analytical opportunities, but it will also continue laying the foundations for our analyses in the later chapters.

Faculty profile

The FoH is comprised of 108 academic staff members, of whom 65 are male and 43 are female (a 60:40 ratio). About 70% hold PhDs while many of the others are in the process of completing their doctorates while teaching.[75] The majority of these completed their graduate studies abroad at universities in the UK, USA, Canada, Australia and South Africa. The faculty boasts a diverse cohort of members, hailing not only from Botswana, but from India, Kenya, Zambia and Nigeria.

The FoH academic staff is relatively mature, in that almost all of them are over the age of 40. Of our 29 survey respondents, none were under 30 years old and only 8% were 31–40 years old. The largest cohort (39%) were aged between 41 and 50, followed by a substantial group (34%) aged between 51 and 60, and a sizeable portion (19%) over 60.

UB staff say that this matches the actual profile of the faculty, citing two reasons for their "top-heavy" age profile: staff development fellowships (SDFs), which allow junior scholars to join a department and then work their way into a tenure-track lecturer position, have been cut back, reducing the uptake of young scholars into the faculty; also, many recent job advertisements have required that applicants come in with prior experience, resulting in more senior hires (UB Academic Staff 2012: 4).

In the short term, this profile should result in solid productivity from the many experienced scholars, but according to some staff members, in the long term it may be difficult to sustain the development of a research culture unless younger scholars are able to come up through the ranks internally through more graduate training and SDFs.

Positions

The UB FoH position profile reveals a traditional pyramid structure with a large base of lecturers (44%), a solid layer of senior lecturers (29%), a tapered tier of associate professors (17%) and an apex of full professors (10%). This spread of positions looks healthy and stable for the faculty's development into a research-intensive unit, especially where promotion remains possible for the most productive scholars.

As the pressure grows to publish new research, so too does the demand that staff possess PhDs, as one scholar related: "My move to the UB was a blessing, it made me grow. I wouldn't even have done my PhD but the competitiveness was so high and management started saying that they wanted lecturers to have PhDs. So it pushed me to do that."

Support for staff to obtain their PhDs is substantial but also quite variable. One academic we interviewed had been given support for five years to complete a Masters and PhD in South Africa, plus a reduced teaching load in order to complete it after the five years. Two others, however, said that they received no financial support or reduced teaching loads and had to deal with the obstacles themselves. As one said, "I woke up from my slumber

[75] It proved challenging to ascertain the exact number of PhDs in the faculty. According to an HR roster given to us by the FoH, 45 staff members of the FoH are listed as Dr and 30 listed as Prof (while 33 are labelled Mr, Mrs, Ms or Revd). Given that the Dr and Prof designations typically refer to those holding PhDs, that would equal 75 out of 108 faculty members (or 69%). However, an HR staff member we spoke to personally said that 92% of the faculty hold PhDs, a statistic at considerable odds with the impression given by the HERANA report on UB (Bailey, Cloete & Pillay 2011), which states that only 31% of the UB permanent staff have PhDs.

and said to myself I *must* do it." Another shared that, "Nobody sponsored me, I footed the bill. All the moving around, administering questionnaires, all of this stuff, I did it. But fortunately I was working."

Years of research experience

A full 65% of surveyed FoH respondents said they possess at least 16 years of research experience (yre), revealing just how mature they are as a staff complement: 16-20 yre (31%), 20+ yre (35%). The fact that only 34% have less than 15 years yre reinforces the idea that the faculty has not been hiring many young scholars.

Salary scales

FoH members receive salaries calculated according to position and years of service. As of October 2012, these are the salary scales for FoH staff:

- Professor: P376,000–455,000 (USD45,600–55,200)[76]
- Associate professor: P357,000–410,000 (USD43,300–49,700)
- Senior lecturer: P295,000–375,000 (USD35,800–45,500)
- Lecturer: P196,000–337,000 (USD23,800–40,800)
- SDF: P112,000–178,000 (USD13,600–21,600)

Aside from the relatively low salaries for SDFs, which is likely meant to motivate them to finish their PhDs and move up the ranks, the salary scales for the permanent staff (lecturers and above) appear to serve two purposes. The first is to offer an incentive for financial gain, connecting any raise in position with a raise in salary.

The second is to recognise and reward the large cohort of lecturers, many of whom may never move up the ladder. In that category alone, the difference between the lowest- and highest-rung lecturer is P141,000 (USD17,000), divided by 16 intermediate salary grades based on years of service. This means that many staff will spend a long portion of their careers in this position; thus there are many graduated salary levels within this band to recognise staff contribution within this category. The number of salary grades within each category diminishes going up the ranks: 16 for lecturers, eight for senior lecturers, five for associate professors and four for professors.

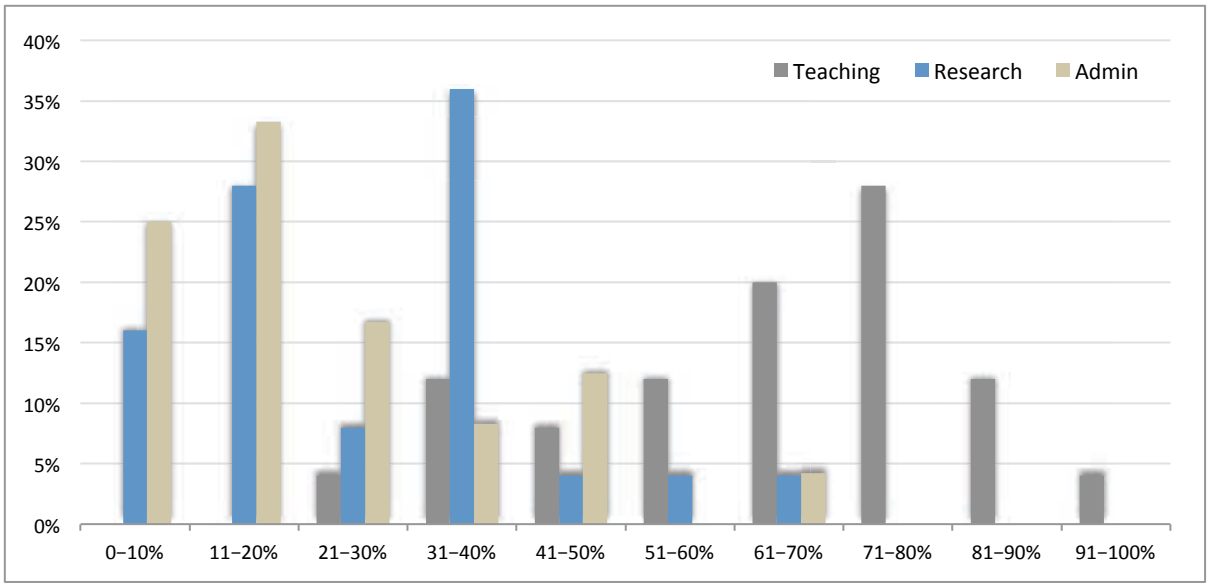
None of our respondents personally expressed dissatisfaction with their level of remuneration. Rather, one declared, "I was able to save from my pay for three years sufficient to pay for my school [university] which I could not have done in Zambia as the pay was so low. Now Zambia's pay is better but I thank this country. If I have to leave tomorrow I will not say a bad word about this place." However, according to a document critiquing the performance of the university administration, "there are enormous challenges in the recruitment and retention efforts of academic departments, due to the lack of an attractive salary and benefits package" (UB Academic Staff 2012: 23).

[76] These conversions were made on 3 April 2013, when the exchange rate between the Botswana pula and the US dollar was 8.25 pula per dollar (and 0.9 pula per South African rand).

Time spent on teaching, research and administration

UB FoH scholars say that they spend the majority of their time engaged in teaching-related activities (timetabling, prepping, lecturing, marking, advising, invigilating, etc.). Many of our interviewees had a number of postgraduate students[77] to supervise and acted as both internal and external examiners of theses in the region (including Kenya, Malawi, Zambia and Ghana). The median indicator from their survey responses is that these activities comprise 61–70% of their time. This is substantial, even if it camouflages the diversity of the self-reported times, as staff members' answers were highly inflected by their positions and interests. Indeed, while 16% of respondents said that they spent 81–100% of their time engaged in teaching-related work, another 16% said that they spent just 21–40% of their time doing so. But even with this variation, it is clear that teaching remains a major priority at UB even as it tries to become more research-oriented.

Figure 5.1 UB FoH respondents' self-reported teaching, research and administrative time (%) (N=29)



The median indicator for the amount of time scholars engage in research-related activities (reading secondary literature, interviewing subjects, carrying out lab experiments, writing articles, etc.) is 21–30%. This is lower than most would prefer, and many have to use evenings and weekends to conduct or write up their research. As one explained, "I sleep very little, most of us sleep very little. We have to make the time at night … I work on weekends as well." Another added, "I come into the office on Saturday and the only thing that takes me out is when I go for a lunch break and then one hour exercise. At 7 or 8pm I go home. On Sunday I go to church and have a meal and relax for one or two hours, then I go to my office until 8pm or so."

77 Here is a snapshot of the post-graduate supervision for three respondents between 2010 and 2013:
UB1 = 2 PhDs in progress, 6 MAs in progress, 1 MA completed
UB2 = 3 PhDs in progress, 7 MAs in progress, 10 MAs completed
UB3 = 1 PhD in progress, 2 MAs in progress, 3 MAs completed

A day in the life of a UB academic

As recounted by a DLIS senior lecturer:

"I have a lot of teaching on Monday, Tuesday and Wednesday mornings. On Wednesday afternoon and Thursday I try to do supervision. On Fridays and Saturdays I do my labour research. It doesn't always come out clearly like that but I try. After doing the interview with you [until noon] I went to our welfare committee, as one of our staff members' children had a terrible accident. I needed to make sure that everyone had made contributions. I then had lunch. At 2.30pm I had a Master's student until 4pm. Her proposal was not in fair shape, frankly. I've just sent her a whole lot of stuff to read. After 4pm I was looking online at another proposal sent by a student. Then I had a meeting with my co-supervisor so we agreed on the parameters of how to supervise her. That took until about 7pm, after that I always try and do some general reading. I am collaborating, together with the trade unions, with a colleague in South Africa, in NALEDI, on Social Protection in Africa. So until 8pm we had some exchanges around this by email, often we do that by Skype. We'll be producing a strategy document. So I worked on that until 9pm and then went home. I checked on my family, sat and watched TV. I normally like to work after midnight, so I continued to do some research for that student and I did my internal examination of this one [gestures to completed thesis]. I have three that I am examining. Then I went to sleep at 3.30am and woke up at 9am. I went straight to my study where I tried to finish the comments on this one. I was also corresponding with my friend in SA on this strategy. Then I got an email to tell me there was trouble with the bookings for the computer labs for classes today. So I got here by 2pm, where I had to sort out the scheduling for the teaching timetable for the labs."

A similar, but slightly smaller, amount of time is self-reported as comprising scholars' administrative tasks. The median is 21–30%, which is slightly lower than research. While a quarter of staff report spending less than 10% on admin, a small proportion also claim to spend more than 40% of their time on it. According to a UB Academic Staff document (2012: 23–24), this is partially due to poor role definitions:

> *The key performance area of service is so elastic that academic staff members end up doing duties that should be done by support staff. Examples abound of duties such as registration, invigilation of examinations, examination time tables, entering marks … (and even taking stock of office inventories as the latest letter from the supplies department instructed). These and many other duties done under the auspices of professional and university service add to the elasticity of the academic staff responsibilities. Consequently, members of the academic staff are inundated with numerous responsibilities, through Committees, taskforces and other service areas of work, with no extra remuneration.*

Values

To better understand scholarly communication practices at UB, we started by trying to grasp academics' motivations for conducting research and publishing their findings. Essentially, we wanted to know what values underpinned their research and communication activities.[78]

This is a foundational question, one that is usually taken for granted in the literature on scholarly communication. Other studies, which usually focus on scholars from the global North, tend to assess academics' attitudes towards research-*related* issues such as peer review (Harley *et al.* 2007), dissemination outlets (Harley *et al.* 2010; King *et al.* 2006; RIN 2009, 2010; Rowlands & Nicholas 2005), journal quality (Regazzi & Aytac 2008), digital and Web 2.0 technologies (RIN 2010; Rowlands, Nicholas & Huntingdon 2004; Rowlands & Nicholas 2006; Schauder 1993), open access publishing (RIN 2009) and academic identity (Archer 2008).

These valuable studies shed light on scholars' attitudes toward elements of their research and communication practices, but they do not get at the more basic question of why the scholars conduct research in the first place. In Africa, where most universities have only recently incorporated a research mission into what have long been teaching-oriented institutions, the question of why scholars conduct research is a pertinent one, and the answers cannot be assumed. Moreover, the purpose of university research on the continent is shaped by more than just the desires of the scholars themselves, but by those of the national government, the institutions' managers, overseas funders, local NGOs, students and community stakeholders. Thus all of these diverse interest groups impact how scholars view the research enterprise.

Based on numerous interviews, surveys, conversations and observations (described in Chapter 2), SCAP found that the main reasons why FoH scholars conduct research are (in order of importance) to:

1. comply with the institution's mandate to conduct research
2. earn points towards promotion
3. enhance their teaching
4. achieve satisfaction by acting in accord with personal desires
5. observe the dictates of their job description
6. generate new knowledge
7. aid national/community development
8. obtain peer recognition
9. obtain indirect financial rewards (such as travel and conference funding)

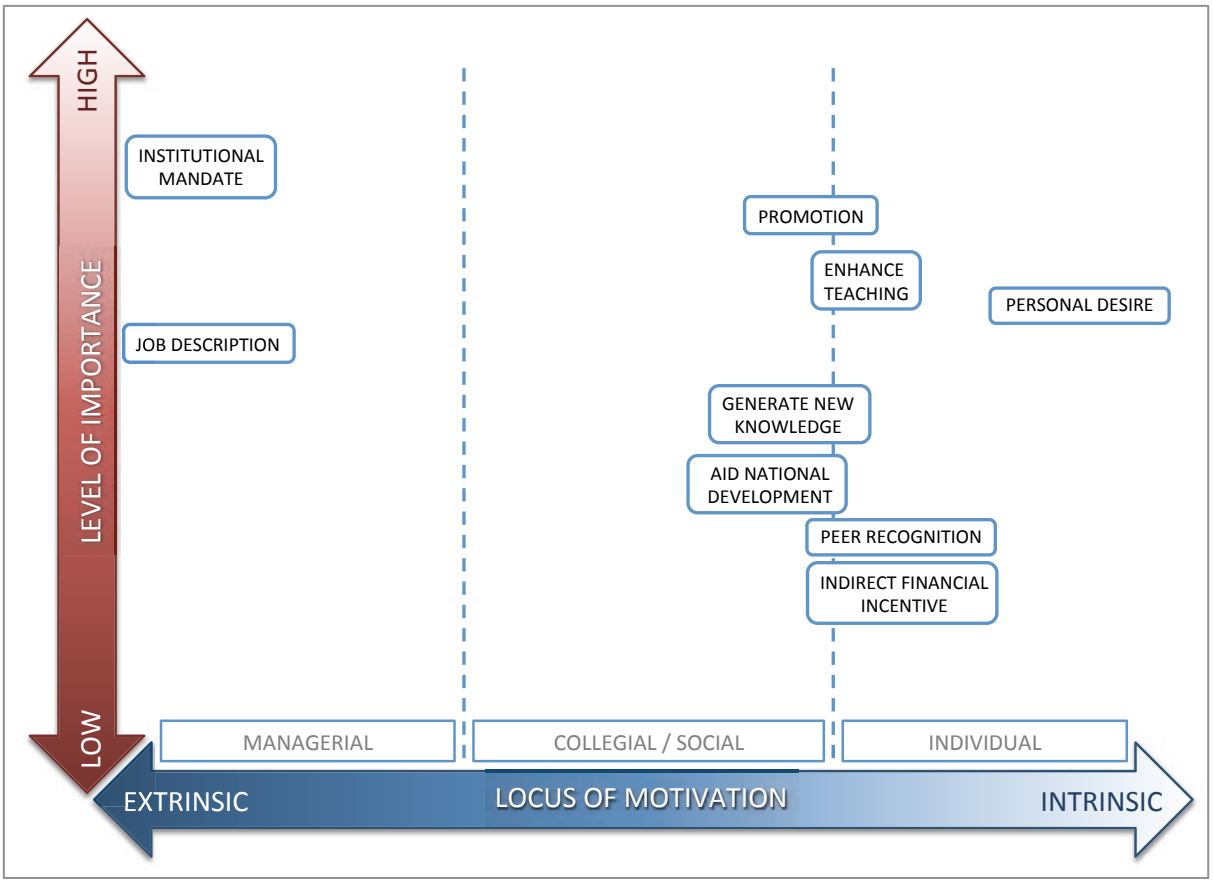
[78] According to Schwartz, all values are defined by the following six qualities: (1) Values are beliefs linked to emotion; (2) Values are desirable goals motivating action; (3) Values transcend specific actions or situations; (4) Values serve as standards or criteria; (5) Values are ordered by importance relative to one another; (6) The relative importance of multiple values guides action (2012: 3–4). As trans-situational abstract goals that form part of a hierarchically ordered system, values are distinguished from "concepts like norms and attitudes, which usually refer to specific actions, objects, or situations" (Schwartz 2007: 1), and need not be hierarchically ordered. Examples of such values include power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity and security (Schwartz 1994: 22). In this report, the term values will be used in a more open way, beyond universal abstractions such as benevolence and security, though such deeper values often underpin the more concrete value expressions noted here in the university context.

These motivations would be familiar to scholars at most universities, though the importance accorded to each would be influenced by the contextual factors shaping the institution, such as its history, infrastructure, wealth and mission. The significance and uniqueness of UB FoH's research values become clear, however, when we analyse them in greater detail and compare them to the values held by scholars at other Southern African universities.

In analysing scholarly research values, it is useful to assess to what degree they are based on intrinsic or extrinsic motivations. A significant psychological literature explicates the virtue of this approach (Kreps 1997; Ryan & Deci 2000; Teo, Lim & Rai 1999; Vallerand *et al.* 1992) and here we will use it to get a nuanced understanding of not only UB scholars' values, but also the "institutional culture" (Bergquist & Pawlak 2008) that shapes it and the "research culture" that is produced by it.

To aid our analysis, in Figure 5.2 we have plotted UB FoH scholars' values according to their level of importance for motivating research (x-axis) and the degree to which these values arise from intrinsic or extrinsic motivations (y-axis). We have then further divided the intrinsic-extrinsic continuum into the three loci of motivation that are most relevant in the university context: the managerial (extrinsic), the collegial/social (mixed extrinsic and intrinsic) and the individual (intrinsic). This trifurcation offers a more precise delineation of scholars' motivational sources at UB FoH.

Figure 5.2 Values motivating UB FoH scholars to conduct research (aggregated and ranked)



On one end of the continuum, purely extrinsic motivations emanate from the university management. These are the values of the administration that are communicated through formal mechanisms such as institutional mandates (policies) and job descriptions (contracts). When scholars respond to these managerial incentives, their responses can be described as acts of *compliance*, in that their behaviour aligns with external requirements but without any sense of personal buy-in.

On the other end of the continuum, purely intrinsic motivations emanate from within the individual. They express a scholar's idiosyncratic desires, revealed internally as feelings of joy, integrity, virtue and growth. Intrinsically motivated scholars enjoy the research process as an end in itself. When scholars respond to this interior motivation, their responses can be described as acts of *congruence*, in that their behaviour aligns with their own personally held values and desires.

In the middle of this continuum is a space where extrinsic and intrinsic motivations meet; where, in the university context, external collegial and social demands structure internal personal desires. This occurs because the individual scholar identifies with and feels a member of the collegial or social group defining the value. When scholars respond to this motivation, their responses can be described as acts of *conformity*, in that their behaviour aligns internal desires with externally structured values.

Figure 5.2 shows that while UB FoH scholars are motivated to conduct research by both intrinsic and extrinsic factors, the institutional mandate has the greatest overall importance for spurring research production in the faculty. This motivational structure makes sense for a couple of reasons.

One, UB has historically been a teaching-oriented university, thus many of the faculty members (of whom the majority are over the age of 50 in the FoH) developed their sense of academic identity and purpose according to a teaching mission. With the administration's desire for UB to become a research university only formally spelled out in 2008, this new institutional mandate has been a crucial mechanism for encouraging scholars to incorporate research into their work.

Two, as will be discussed in more detail later, for a variety of historical, cultural and practical reasons, the management plays an overwhelming role in defining UB's institutional culture. Scholars are comparatively sensitive to the directives given by the administration because these directives emanate from a source of substantial power. This stands in contrast to the situation at UCT, for instance, where collegial norms (not the administration) comprise the dominant force motivating scholarly research, and at UoM, where scholarly autonomy requires high levels of personal desire (intrinsic motivation) to spur research production. While the institutional mandate is not the only reason why UB FoH scholars conduct research, the fact that it is the top reason reveals how critical the relationship is between the academics and the management, a fact that comes through in virtually every aspect of our discussion on the FoH scholarly communication ecosystem.

The second most important factor for motivating research at UB FoH is the scholarly desire for promotion, a value that is also highly rated at other Southern African universities. On the diagram, we located promotion on the line between collegial and individual motivation because promotion not only satisfies an intrinsic desire for greater financial reward, but also elevates the prestige of the scholar in the eyes of his or her

peers according to a status structure largely derived from collegial norms and traditions. As a motivating factor, promotion is one of the most ubiquitous, durable and reliable means of encouraging any type of behaviour to which it is tied, including research.

The third most important value motivating research is its ability to enhance teaching by allowing academics to stay current in their field and to learn new ideas through research activity. This value is also highly prized at UNAM and UoM, both of which, like UB, have a strong teaching and developmental focus. With this heritage – and the continued heavy teaching loads that scholars face – the primary audience for many scholars' research ideas is their students, some of whom assist in their research activities. We located this value on the line between social and individual motivation because most of the desire to "enhance" this aspect of their work derives mostly from themselves as individuals, and to a certain extent by their students. Since the administration evaluates teaching performance more according to quantity (hours) than to quality, scholars' desire to improve teaching performance emanates largely from themselves, with feedback from their students helping to structure their efforts.

Fourth, UB FoH scholars are motivated to conduct research by personal desire, because the process gives them pleasure. This value is less important for those who continue to see teaching as the "real" mission of the university, but is quite strong for those who already have a solid research background and have contributed to their field through publication. This motivation is present at all of the other universities as well, though at different levels of importance.

Fifth, scholars are motivated by their job description, another highly extrinsic motivation similar to the institutional mandate. Both require scholars to conduct research, but the job description is the product of an individual contract with the university while the institutional mandate is a collective dictate applying to the entire academic staff. (At UB, the collective directive provides greater motivation than the individual agreement.)

Sixth, many FoH scholars want to "generate new knowledge" through their research, a relatively intrinsic motivation, but structured by their field of inquiry and the various "gaps" it contains for a scholar to fill. Curiosity is the emotion driving the pursuit of this value.

Seventh, most FoH scholars would like their research to "aid national development" in some fashion, though it is not the overwhelming purpose of their activity. Indeed many feel that they are already contributing to national development by teaching students at the university. Moreover, some in the humanities worry that their work is not taken as seriously by the government as work in the fields of health, agriculture or the hard sciences. They find it a challenge to match their intrinsic desire to help others through their research with the more extrinsic factors determining what counts as "development" and what does not.

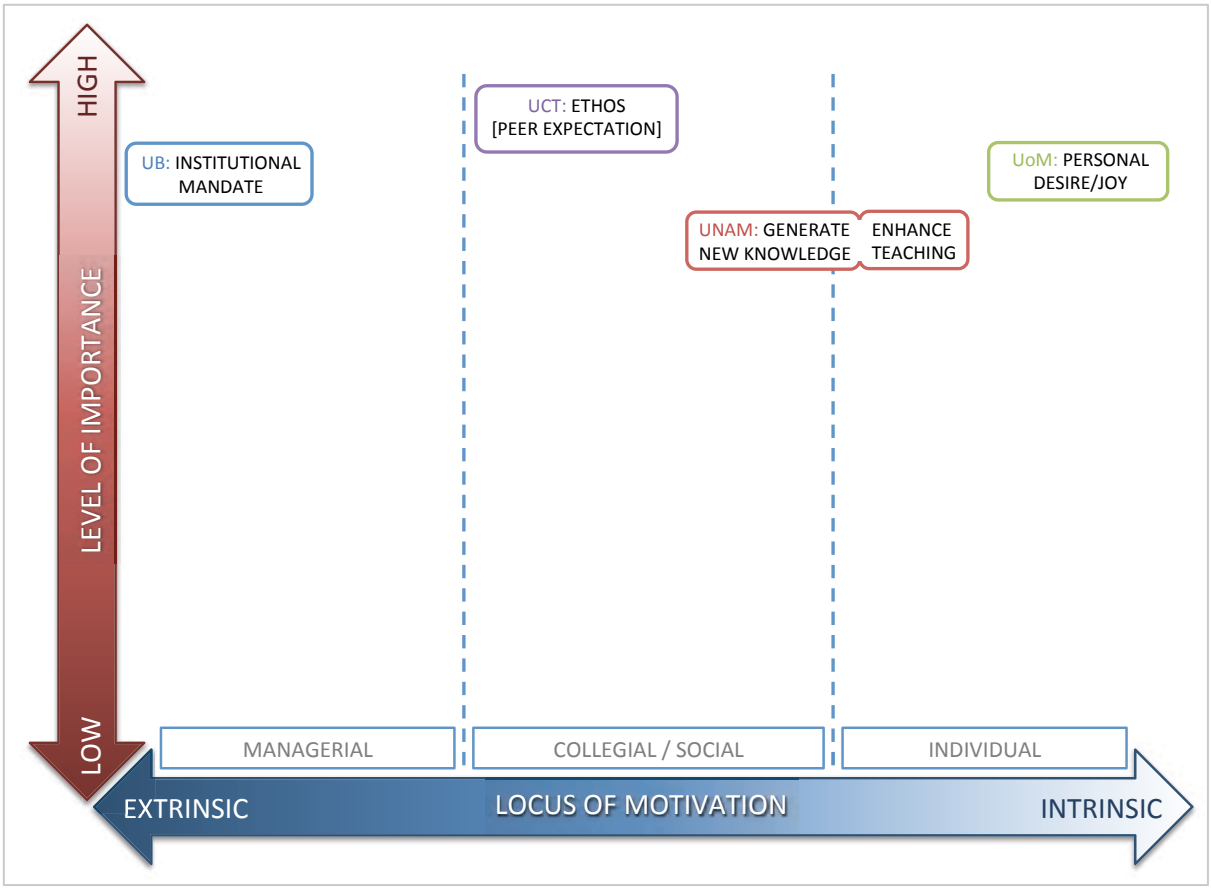
Eighth, though UB FoH scholars do not feel a great deal of pressure by fellow colleagues to produce research, they do enjoy receiving the recognition that can accompany successful publication efforts. Publication is one of the primary means by which academics can raise their esteem in the eyes of their colleagues. But since the pressure from other academics is relatively low, the locus of motivation falls largely in the

individual realm: scholars are intrinsically motivated to seek this type of recognition, as it boosts their sense of belonging, connection and prestige at the university.

Lastly, scholars seek the indirect financial incentives that research offers, usually in the form of conference and travel funds. Younger scholars at UB FoH rated this as especially important, as it offers them an opportunity to disseminate their work prior to publication, get feedback from their peers and travel outside of Botswana. Of course, older scholars also enjoy these same benefits, but they tend to rate them as less important because the novelty of such experiences has waned over time.

However, it is important to remember that this ranking of motivations is based on an aggregation of the entire faculty's desires. It does not reflect the values of any particular individual who would likely rank his or her personal desires quite differently. But this analysis allows us to make fruitful cross-faculty and cross-institutional comparisons.

Figure 5.3 The main values motivating research at UB FoH, UCT Comm, UNAM FHSS and UoM FoS



If we compare UB FoH's research values profile to that of other Southern African universities, it becomes clear how unique it is. Figure 5.3 shows the top motivating factors for research at UB, UCT, UNAM and UoM (in the faculties we profiled). At UB FoH, the institutional mandate is the primary research motivator. It is a highly extrinsic managerial value. At UCT Comm, peer expectation predominates, as the production of research is seen as part of the social ethos. It is a mixed, but extrinsically leaning,

collegial value. At UNAM FHSS, the desire to generate new knowledge and enhance teaching comprises the two key principles driving research in the still largely teaching-focused university. It is an intrinsically leaning social and individual value. And at UoM FoS, personal desire drives research production. It is a highly intrinsic, individual value.

This comparison shows that, even though these universities share a number of similarities in terms of geography, history and mission, their differences are enough to create significant diversity in how their scholars respond to the question of research motivation.

Open access

As part of our values research, we also tried to gauge UB FoH academics' feelings about open access principles, thus we asked them to indicate their level of agreement with the statement "African scholarship should be freely available on the web." Of the survey responses given, 33% agreed strongly, 42% agreed, 21% disagreed, and 4% said they were not sure. While these numbers suggest a solid level of support for OA principles at UB FoH, they reveal a more cautious attitude than that of other universities in the region. For instance, a majority 69% of scholars in the UNAM FHSS agreed "strongly" with the OA statement, while only 4% disagreed with it. Our survey found a similar enthusiasm gap between UB and UoM FoS respondents.

While most UB FoH scholars think that open access is a good idea, and see the development potential behind it, others worry about its impact on copyright issues and the rewards and incentive system. One scholar bluntly stated that OA dissemination of outputs was only of value "if they are recognised and appreciated by the university."

Four issues appear to set the context for the faculty's relatively tepid response to OA. First, most scholars' awareness of OA has come from their engagement with (or evasion of) UBRISA, the university's IR. The administration wants scholars to submit their outputs to the IR, a desire based in part on its commitment to OA principles. However, since the university does not give any reward or incentive for actually submitting such outputs, and because those who have done so have reported negative experiences of the process, many UB FoH scholars link open access with UBRISA. Whatever positive sentiments they might have of OA are compromised by its negative association with the top-down, administration-imposed IR initiative.

Second, and closely connected with the above-mentioned resistance to the IR, was the fact that academics felt that it was not well managed. One stated, "I cut my articles from my CV and sent them to the library a year ago. Until today I do not see any article on the repository and I have gone there several times. They just say 'No, we'll get back to you', and they don't." This scholar suggested that perhaps there was a division of responsibility and "a backlog in the authorisation and that is where the buck stops." Continuing, "It's OK for me because if people want to get my work they can still use Google." But, summarising the feelings that many have of the IR, one scholar laughed as he stated, "I think I have a few of my publications in UBRISA. I did check it. So I am a victim myself!"

Third, UB is at the forefront of efforts to research and record local indigenous knowledge systems, a fact that most scholars feel great pride about. However, many also believe that

their indigenous knowledge has, in the past, been stolen by outsiders who exploited it for commercial gain without giving due recognition or reward to the people who made that knowledge known in the first place (Kiggundu 2007). The most famous example is the San-Hoodia case, in which the South African Council for Scientific and Industrial Research (CSIR) patented the components of the hoodia plant apparently responsible for appetite suppression, then licensed it to a British pharmaceutical company (which collaborated with pharmaceutical giant Pfizer) to synthesise it into an appetite suppression (weight loss) supplement. Though by 2002 the CSIR recognised the San's intellectual property rights over hoodia and made a money-sharing deal with them over the plant's commercialisation, the episode is remembered by many as an act of "biopiracy" against the indigenous knowledge of the region (Robinson 2010: 61–63; Wynberg, Schroeder & Chennells 2009).

To guard against similar occurrences in the future, and to "preserve, protect and promote its indigenous knowledge",[79] the government of Botswana tasked a UB research centre[80] with "identifying, documenting and gathering local traditional knowledge practices … and then feeding them into a legislative framework."[81] Thus, like the government, most UB FoH scholars do not want to be naïve about openness. They want to leverage the developmental potential of open access communication, especially with local communities, but without putting themselves in a position in which their openly shared knowledge can be exploited by outsiders without reciprocal benefit. The virtue of openness, for them, is a relative one, inflected by history.

Lastly, some FoH scholars lament the losses that digitised open access communication may have on personal scholarly engagements. One academic, who had seen how overseas universities often ended up digitising and hosting African archival material on their own servers, expressed his reservations for two reasons: one, he worried about who would control the archive once it was made freely available to the world, fearing that Africans would no longer own their historical materials; and two, he thought that foreign scholars would no longer visit Africa to source materials if they could simply retrieve it on the internet from their home countries, leading to a diminution of academic connectivity:

> *When an initiative came from the US to try to digitise liberation struggle archives from the region, the arguments were good in that they were trying to increase access to those collections. But we were worried about usage, copyright and ownership. For one, once those documents become available in the West there'll be very few scholars from the West coming to do research here where the actual materials are held. So I personally was not quite keen on it. So this was following the same pattern [as has happened in other digitisation programmes in Africa]. This particular project was going to provide scanners and all other digital technology, and people would be*

[79] Healthcare Today, Botswana to protect indigenous traditions (30 August 2011), available at: www.healthcare-today.co.uk/news/botswana-to-protect-indigenous-traditions/19585/
[80] Centre for Scientific Research, Indigenous Knowledge & Innovation (CESRIKI). See website: www.cs.ub.bw/cesriki_new/index.php. Indeed, some of the people SCAP interviewed and engaged with at UB had a strong connection to this centre.
[81] Munyaradzi Makoni, Botswana to develop policy to protect traditional knowledge *SciDev.Net* (24 August 2011), available at: www.scidev.net/en/health/traditional-medicine/news/botswana-to-develop-policy-to-protect-traditional-knowledge.html

trained and at the end, once they had finished digitising, you are left with the equipment. I understand that some countries accepted it willingly. But we were not quite sure. I am told that some digitisation did take place and some equipment was left. And as I said, many of those scholars no longer come to the countries where the materials are held. They can access them elsewhere, so those are the challenges.

Research and dissemination cycle

Having established the faculty's demographics, their motivations for conducting research and their feelings regarding open access, we can now explore the scholars' research production and dissemination practices. To help us understand them, we consulted a number of other scholarly communication models (Björk 2007; Garvey & Griffith 1972; Houghton *et al.* 2009; Hurd 2000; Sondergaard, Andersen & Hjorland 2003; UNISIST 1971), many of which had been theorised prior to the revolution in online digital communication, the mainstreaming of open access ethics and the proliferation of Web 2.0 technologies. But due to the fact that global scholarly communication norms have been evolving so rapidly over the last few years, we decided to utilise Czerniewicz's (2013) research and communication cycle model because it incorporated an understanding of these important developments.

Czerniewicz (2013) compares the "traditional" (closed, scholar-to-scholar) research cycle to the digitally mediated, open access model that is shaping the current global scholarly communication landscape. Both are based on the same four core elements – conceptualisation, data collection and analysis, articulation of findings, and translation and engagement – and both include similar types of intellectual inputs (literature reviews, conceptual frameworks, etc.) and research outputs (books, journal articles, etc.). But the key difference is that, in the new model, scholars are able to communicate elements of their research during every step of the research cycle through various digital platforms, from the conception phase onwards. They no longer have to wait until every facet of the project has been completed before they start sharing thoughts, processes and findings through various online mechanisms (blog posts, tweets, comments).

The key virtue of the Czerniewicz model is that it views scholarly research as occurring along a cyclical, rather than a linear, path, as so much of scholarly work involves retracing one's own steps through prior research data. Scholars revisit their materials and spin off new outputs, travelling around the research and dissemination cycle multiple times before moving to new projects and cycles. It also has the virtue of presenting contemporary dissemination activity as "radiant", pushing scholarly objects outwards towards multiple audiences (scholars, students, industry, civil society) at each point along the cycle. This updated understanding of the research and dissemination cycle allows us to assess UB FoH activities from a unique vantage point.

Figure 5.4 Traditional, research and communication cycle (Czerniewicz 2013: CC-BY-SA)

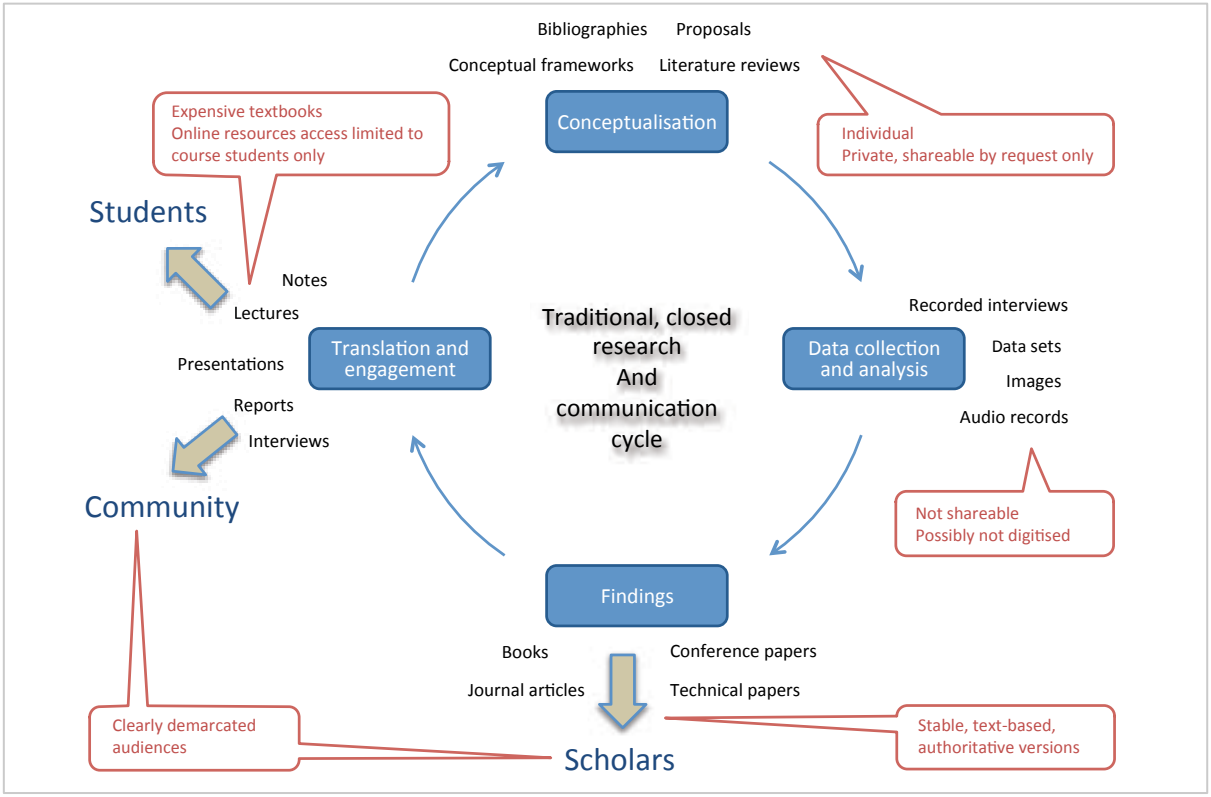
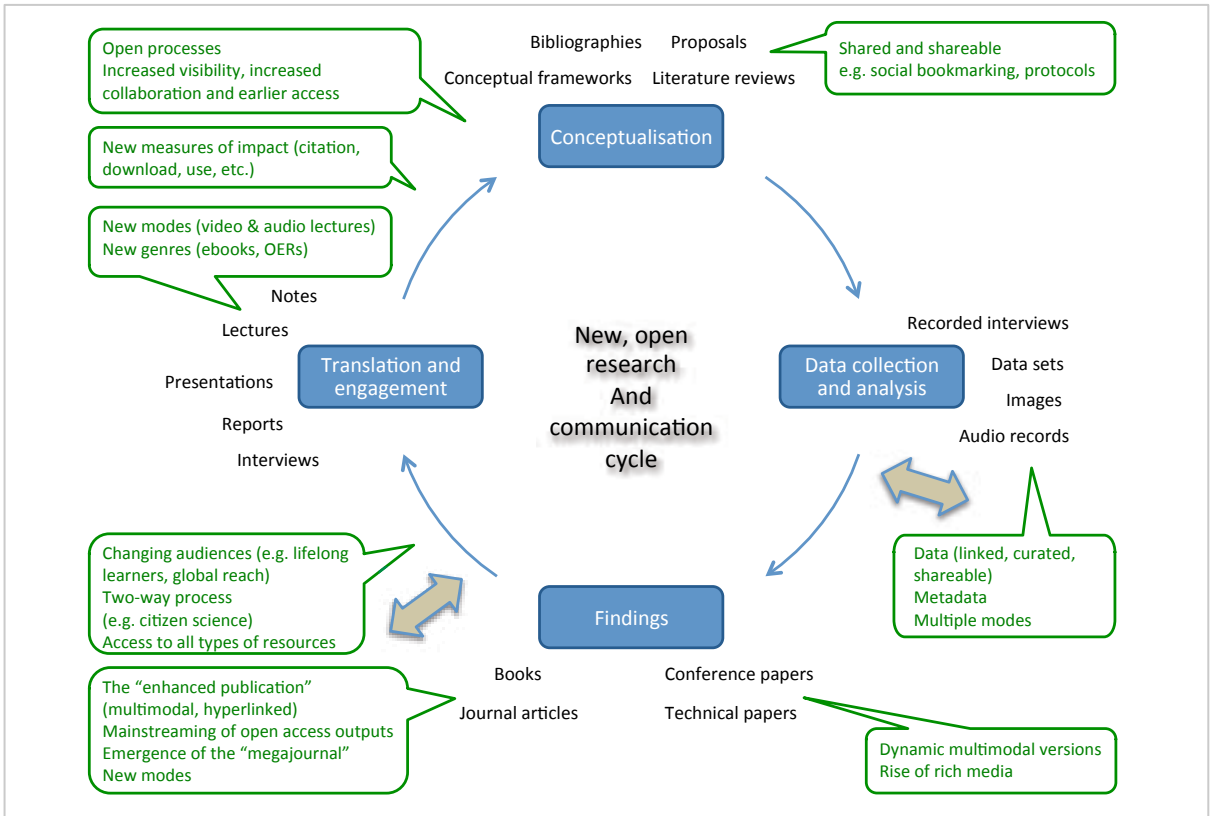


Figure 5.5 New research and communication cycle (Czerniewicz 2013 : CC-BY-SA)



Conceptualisation

During the first step of the research and communication cycle, scholars conceptualise the issue that they will explore through their proposed research. This process entails not only serious intellectual work (thinking through the various aspects of a potential research project and imagining possible processes, problems and outcomes) but also important planning work (ensuring the plan is feasible and worthwhile from a theoretical, practical and financial point of view).

As part of the intellectual process, this involves engaging with the relevant secondary literature to establish whether a new project would have analytical value and make a contribution to the field. Such engagement not only ensures that one's research does not duplicate previous research, but it is generative of new ideas in itself, usually offering new dimensions to a research concept.

As part of the planning process, this not only involves determining where the research should take place (lab, in the field, etc.) and who should be invited to collaborate in the process, but it also involves determining how much funding is required to conduct it and which funders should be engaged to obtain such funding (if necessary).

For the purposes of this discussion, we will focus less on the creative processes that UB FoH scholars engage in during their conceptualisation activities and focus rather on the practical elements of their research and communication practices. These relate to scholars' use of print and electronic materials, their online search behaviour and their utilisation of various funding opportunities.

Print and electronic materials usage

To understand the types of scholarly materials that FoH scholars engaged during the conceptualisation process, we explored their usage of print and digital materials. What became immediately apparent was that they continued to rely on both. When asked to rate the importance of certain print materials to their research, they rated international journals (81%) and international books (77%) as the most important, followed by national articles (73%) and national books (68%), then conference papers (57%), bibliographic indexes (50%) and pre-prints (42%).

This bias toward international print sources is probably best explained through demographics and relative levels of production: the amount of "international" scholarship available is enormous compared to the relatively small amount of "national" scholarship available from Botswana, a country of fewer than two million people. Though most of the national literature will be highly relevant for local issues, that won't be greater than the cumulative amount of materials generated elsewhere that are also relevant. (Some scholars also suggest that the "international" category is more prestigious than the local, national one, which may also raise those materials' sense of importance, though this is not likely to be the decisive factor when it comes to uptake.) However, one well-established academic said:

> *One of the challenges of teaching records management in Africa is that there are very few publications by African scholars, so we encourage our students to use our publications as much as possible .... We attract students from*

Swaziland, Namibia, Tanzania, and the only African case studies they have to rely on are what we have studied and written.

In this regard, published conference proceedings are important sources for research. We observed these hardcopy publications in use on academics' desks on many occasions and they were referred to a number of times during interviews. Often these were proceedings of well-established Southern African regional professional associations. Academics indicated that they used the papers from them extensively for their own writing and research, as well in their teaching.

This pattern is largely replicated in UB FoH scholars' perception and utilisation of electronic resources, except for some key differences. While academics rated international journal articles as the most important output in the digital realm (83%), which is similar to their print rating (81%), the importance of national journal articles fell from 73% in print to just 50% online. This is because most local journals are not available online or, if they are, tend to be scattered in different collections.[82] For local journals, it is easier for academics to find physical copies at the university library than to hunt for them online.

Perhaps because our interviewees were members of the Department of Library and Information Studies (DLIS), they praised the library's provision of access to scholarly materials highly. One said, "you have limitless access to resources if you want them." There were no complaints about limited journal subscriptions or difficulties accessing full-text articles. If scholars found problems, they argued that their inter-library loan would easily locate the item in the region and get it for them quickly. Access to data sources on regional issues was however, a problem, as discussed below.

Search behaviour

UB FoH scholars say that they use academic databases most often (84%) for finding e-content. This is followed by searching through Google Scholar (62%), discipline-specific repositories (46%), online collections (46%) and IRs (42%). This is a common pattern of usage in institutions that do not subscribe to large numbers of journals, but rely on package subscriptions with a few big publishing firms. Thus, unlike at UCT where scholars use Google Scholar more often and are reasonably confident of being able to download whatever materials are listed, UB scholars have to rely on databases where they know that the journals they are searching through can be accessed through the university's subscription service. This makes the promiscuous search results of Google Scholar less attractive, as it is likely to include numerous links to articles that they cannot download without paying a fee.

Funding sources

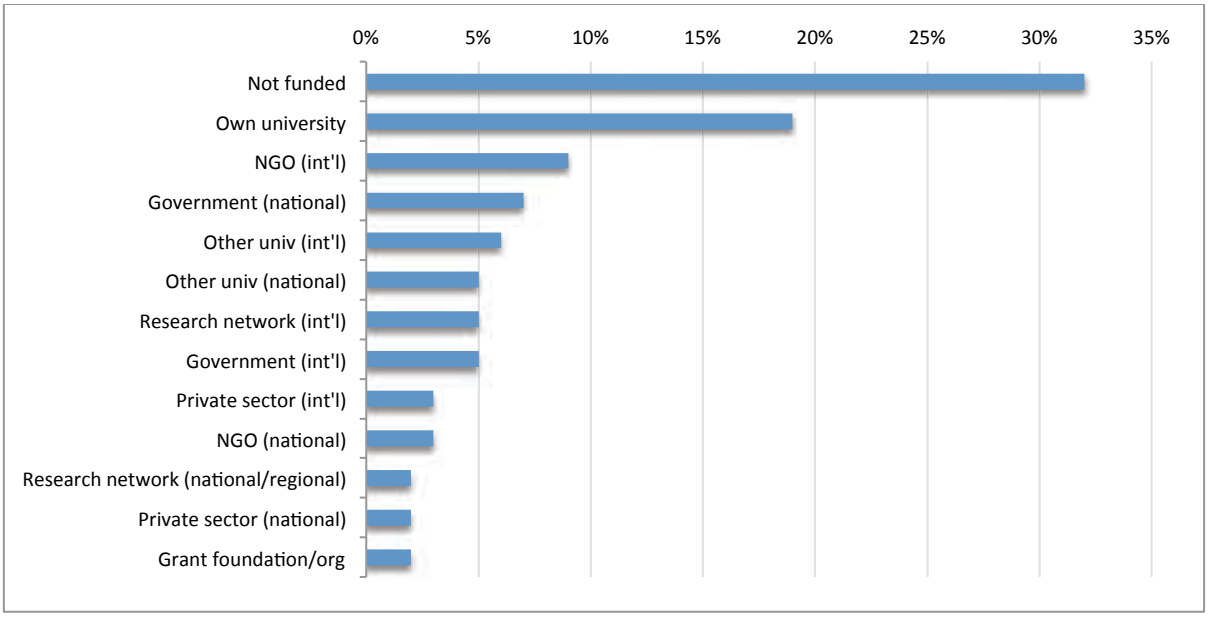
During the conceptualisation phase, many FoH scholars must consider seeking funding for their new projects. Whether they obtain it, and by whom, has a significant impact on

[82] For an incisive analysis of journal publishing in Africa (and Botswana in particular), see Nkololo-Wakumelo (2010).

how they end up conceiving of their research, how they conduct it and how they disseminate their findings.

According to our survey respondents, the majority of FoH scholars' recent research projects were either unfunded (i.e. funded from their own pockets) or funded by the university. The rest were typically funded through NGOs, the Botswana government, international governments, other universities, research networks and the private sector.

Figure 5.6 Sources of funding for UB FoH respondents' research projects over the past two years



In some respects, this is not surprising, as many humanities projects can be researched without any extra money (such as writing a textual analysis of a novel). But many, if not most, projects do require some funding, and so UB scholars reported to us that they often paid for the various travel and materials expenses of their research endeavours themselves. Usually they were either unable to get the funding through a competitive application process (at the university or elsewhere) or they decided that the amount of time necessary for applying for such funding wasn't worth their while, considering the modest costs involved. This means, however, that virtually all of these projects are small, local projects, confined to an immediate geographical area.[83]

As one scholar explained, UB's managerial culture (Bergquist & Pawlak 2008) and heavy administrative duties turn academics off from applying for university funds:

[83] Of the five UB FoH academics with whom SCAP conducted intensive "research and communication practice" interviews, one had received two rounds of university funding in the past, but argued that he would never apply again. Another had received one round of funding. The other three had never received any, nor had they applied for any. They also revealed that, of the 13 total projects discussed they had been involved with over the past two years, not one of them was a funded research project (funded from any source), apart from PhD projects or consultancy projects. When asked to discuss three recent research projects (other than the PhD or consultancy projects) they defined a project largely as work towards a paper to be presented at a conference, followed by the production of a journal article. In some cases this involved data collection, which they undertook by themselves and funded themselves.

> *The procedure to get research funding is so laborious. Even when you get the P30,000 you are chased around like you want to misuse the money: 'Did you drink a Coca-Cola here, did you bring a receipt there?' Very few people apply for the P30,000 because they think they [the Projects Office] are wasting my time. Why should I chase that office? The young boys and girls who are there when they give you a cheque, it's like … so why? I've done it twice but I won't do that any more. It's just not me. I won't be going through that any more.*

Another explained that although he would like to engage in a funded project involving "intensive research", he does not have the time. Moreover, he said that he would not want to jeopardise a collaborative, team effort by failing to meet his research obligations due to teaching pressures. At least when he worked alone, he was able to take full responsibility for the project, no matter how it turned out.

Despite the importance of university funds for research – and because the administration would like to put its limited funds into as many hands as possible – this source of funding often leads to small-scale projects. Crucially, because university funding comes from government revenue, scholars must motivate in their applications how their research will contribute to one of the identified goals of national development. This helps shape research activity in a way that demonstrably leads to developmental outcomes.

Though the predominance of unfunded and university-funded research suggests that FoH scholars operate within certain funding constraints, the "long tail" of other funding sources that scholars tap into suggests that some of them enjoy a healthy and durable connection to regional and international funding sources. These other sources represent a growth opportunity for UB FoH scholars going forward.

Data collection and analysis

The second phase of the research and communication cycle entails data collection and analysis. It also opens up opportunities for sharing preliminary findings and data publicly, prior to formal publication. For FoH scholars, this usually involves conducting interviews or surveys, carrying out sample studies, examining archival materials, followed by analysis. It would also entail some level of engagement with tools and technologies that help process that data into results that can be analysed.

For the purposes of this discussion, we will focus less on the actual research processes that UB FoH scholars engage in during their data collection activities and more on the tools and technologies that mediate them. We will also discuss whether FoH scholars utilise this time to share research information prior to publication or whether they prefer to withhold such knowledge until after it has been formally vetted.

Tools and technologies

Unlike their colleagues in the sciences, FoH scholars do not require much specialised technology beyond what the university should normally provide to conduct their research. They do not require laboratories or sensitive equipment, though they may require access to certain expensive computer programs that are not on the institution-wide system. For the most part, they can make do with computers, broadband internet,

scanners, photocopiers, digital recorders, etc. However, this does not mean that they do not still face technological challenges.

For instance, UB computers are connected to what scholars complain is a slow internet connection, hampering research efforts and debilitating any type of activity involving rapid uploading and downloading. Most indicated that they could not download articles at home. They also faced the disruptive reality of random power outages, a fact that can devastate electrical machines, wipe out data and create a general sense of uncertainty about the value of committing to a particular computer-based research activity.

Outside of their personal space, scholars have access to other university technologies. While these are supposed to assist with research and scholarly communication – such as run-of-the-mill tools like fax machines and photocopiers, as well as higher-end technologies such as IRs and digital scanners – they often fail to help because they are over-regulated, under-maintained or rendered inaccessible by various gatekeepers. As one scholar complained:

> *The truth is, if you have to send a fax or call places outside UB and the city where you are located, you have to pay if you use the facilities of the university. Various departments and faculties have fax machines, but you are not encouraged to use the facilities for something personal, even your research work. Something official, yes. But you have to complete some forms and your HoD must endorse it.*

These restrictions limit the potential that these technologies could play in enhancing research and dissemination.

Though most UB FoH academics have accommodated themselves to the particular opportunities and constraints that their tools and technologies offer in terms of scholarly communication, it is this node in the activity system that is often seen as the most appropriate point of intervention, if only because it is easier to insert a mechanical technology into a situation than to revise its rules, shift its norms, reassess its aims or change its division of labour. Thus this facet of the activity system cannot be taken for granted.

Circulation prior to publication

A majority (64%) of UB FoH respondents say that they "sometimes" or "often" circulate their drafts, pre-prints, working papers, or datasets prior to publication, mostly by incorporating them into their teaching. They also, with less frequency, share such pre-publications with their immediate project team members, colleagues at the university and wider academic network. Almost none circulate these materials to the general public or the government (67% "never").

One of the reasons why they do not share more at the university level is a lack of fora for doing so. Many seminar series have faltered in the past due to heavy teaching commitments by the staff, thus scholars often have to wait for a full-fledged conference to discuss their written work with colleagues.

However, when asked whether they have access to their colleagues' research outputs, an impressive 90% of UB FoH scholars say "yes", with personal contact being the top reason (82%), the IR being the second (78%) and the department/university journal being the third (61%). This shows that scholars can overcome the lack of public academic engagement with each other through personal sharing, accessing colleagues' work on the IR, or sourcing it from a university-published journal (whose content contains mostly UB colleagues' work).

While scholars agree that this may not be ideal, they suggest that it is still better than the relationship that they currently have with government policymakers, which is virtually non-existent. Many say that they produce research that they believe would be useful for policy development, but they are unsure how to go about communicating it to the relevant representatives. Even worse, they do not know whether the government is even interested in what university researchers (from the Humanities) have to say. A manager summed up these thoughts:

> *I think the perception that government has of us is probably troublemakers who talk too much and write things that don't have any implication for them. I don't think they appreciate the research that we do. But it's also understandable, given that they don't come from an academic background …. Government doesn't really fully appreciate what we do here and we probably also don't reach out to government to say, "here is research that can help you." So there are no avenues for us to reach out to government to say, "here is something that you can use" …. In short government has its own people that they rely on who they trust.*

This perception of the government's lack of interest in university research is not unique to UB FoH scholars, but its validity was reinforced when, during SCAP's research, the leader of Botswana's official opposition party launched a scathing attack against UB academics stating:

> *Most of our PhDs [from UB] are incoherent when they speak, and even more inarticulate when they write. I am not saying this because I know most of them personally and can speak to their lack of intellectual depth and vitality …. I raise these issues because many of the charlatans out there seriously claim to be experts and analysts. They only flash their academic certificates at the unsuspecting masses and get away with passing their untreated propaganda as analysis and scholarship. In much of their work, which receives acceptance only in the most obscure of journals, there is little or no serious research, or scholarly contribution.*[84]

[84] Quote by Mr Duma Boko – a former UB academic who is now the president of the Botswana National Front (BNF), the official opposition party in the country – spoken at a party conference. Source: Sakarea Makgapha (18July 2012) UB academics useless – Boko, *The Botswana Gazette*. His attacked provoked a vigorous response by one UB academic, Dr. Never Tshabang, who subjected Boko to a uniquely academic form of scrutiny, checking his citation count: "Remember that many times our man [Boko] reminds us that he has numerous scholarly articles archived in reputable world class journals, by that demonstrating that he was an academic of repute, and that he delivered the right quality and has set the bar for his colleagues in Law and UB academics in

Statements like these make it difficult for academics to want to share their ideas with politicians. UB FoH scholars do not believe that their research enjoys the necessary credibility for shaping policy, so they do not go out of their way to make it available to government personnel, whether it is in a pre-publication or post-publication format.

Articulation of findings

The third phase of the research and communication cycle entails scholars' presentation of findings to other scholars. This usually involves the writing and publication of peer-reviewed journal articles, book chapters, books and conference papers (an output type that can straddle the pre- and post-publication line). It is the time when scholars share their research findings with their peers through formal communication mechanisms. For many scholars – and university reward and incentive structures – it marks the imagined culmination of the scholarly research and dissemination process because academics are assessed by colleagues and managers (for promotion) according to the quantity and quality of these outputs.

For the purposes of this discussion, we will focus less on the constitution of those findings or the various "impacts" that they may have had on their respective fields and more on the output types that they produce, their online dissemination activities and the composition of their research and dissemination networks. These form crucial elements in the third phase of the cycle.

Output types

The research outputs generated by the UB FoH are quite diverse, especially compared to other universities which typically show a high bias for particular genres. This is because UB's promotion criteria include significant weighting for scholar-to-government and scholar-to-community outputs, not just scholar-to-scholar outputs (which is the norm elsewhere). UB scholars have a real incentive to publish these alternative outputs. They are also encouraged to publish in national, regional and international journals and books, a fact reflected in their activities.

Of the 183 outputs that our UB FoH survey respondents reported producing over the past two years, 148 of them were sole-authored and 35 were co-authored collaborative pieces (a 4:1 ratio). This is a typical production ratio for a Humanities faculty, based on disciplinary norms of solitary research and analysis. But depending on whether an output was produced alone or in collaboration, different and revealing patterns emerge.

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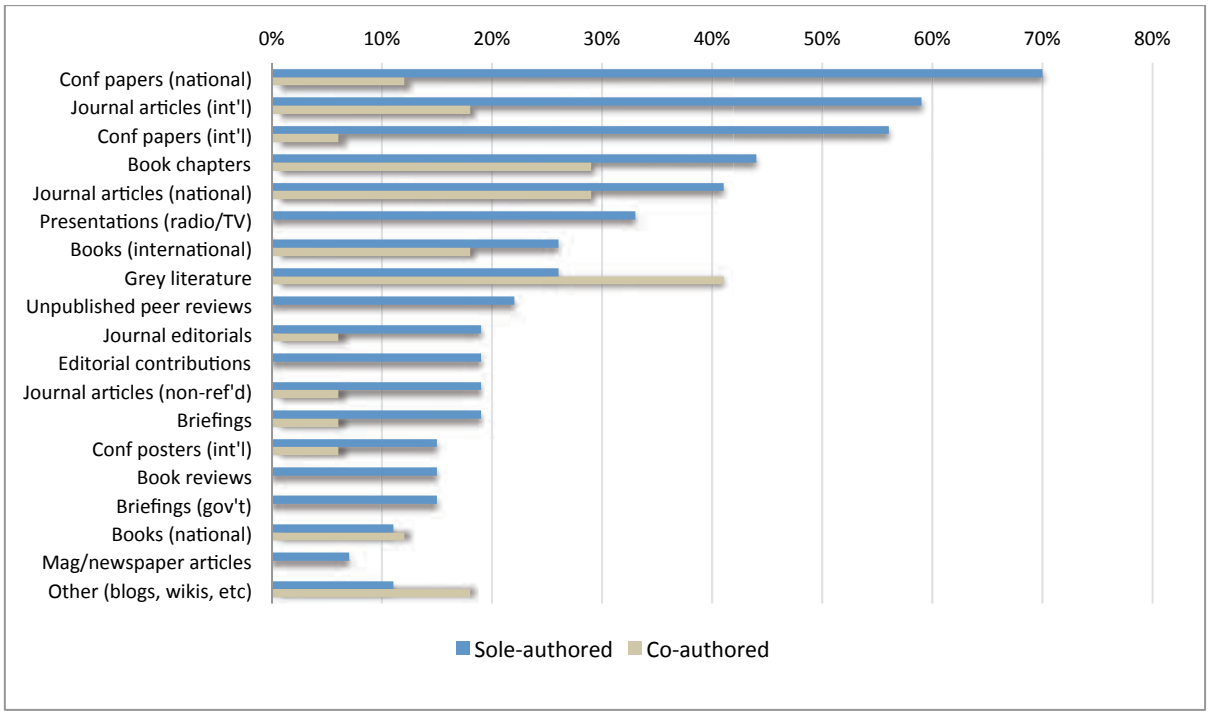
general …. I took time to consult search engines such as Google and also academic search engines such as Google Scholar, and more serious and specialised ones such as Web of Knowledge and Web of Science. Google Scholar could only show one article by our man, in an obscure Law journal in my view, and the rest showed zero results when the words Duma Boko are typed in as author." Source: Never Tshabang (2012) In defence of UB academics against Duma Boko, *Sunday Standard*. Available at: www.sundaystandard.info/article.php?NewsID=14553&GroupID=5 [accessed 30 May 2013]. However, for Dr. Madisa Mine, the Laboratory Director of the Botswana/Harvard AIDS Institute, Boko's claims merited some self-reflection by "Batswana academics [who] must justify the country's investment on our education. Otherwise Duma Boko's statement that 'Botswana's professors are failing the country and its people despite the massive investment that has been pumped into their PhD's (or education in general)' would resonate nothing but the truth." Source: Madisa Mine (2012) Intimidation and tirade: Tshabang Vs Boko, *Sunday Standard*. Available at: www.sundaystandard.info/article.php/email.php?NewsID=14604 [accessed 30 May 2013].

For sole-authored outputs, the highest proportion of scholars worked on or produced national conference papers (70%), followed by international journal articles (59%), international conference papers (56%), book chapters (44%) and national journal articles (41%). This suggests that there are relatively good opportunities for presenting work locally and that these are ideal fora for scholars to present a draft of their work.[85] However, the relative dearth of locally produced journals also explains why they publish a higher proportion of their journal articles internationally than nationally.

For co-authored outputs, grey literature is the most produced output (41%), followed by national journal articles and book chapters (29% each). International items are significantly fewer in number: international conference papers (from 70% sole-authored down to only 3% co-authored) and international journal articles (59% sole- to 9% co-). This suggests the UB FoH scholars are more likely to collaborate on reports for local consumption, such as consultancies, because of the increased generation of grey literature, which went from 5% sole-authored to 41% co-authored.

It also suggests that faculty and disciplinary norms support individual production over collaborative production. This is made clear not only in the 4:1 ratio just discussed, but in the focus of those different efforts. Thus, when UB FoH scholars produce sole-authored outputs, they tend to be in genres that carry weight in promotion assessments (such as international journal articles and conference papers). But when they produce co-authored outputs, they tend to be in genres that carry less weight for assessment purposes (such as reports), but which might entail greater financial reward (from an external consultancy).

Figure 5.7 UB FoH respondents' production of research over past two years, by percentage of outputs



[85] This is true of conferences organised at the faculty or institutional level, but not necessarily of seminar series organised through the various departments.

Indeed, the big team projects that UB FoH respondents participated in tended to be consultancies. However, these were usually bound by clauses that prohibited scholars from publishing any work deriving from the project unless granted permission by the funder to do so. (Academics can try to negotiate this permission upfront, but most assume that the funder has a legitimate desire to keep the results of the research proprietary.) This limits the ability of academics – and the academic community in general – to enjoy the benefits arising from this research process, because it cannot be shared publicly. One academic, noting the double-bind that this leads to, said, "the problem is that each of the times with such work you get tied. There is always a clause that you have to get permission from them to publish. So it is only available to them and only they can publish it. It's a sort of gatekeeping, but a valid one."

Ironically, this diversity of outputs provides an insight into why UB FoH scholars' work is relatively invisible according to the major academic productivity indices (such as the Thomson Reuters Web of Science index). Indeed, of the outputs listed above, only a few per cent of them – listed in the second column marked "Journal articles (int'l)" – will be rendered visible by the major indices.[86]

Due to FoH scholars' temporal and financial constraints, they find it difficult to conduct fresh, empirical research projects. Rather, after they complete their PhDs, they continue revisiting that research for many years, spinning off numerous presentations and publications related to it. They then start to supervise and build a group of students around them, with whom they are occasionally able to publish. Some apply for university funding to embark on new projects or further areas related to their PhDs. Many, however, perhaps because they do not have wider scholarly networks or because the teaching and administration loads are simply too high, never raise research funds. This means that the proportion of projects involving empirical work remains low (excluding those related to PhDs or consultancies).

One scholar explained the challenges, stating, "the work I did in conjunction with my colleague was all theoretical, all desktop research. It is very difficult to get responses to surveys. Even this morning I was telling my dean I want to do real research, intensive research, but it is so difficult to collect data. So I just started doing things that do not need other people." Moreover, "to do big intensive research projects you have to have three or four people. I really want to and if I have time I will apply [for university research funding]. In fact, what was in my heart was indigenous knowledge, but now somebody else has taken what I wanted to do."

Combine these challenges with the heavy teaching loads and it becomes clearer why scholars end up producing derivative or recycled material:

[86] A number of African scholars see this diversity of outputs as a negative development, proof of the diversion of academics' talent away from their core mission (which would include writing peer-reviewed journal articles rather than reports for aid NGOs). Mkandawire (2011: 19) says that, "the aid establishment today commands much of the intellectual resources devoted to development through its own research agenda, through the consultancy industry and through its selective support of research programmes and epistemic communities in developing countries. The reward system that the aid establishment dominates favours the report over the peer reviewed journal paper. Many academics inside and outside have been drawn into this system as they move freely through the revolving door linking academia, the consultancy industry, philanthropic organisations and international financial institutions. In the process, institutions of learning have, as in the colonial period, been harnessed to the task of remote management of the African continent."

> *At UB, there is this Centre of Academic Development that is ready to fund. But since I became an academic the truth is the work has really been so much, you really have a lot to chew. So I have not even been able to sit down and think, so occasionally when I am approached to write for something, it is on this basis that I have written things in the past couple of months, on the basis of just being approached. They just tell you, "could you write for us, an article for a journal, a chapter for an upcoming book?"*

In fact, because it is difficult to get large pools of funding to run their own intensive research projects, UB FoH scholars often seek out international collaborators (especially from the global North, or South Africa) who can provide the necessary funds. As one shared:

> *Right of now I don't have any research. I've gotten enough training and experience now to run a project of my own … but it's tricky. There is no funding. In South Africa they have their national funding [through the NRF], but here there's nothing like that. But I am working on an opening with Professor X from South Africa. He's a phenomenal figure. He is my mentor. He says he can get funding somewhere for us to begin producing an edited book, and we've identified writers in Namibia, Tanzania, Zimbabwe and South Africa. So that's one way we can open the frontier.*

The above indicates that it is very difficult for academics to move beyond their PhD research and proactively to conceptualise strong new research directions that would give research leadership to the faculty.

Online dissemination activities

With the limited time and opportunities for direct engagement with one's intended audience, scholars are able to get around these constraints by simply making their research available online in some fashion, allowing audiences of all types (intended and unanticipated) to access it. When asked if their research outputs were available on the internet to the general public, 92% of FoH survey respondents said "yes".

The majority (54%) said "yes, some of them", 35% said "yes, a lot of them", a tiny fraction (4%) said "yes, a very small selection" and only 8% said "none". This is relatively high compared to other institutions in our study, though it does not necessarily correlate with intention or interest in online visibility.

First, as discussed above, compared to UNAM FHSS and UoM FoS, UB FoH has a relatively low enthusiasm for open access dissemination. And when FoH scholars say that their work is "available" on the internet, they often mean that it has been posted by a publisher on their commercial website, requiring a fee from users. (Technically, these papers are "available to the general public" because anyone can pay the fee to download them, but in reality, because the fees are often very high, they remain essentially beyond the reach of the general public and are therefore not open access.)

Second, some scholars say that their work is available on the university IR. However, that was likely not their decision. The UB Library has been actively "harvesting" UB scholars'

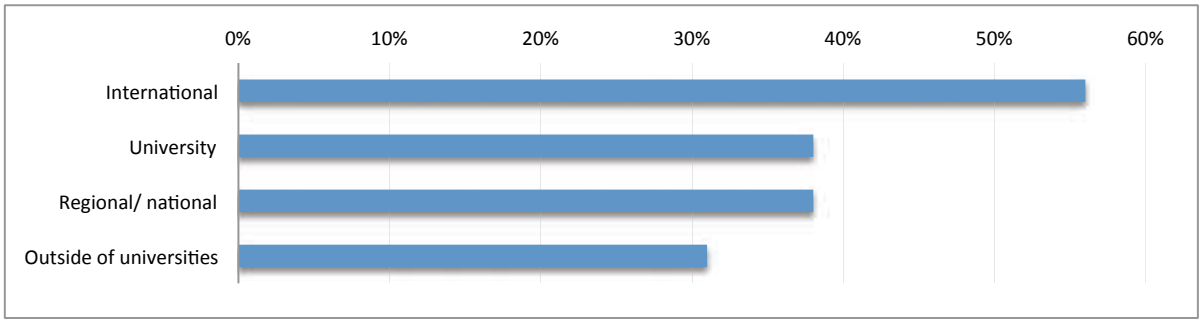
journal articles from publishers' websites and then linking to the article for download. Thus their visibility on the IR cannot be taken for an interest in profiling their own work. Indeed, as one manager stated, "so even though the facility is there, researchers themselves are not motivated to be actively involved to make their findings available on open access."

Third, this response stands in stark contrast to the actual visibility of scholars' work on the official university website. As a manager explained, "we don't have individual websites, we don't have faculty websites, we don't have departmental websites. We have only one university website, which does not have anything to do with [the academics]. It has everything to do with governance: who is in power, who is the director, how many sub-directors do they have, whatever." This was true until recently when the university upgraded its website. But while each department now has at least a home page with some information about it, only about half of these pages contain any details about the scholars themselves, and the information that they do provide tends to be rudimentary descriptions of their degrees and contact details, not their research interests or publications.[87]

Research and dissemination networks

To the question, "Do you feel part of a broader research network or community of scholars?", 67% of UB FoH survey respondents say "yes" and 33% say "no". Of those 67% who do, the highest number say it is with an "international" network (56%) compared to a regional or university network (38% each) and people outside of the university system (31%).

Figure 5.8 Location of research networks for UB FoH respondents (N=21)



The relatively higher sense of belonging to an "international" community is likely due to the fact that a high proportion of UB FoH scholars completed their graduate training abroad in the UK, Canada, the US and so forth. Many also studied in South Africa, a country that, by Botswana standards, is seen as both "regional" and "international" at the same time. Many academics have maintained the relationships they cultivated during graduate school and have made new connections through international conferences. Though they report a lesser sense of international belonging than scholars at our other partner universities, it is still greater than any other category for them.

[87] University of Botswana website, available at: www.ub.bw

A powerful feature of networking is the disciplinary conferences held by the regional associations of professional bodies, including for librarians, archivists and information managers in Southern Africa. Many of these have their own journals, which, while not having Impact Factors or being WoS-ranked, are peer-reviewed and valuable in those circles. A snapshot of this can be seen from presentations at conferences of professional associations held in the following cities by one of our respondents between 2010 and 2012: Nairobi, Harare, Gaborone (twice each), Maputo and Pretoria (once each). These presentations resulted in two articles in published proceedings. During the same period, another academic presented papers in Gaborone (three times), Johannesburg (twice) and Bulawayo (once). These resulted in four published articles in conference proceedings.

Academics who have professional links outside Botswana are able to leverage these. For instance, one academic had a professional connection with an international trust which he had built up during his 20s (in a sense it had become a personal connection). This trust had collaborated on tender bids with his department and had played a role in gaining him invitations and funding for international conferences and events. Another had strong connections with both regional and international trade unions, also built from his period as an activist during his 20s. These links facilitated considerable mobility to events, workshops and conferences, regionally and internationally, where the academic acted as an advisor for the labour movement.

The many UB FoH academics who do not have such links feel more isolated than their connected peers. They have few personal connections who could assist in getting them invited to present at conferences or contribute to publications.

On campus itself, managers and academics lament the fact that there isn't a greater sense of community and collaboration. One manager said, "talking is very minimal. There is a tendency for me to hide my work from the other person …. I don't want them to steal my notes, my ideas. Particularly those in the same field as myself, there's a bit of competition, so there is not much discussion. There's general discussion, but not really about the actual work that one is doing." Another academic agreed, stating, "I think we work in silence. To tell you the truth, sometimes you don't even know what your friend in that department is doing. There is an atmosphere that we work in silence, we are pigeon-holed, that's how we work."

This can lead to unnecessary inefficiencies, as another related: "Communication amongst us is a real problem …. I sit here with my neighbour doing some important research and I don't know what they're doing. Because when they finish what they're doing, they send it elsewhere where it's locked up and I just never get to see what they were doing or what they were working on."

All of this is influenced and exacerbated by the fact that individual research production is the norm in the humanities. In more collaborative environments, the sense of belonging to a broader network is greater. UB scholars and managers said that they were keen to overcome this through some sort of regularly convened forum for sharing research, but they admit to wondering whether they would even have the time to attend, given their busy work schedules.

Translation and engagement

The fourth and final phase of the research and communication cycle entails translation and engagement. This is the process of sharing one's research beyond the academic community – with students, policymakers, community leaders, industry personnel, etc. – in an accessible language and format.

This work is often unacknowledged in university reward and incentive structures (which focus primarily on scholar-to-scholar communication), though it provides one of the most productive and direct mechanisms for university research to impact national development imperatives. It shortens the feedback loop by which scholarly research gets into the hands of government ministers, community organisers and business entrepreneurs, all of whom may be able to use it for enhancing social welfare, growing the economy or spinning off new innovations.

For the purposes of this discussion, we will focus on the extent to which UB FoH scholars utilise free Web 2.0 technologies to share their research and enhance their scholarly visibility, and will then discuss how they engage with broader audiences by popularising their research.

Web 2.0 sharing

There are a number of freely available Web 2.0 technologies, or "social media", that would allow UB scholars to overcome certain obstacles that derive from their context (such as geographical isolation from other international academics) and achieve goals that are important in a developing research environment (such as enhanced collaboration opportunities with others). However, these tools do not yet play an important part in the UB FoH scholarly communication ecosystem.

We conducted a "shadows and footprints" exercise to determine FoH scholars' (more specifically DLIS scholars') engagement with Web 2.0 technologies on the internet.[88] A "shadow" is a person's passive online profile that is created without any special effort on that person's part. It is usually made up of random bits of information drawn from events (conference attendance) or organisational contributions (to an academic professional association) that are made available on different websites. It is also generated by aggregators such as Google Scholar which create an impression of a scholar's productivity and impact based on the number of citations it can connect to a scholar's articles or books. For many academics – both in Southern Africa and the global North – the only information available about a scholar comes from the shadows they have cast on the internet through their normal activities. They have not engaged with the internet in any strategic way to determine what the public learns about them and their work (Brown 2011; CIBER 2010; RIN 2009, 2010).

In contrast, a "footprint" is the actively made profile created by a scholar on personal websites, departmental web pages, social media platforms (LinkedIn, Facebook and Twitter) and scholarly profiling sites (Academia.edu, ResearchGate and Mendeley). For many scholars internationally, this simply means giving their CVs to a university web administrator to upload onto their departmental web page. But for the more proactive, it

[88] This research was carried out in September 2012 and thus may have changed slightly since then.

means engaging in a concerted effort to present a coherent narrative of their research interests and activities, plus a list of (and links to) their research outputs. It may also mean a more regular form of personal communication to the public through tweets, shares and blog posts.

Amongst DLIS scholars, the only Web 2.0 tool that they engaged with any seriousness was LinkedIn. 44% of the staff members have profiles on the site, with the majority of those having fewer than 10 connections (which suggests a nominal, passive use of the site). As a profiling service, LinkedIn is better suited to those trying to maintain professional mobility (by providing basic information about one's work history) than creating a rich description of one's research activities, but the low barriers to setting up an account, plus its perceived "seriousness", make it one of the easier Web 2.0 tools for UB DLIS scholars to embrace. In comparison, only 22% of staff members had Facebook accounts and only 17% had Twitter accounts (and none were active tweeters). This is likely due to the fact that the university prohibits the use of Facebook during work hours (across the UB internet system) while the low density of Twitter users in Botswana, and its perceived "frivolity", likely reduces the interest in this communication technology.

This relatively low use corresponds with the globally low level of scholarly engagement with such web 2.0 technologies (RIN 2010; Ware & Mabe 2009). Elsewhere, while scholars acknowledge the potential of these social media to enhance collaboration (Gu & Widén-Wulff 2011; Morgan, Campbell & Teleen 2012; Pearson 2010), many also see it as frivolous, lacking quality control and unnecessary for successful scholarly dissemination (RIN 2010). Amongst DLIS scholars, the low level of social media use is less a sign of resistance than one of unfamiliarity with its potential and concerns about the time it may involve to engage it.

However, for one scholar who had an extensive international network in the labour movement, both Skype and Facebook have had a significant impact on his ability to connect and collaborate with others who are interested in labour issues. As he said:

> *People are always reading my articles and I often receive things from outside the country, like Japan or even Iran, asking me about the methodology of my thesis. Listen to this which arrived today: "I am KA from Ghana, currently registered as a PhD at UNISA. I am working on digital preservation, at proposal stage. I traced your email on Facebook. I have read your scholarly contribution to the field and your well-researched thesis. I thought from time to time I should discuss my proposed work with you. I hope you share your rich experiences." So he sent me something to read and I will look at it this evening and get back to him. One of the good things about UNISA is their repository. As a former student there all our work is deposited and I get lots of hits.*

The scholarly profiling platforms – Academia.edu, ResearchGate and Mendeley – made essentially no impact on the department's scholarly communication activity, with only two of the 18-member department utilising these services. Most, in fact, had never heard of these sites.

More crucially, UB DLIS scholars' internet footprints still remain far smaller than most of their Northern colleagues who at least enjoy the benefit of a departmental webpage that describes their research activities and outputs. At the time of writing, no DLIS scholars were profiled on a departmental website. In the Humanities faculty, only a few departments provided lists of their staff members, most just noting where they received their degrees, but not providing any more details.

The combination of the university's tight control of the website, plus the academics' low engagement with scholarly profiling sites (which would allow them to get around any institutional barriers), means that UB FoH scholars have far smaller online footprints than they need to have.

Rewards and incentives

The last element to explore of the UB FoH scholarly communication ecosystem is the rewards and incentives system that, in part, guides scholars' research production and dissemination. The values analysis discussed above shows that scholars have multiple, and often quite personal, reasons for why they conduct research, but the official rewards and incentives policies represent a crucial leverage point for influencing the trajectory, quantity, quality and impact of that research.

SCAP considers the following as rewards and incentives:

- Financial remuneration, including research subsidies, patents and royalty payments, direct financial rewards such as research awards, etc. (Taylor 2003: 16)
- Increased research budgets, including conferencing budgets and travel expenditure
- Greater choice in postgraduate research supervision
- Greater choice in terms of research focus, methodology, and outputs
- Decreased teaching and administrative responsibilities (Smart 1978: 408)
- Invitation to prestigious academic societies, boards, review or policy groups
- Formal (institutionally driven) recognition from colleagues and peers (Moses 1986)

UB relies on three official mechanisms to regulate rewards and incentives for conducting and communicating research. They are promotion evaluations, the University Research Strategy and the PMS.

Each of these contains a number of provisions that are meant to encourage research production, some through positive means, others through negatives ones. The periodic promotion evaluations that scholars can motivate to go through offer the potential for a status and pay raise if they are deemed to have fulfilled the various teaching, research and community service requirements set forth for the position. But it also offers the potential of rejection by one's peers and superiors, a painful social outcome to be sure. According to UB scholars, promotion opportunities are a reality at the institution, and 83% of our survey respondents stated that it was a "very important" incentive mechanism. It does indeed inspire them to produce research.

The University Research Strategy also contains specific measures for encouraging research. It states that productive researchers will be able to have some discretion in the time they have allocated to teaching, research and community service. They will be

recognised with performance-related pay increases, promotion opportunities and perhaps an official award. Also, if they are able to bring in external funding, they will be eligible for reduced teaching obligations and some discretionary funds from the overheads for research purposes (UB 2008c: 10; UB 2011). While most faculty members were positive about the research strategy and its incentives, only 11% of our survey respondents thought it was truly possible to have their teaching allocations reduced through such mechanisms (though 70% said this is, or would be, a "very important" incentive if implemented). None of the academics interviewed had experienced discretion in terms of allocation of loads, even those who had brought in substantial amounts of money in consultancy contracts.

Incentives are also regulated through the controversial PMS which is described in Chapter 4. During SCAP's engagement with UB, the PMS elicited great emotion amongst both academics and managers. While most were able to see both positive and negative features in it, scholars tended to be more critical. One claimed that the relatively short (annual) assessment cycles meant that "incentives for researching and publishing are all based on short-term, immediate rewards, which ends up promoting low-quality, quick outputs." Others claimed that it "shifts attention from core activities to ad hoc plans and short-term goals, i.e. end-of-year monetary rewards." Most agreed that it created as many problems as it solved, encouraging quantity over quality, and other problems related to the impact of constant surveillance.

Managers recognised these deficiencies in the PMS, but still thought it had its value. One manager conveyed this ambivalent sentiment, stating:

> *The Performance Management System played a very positive role in that it forced teachers to be able to produce a certain number of publications in a year. You would say: "I'm going to produce three." And then you went for those three. Now that [the PMS] has been scrapped, people are not going to produce those three. [It is true that] Those three were very badly done, but now it's going to be worse. Bad as the PMS was, at least it forced people to plan.*

Compared to the clear and accessible 12-page University Research Strategy, the 113-page PMS Manual (which contains dozens of mathematical measurements for weighting the value of different activities and outputs) appears to inspire as much confusion and apprehension as it does inspiration for research production. For that reason, among others, it was put on hold, though it may return at some stage after a revision process.

Nevertheless, the PMS points allocation structure remains the scale by which outputs are assessed. It reveals a conventional preference for "high Impact Factor" journal articles (eight points minimum), highly commended books (eight points), books (six points) and articles in nationally listed journals (six points), followed by conference papers, keynote addresses, seminar papers and other types of research outputs (one to four points each). These scores are then tallied and weighted according to the "research and publications" weighting that each individual scholar uses to assess his or her own performance (a number between 20 and 40, as shown above).

This point system represents an attempt by the administration to balance its desire to achieve both international recognition and local relevance through academic research.

However, the key elements missing from this scoring system are any recognition of whether an output is open access, and whether it is profiled on UBRISA. The university has expressed a general desire for these outcomes, but the fact that these aspects are not included in the PMS means that UB is missing an opportunity to promote the broad accessibility of its research.

Beyond these official policies, UB FoH scholars believe that peer recognition (both official and unofficial) is an effective incentive, with 65% of our respondents saying that it is "very important". The opportunity to get conference and travel funds is also very important (75%), an achievement which allows them both to present their research and network with colleagues elsewhere.

However, the key question to ask about the rewards and incentives structure is not just whether it is resulting in the desired quantity and quality of research outputs, but whether it is having the impact that the university and the government want it to have, namely:

- Aiding national development
- Securing international recognition
- Reaching a broad national audience

Only the university and the government can say whether the university's research is aiding national development, but the policy environment and the ORD's research funding priorities enhance the likelihood that it will do so since developmentally related projects are prioritised in terms of research funding allocation.

Regarding the desire for international recognition (prestige) through university research, the PMS's high point allocation for Impact Factor journal publications offers one method of trying to secure it. Such publications (in WoS-rated journals) are often the only metrics that matter to overseas assessors, thus the PMS does provide a useful incentive for scholars to produce them. However, if the PMS runs in tandem with an annual performance assessment that promotes quick and easy outputs, then this could undercut the longer-term efforts necessary for high prestige outputs.

Lastly, the PMS incentivises the production of multiple output types, a fact which increases the likelihood that UB research will be accessible to multiple audiences nationally. But it is not enough to produce outputs in different genres to reach a broad set of stakeholders. It is also important to find the right method for disseminating those diverse outputs.

The best approach, we believe, is to publish scholarly research in an open access fashion so that anyone with an internet connection can access and read it. This is the approach that many developed-world scholars are taking, often informed by changing government and funder policies. There are costs involved in this approach too, but they tend to be spread out within an institution. More importantly, the public benefit of open access is immeasurable because it is impossible to determine in advance the impact that a piece of scholarly research can have for a business, community or NGO that could never have

afforded to do the research themselves. Also, open access allows for the "law of unintended consequences" to open up new opportunities for research as different people utilise the research in their own unforeseen ways. This is one of the reasons why SCAP encouraged UB to embrace OA dissemination because it offers an egalitarian, progressive and ethically appropriate method of communication research to the nation and the world, much of which was publicly financed in the first place. Thus OA has the potential to shorten the scholarly feedback loop down to the time that it takes for a computer user to search for, find and download an article.

With these points in mind, it is worth asking again whether UB's rewards and incentives are achieving the impact that it wants. Because the promotion policy focuses on rewarding scholars for publication without any regard to whether it is open or closed, disseminated to the public or not, the policy blindly trusts commercial publishers to disseminate their scholars' work, failing to take into account that most of those publications will only be accessible to other scholars who boast university subscriptions to the relevant journals (many of which UB cannot even afford).

To put the question visually: UB's values should inform its mission; its mission should inform its policies (rewards and incentives); and its rewards and incentives policies should yield the impact that it desires. But do the rewards and incentives actually lead to the impact that the university says it desires?

Figure 5.9 Visual representation of rewards and incentives' relationship to impact

In our findings and recommendations, we suggest that the university has developed a number of policies, rewards and incentives that lead to the impact that it (and the national government) desires, but some of those them are misaligned when it comes to dissemination. They are cohesive when it comes to the production of research, but less focused when it comes to communicating that research. This diminishes the impact that UB research is likely to have.

With the above discussion in mind, SCAP asked UB FoH scholars, "What incentives could increase your production and dissemination of research outputs?" They responded with a long list of answers, grouped under temporal, financial, infrastructural and collegial concerns.

Temporal:

- Reduced teaching loads
- Reduced administrative duties (including department and faculty meetings)
- Greater research time allocation
- Longer research leave

Financial:

- Direct financial reward to personal account
- Monetary reward for each article published in refereed journal

- Increased funding for research
- Increased funding for conference attendance and travel
- Easier access to local and international research grants
- Reduced bureaucracy in research fund management
- Opportunities for individual financial assistance

Infrastructural:

- Greater opportunity to contribute to national policy
- Increased knowledge of electronic media access techniques
- More research journals
- Development of ORD-published journal articles

Collegial:

- Promotion
- Peer recognition

While a number of these incentives are already in place (such as promotion, peer recognition and travel funding for conferences), others would likely have a productive effect if put in place. For UB FoH academics, the three most important would be reduced teaching loads, greater funding opportunities from the university and a financial reward scheme for publication (similar to that found at South African universities).[89]

We also asked UB FoH scholars, "What incentives could increase your production and dissemination of *less traditional* research outputs (i.e. those other than books or journal articles)?" While many of their answers were the same as those found above (financial incentives, etc.), they also revealed the challenges entailed in incentivising the promotion of these particular outputs. First, many respondents said that these materials must be recognised as research outputs by the institution. Without official recognition, scholarly interest in producing non-traditional outputs will be limited.

Second, they need better technological support to handle the kinds of different file formats that might be entailed in this. Thus they want: personal laptops and quick access to the internet for websites; access to online publications; faster internet connection; knowledge of how to use multimedia formats; and good computers with lots of memory and graphics-supported software. Third, some thought that the "availability of a university publishing house to publish research outputs" such as these (perhaps through a "UB Press") would help to incentivise productivity.

These suggest that scholars are not averse to producing alternative outputs and reaching out to a non-academic public, but they would want official recognition and other quite practical incentives for these efforts.

[89] For a description of how the South African block grant system works, see Mouton (2010).

The African context

The preceding discussion of UB FoH scholars' research and communication practices is underpinned by a broader set of conditions which can be called "the African context". Such a term reifies what is in fact a dynamic, diverse and differentiated environment, but it is a useful one for UB scholars who are often forced to reflect on their particular circumstances due to the comparisons that they – and outsiders – often make between academic reality in Africa and the global North (the primary reference point for international academic norms and standards).

During our research, we asked UB scholars, librarians and managers, "How does the African context impact UB research?" We did not define what the African context was, but let them define it themselves through their answers. While each person offered unique views on this subjective question, they mentioned a number of themes multiple times, providing an image of how UB personnel see their particular geographical, historical, cultural and demographic environment impacting their research.

Their responses tended to fall within three categories: deficits, challenges and opportunities.

First, they identified a number of deficits that, to them, characterised the African context of research. They focused particularly on those that were financial, technological and capacity-related. In each case, the deficit led to identifiable problems in the research and communication cycle.

At its most basic level, the financial deficit that they highlighted speaks to the limitations of the number of intellectual resources that the university can acquire, especially from other African countries. Limited funds equals limited access, in virtually every aspect of the educational enterprise. As one librarian explained, "it's very difficult to actually get materials that is published in the country or on the continent. So that is a big challenge and I think the current strategic plan of the university has one of the objectives or statements as this university must be uniquely African." This is an irony that plagues many African institutions, that despite their desire for and moral claim to African-produced knowledge, they are less likely than wealthier Northern universities to be able to access them.

Infrastructure deficits – such as low bandwidth, limited computer facilities for students and missing software programs – were also reported as characterising the African context. Though everyone had access to most of the technology that they needed to carry out research at some level, they complained that the quantity, quality or age of it was not optimal. In some cases, this sentiment revealed an absolute deficit (as when a technology is simply missing), but just as often revealed a sense of comparative deficit, in that the infrastructure that they did have did not perform up to standards found elsewhere.

UB personnel also mentioned human capacity and skills deficits as part of the African context in which they worked. This was also usually stated in comparative terms, because even though staff are allocated to fulfil research support functions, many lack the training to leverage new scholarly communication technologies. As one librarian said, there is a "critical area of skills that we still lack to make all these resources really benefit the university community." Skills such as digitising print materials or profiling digital

materials with DSpace metadata were mentioned as examples of where staff members wanted to enhance their capacity so as to meet the needs of a 21st century research university.

Second, UB personnel identified a number of challenges characterising the African context, two revolving around intra-continental collaboration and the cultural/historical legacies shaping higher education in Botswana. Most hoped that these would go under the "opportunities" rubric in the future, but for the moment, a number of obstacles rendered these as challenges. For instance, while the management is keen for UB scholars to collaborate with colleagues at other African universities, the potential for political instability, infrastructure deficits or financial constraints in the countries where those institutions are located influence these relationships, often leading university staff to seek out more stable partnerships in the global North. As one manager stated, "if you don't have funding in your countries, then it's difficult for you to collaborate amongst each other. We are finding that our collaboration is mainly with Europeans, with people from the US and less so with Africans. Even South Africa collaborations are less."

Regarding culture in the African context, managers tended to see this as existing in tension with the demands of the research imperative. One manager said that, "the African context does not encourage researchers to come forth and publish and contribute significantly to the policy or to governance." While the university itself pushed scholars to produce research, the broader society appeared not to call for it, "rather, I see people doing things their boss wants them to do … and the boss calls the shots. And that's that." This comment suggests that the broader society is more responsive to hierarchical authority than individual autonomy, a situation that may not be conducive to the production of research that makes a contribution.[90]

Another manager, reflecting on the roots of communicative practice on the continent, mused:

> *The African context doesn't seem to encourage research, because it's mostly a very oral kind of context where individuals seem to prefer to rely on the oral word, not on the written word. And research really is about recorded information or information that has been generated and then presented in a format which requires one to read. In this respect, I think the African context is not a great enabler for research to flourish.*

If true, this is a challenging insight. It does not, of course, foreclose the possibility of creating vibrant research environments in Africa, but it suggests that the broader social preference for oral communication may require scholarly communication perhaps to incorporate more orally suited formats if research is to be prized.

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[90] The tension between autonomy and authority is well captured by Tandika Mkandawire (2011: 15) who describes the plight that many African scholars have faced since national independence when "there were two major sources of conflict between the universities and their governments. The first was over the reconciliation of one-party rule and academic freedom. African soil has been unusually hostile to home-grown ideas. Indeed, one thing that has made Africa so opaque has been the severe restrictions that have been imposed on the research communities in Africa, both in terms of material infrastructure and academic freedom. African scholarship has had to deal with the incontinent insistence on conformity and sycophancy by authoritarian rulers."

And yet another manager looked at the issue of culture from a different angle, a socio-economic one: "We academics [in Botswana] are farmers … So people tend to attend to their cattle posts….A lot of our researchers have cattle posts. So I suspect that might affect their research output." Beyond this, he also said that African academics have temporal obligations to "the extended family, because you have not just your wife and children, but you have your uncles and aunts and the uncle of the aunt … and sometimes you have to attend to different ceremonies and funerals." This provides a welcome reminder of the social, ecological and economic context that UB academics remain embedded in, even if they spend their workdays on a university campus. It reminds us that all scholars have similar obligations to family and domain, a fact that this manager suggests may be more complicated and comprehensive in Africa than elsewhere.[91]

Third, UB personnel identified a number of opportunities that, for them, also characterised the African context, such as the developmental potential of their work and the benefits of consultancy research. As humanities staff, they sometimes struggled to articulate how their work could contribute to national development, but members of DLIS believed that their work on library and information issues could offer a great benefit to rural schools and libraries; to community activists and NGOs in need of good data; and the high-level archives and institutes that need to know how to store, curate, profile and disseminate their information to the public. Though they understood that scientific and agricultural endeavours might garner more attention from the government, they believed their work could make a difference to Botswana and Africa.

Moreover, in contrast to the powerful critiques of "consultancy culture" by Mamdani (2011a) and Mkandawire (2011), who see consultancy work as taking scholars away from their core intellectual functions, UB scholars and managers tend to speak positively of it. For them, consultancy contracts overcome some of the seemingly intractable funding constraints, granting them an opportunity to engage in a project that may yield some publications. As one manager stated, "in most of Africa … people do consultancies in order to augment their salaries, but also, some of these consultancies have a way of being turned into research papers and written as articles in journals." They also give scholars a chance to contribute to a project that might be of some value developmentally, depending on the nature of the research. Lastly, it allows them to bring money into the university

[91] An American scholar, John Holm, spent four years (2006–10) as the director of the Office of International Education and Partnerships at UB, and made a similar point in an essay about the impact of African family obligations on university scholarship. In the article, he wrote: "Despite rapid economic and social change for the last four decades in Botswana, most people in the country still feel committed to participate in traditional family activities in their home villages. While family events and visits are important, in Africa they too often trump professional responsibilities and seem like an almost monthly occurrence. Academics will go home for weddings and funerals of extended-family members, for national holidays, and to help with health or financial crises of relatives. Those obligations mean professors regularly travel considerable distances to those villages, keeping them away from the university." Source: John Holm (2010) When family ties bind African universities, *The Chronicle of Higher Education*, available at: http://chronicle.com/article/When-Family-Ties-Bind-Afric/124011/ [accessed 30 May 2013]. His comments – which included a line stating that "African academics dedicate surprisingly little time to teaching, advising students, conducting research, writing scholarly articles, and serving as administrators" due to "family, part-time jobs, community activities, and academic conferences" – ignited a lively debate, with critics suggesting that he was following in a Western tradition of "talking about Africa, not with it." Source: Leloba Molema & Mary Lederer (2010) Disputing assumptions about the U. of Botswana, *The Chronicle of Higher Education*, available at: http://chronicle.com/article/article-content/124593/ [accessed 30 May 2013]

through the consultancy fee system, thereby enhancing their own standing in the institution and sharing those benefits with the university community.

Tellingly, a number of the issues raised here in the discussion of how the "African context" impacts UB research were also raised when we asked what "challenges" or "obstacles" UB scholars faced in conducting their research. For many – and this is true of respondents at other African universities – the idea of the "African context" is virtually synonymous with the notion of challenges and obstacles. This is not to say that they were not hopeful or that they did not see opportunities emerging from the African context as well, but just that, when asked how the "African" context (as opposed to, say, the "European" or "North American" context) impacted their research, the answers they generated revealed that they believed they worked in a complex and difficult terrain, one that was likely more complex and difficult than experienced elsewhere.

Conclusion

The UB scholarly communication ecosystem – which we viewed through departmental, faculty-level and institutional lenses – is in a period of significant transition. While its activity is still characterised by the goals of the previous teaching-oriented mission, it is starting to grapple with the challenges involved in moving towards a research-oriented mission. Teaching loads remain heavy, administrative loads are substantial, yet scholars are responding to the new institutional mandate to produce research and publications. But they say they require more time set aside for research and more funding opportunities to carry it out. At the moment, they feel pulled between too many obligations, with each of them suffering as a result.

Governed by a strong, centralised administration, scholars feel increasing pressure to ramp up their level of research productivity. But this top-down control has bred a certain resentment of and resistance to the administration's dictates, negatively impacting scholars' uptake of UB's institutional repository, the proposed open access commitments in the IR policy and the constant assessment of scholarly performance through the PMS. However, the institutional mandate to produce research has lead to identifiable increases in research production, even if that has not been accompanied by a cohesive communications strategy. While scholars produce a range of diverse outputs, they are relatively content to share them with fellow colleagues through traditional publishing formats (journals, books), regional conferences and seminars. The rewards and incentives structure that shapes such communicative behaviour does not give greater recognition to outputs that are open versus closed, meaning that a lot of the research produced by FoH scholars remains unavailable to governmental, civil society and industrial personnel who might be able to leverage it for their own – or broader social – purposes.

It was into this ecosystem that SCAP conducted an implementation initiative that tried to improve the potential of scholarly communication within our DLIS pilot site. It is to that initiative that we now turn.

Chapter 6.
The SCAP implementation initiative

SCAP's research design called not only for the collection of data from our various pilot sites, but the active stimulation of these sites through customised implementation initiatives (or "interventions") that sought to improve the state of scholarly communication within them. Five principal assumptions underpinned these initiatives. They would:

1. Be treated as experiments.
2. Address a challenge articulated by project participants in pilot sites and other institutional stakeholders.
3. Be publishing-oriented, addressing content profiling and dissemination through new tools and technologies.
4. Utilise open approaches (including open source software and publishing platforms) wherever possible.
5. Yield insights that could be extrapolated to the rest of the institution, developed in line with current institutional strategy, e-infrastructure, and international standards and protocols around interoperability.

SCAP scoped and fulfilled the implementation initiatives during our four site visits to the institutions. The first visit aimed to surface the contradictions in the scholarly communication ecosystem, while the latter three visits sought to create consensus around the nature of the initiative, identify stakeholders and policy frameworks, and implement the agreed-upon pilot process.

While the formulation process was participatory, the principal investigation (PI) team played a considerable role in interpreting and translating the desires of informants into a feasible intervention. This was due to two factors. First, while informants had a clear sense of institutional challenges, they were often unable to articulate desired solutions to them because they were unaware of the new technologies that might overcome these challenges. Second, the PI team also had the responsibility of protecting the funder's interests and ensuring that the implementation activity adhered to open access principles.

The Department of Library and Information Studies (DLIS) served as the SCAP pilot site for implementation activity at UB. This was located within the broader Faculty of Humanities (FoH) which served as our main research unit concerning scholarly communication practices (as discussed in Chapter 5). We chose to work with DLIS because the administration had identified it and its 18 faculty members as engaged with some of the issues that we were interested in.

In this chapter, we will examine the process and results of our implementation initiative at UB. We will do so by identifying scholarly communication challenges at the university, determining the focus of our intervention, putting the initiative into action and considering what lessons were learned through this engagement.

Identifying scholarly communication challenges

When we contacted DLIS and the broader UB community through a series of presentations, workshops and interviews in early 2011, the institution showed signs of having engaged with the open access debate as well as developing a strategic engagement with scholarly communication practice, infrastructure and policy. UB had already established the University of Botswana Research, Innovation and Scholarship Archive[92] (UBRISA) institutional repository (IR) in 2009 which had a content focus that was in line with the SCAP approach of profiling a broad range of scholarly outputs. The UBRISA Operational Guidelines (UB 2008b: 5) capture this expansive focus: "UBRISA content includes, but is not restricted to, journal articles (preprints and post-prints), conference and seminar papers, technical and research reports, books and book chapters, data sets, images and audio visual material, research lectures, PhD and Masters theses and some 'special' archive collections." The Guidelines (UB 2008b: 5) additionally stated that "[in] line with digital repository policy, all content will be made available on an open access basis unless there are specific reasons and circumstances necessitating the restriction of access to the full text."

In addition to the IR, the UB library also hosted the Open Journals System (OJS) that had been installed in 2009 to support journal publishing in the university. Complementing this e-infrastructure were a number of policies and guidelines that aimed to regulate and promote research communication activity. Many articulated the need to utilise dissemination as a means of addressing local development imperatives. The University Research Strategy (UB 2008c: 6) states:

> *A new emphasis will be given to the impact of research on the wider society and the goal of ensuring that research has tangible public benefits, so that wherever possible new knowledge is turned into action, innovation, products or services. Thus encouragement and incentives will be given to research proposals that clearly specify how dissemination and application will be undertaken and impact achieved …. The establishment of the digital research repository will provide scholarly access, visibility and usability to the University's research output.*

[92] UBRISA, available at: www.ubrisa.ub.bw/

Quality

While UBRISA, OJS and a scholarly communication policy framework were in place, academics, librarians and managers expressed a number of concerns about the scholarly communication environment during SCAP's first site visit. Key among these was the lack of publishing options and channels. At the time there were eight institutionally affiliated journals, of which many were published infrequently (perhaps once a year, if that) or were perceived by the staff as being of inconsistent quality.

This concern for quality was central to SCAP's partnership with UB, and was even spelled out in the University Research Strategy (UB 2008c: 5) which states that, "the Office of Research and Development will continue to develop strategies for encouraging publication and promoting research quality assurance." Indeed, the UB Department Research and Publication Committee Terms of Reference (UB 2009a: 1) was issued as a response to this policy directive and articulated a process through which departmentally-based committees would be formed to "facilitate and promote basic, strategic and applied research of the highest international quality within the Department." Two of the core functions of these committees included:

- Ensure peer review of proposals, research reports, conference travel and other outputs from the department.
- Ensure mechanisms for the approval and uploading of departmental outputs onto the digital repository.

But when SCAP started its engagement with UB, this process had never been put into action in any of the UB departments.

Because of this, many scholars reluctantly sent their research to be published outside Botswana because they felt that "at international level, quality is assured." They understood that this choice inadvertently reinforced the challenges of building quality into local publishing enterprises, with one lamenting that "we [UB academics] undermine our own excellence." Even worse, they sensed that this compromised the confidence that the government had in local research. As one academic indicated, "until we can show quality, this situation won't shift. Outside consultants will continue to use local knowledge and research and gather wealth from government contracts."

Open access

The UB pilot participants agreed that, despite tensions between local and international publication, additional publication channels were required, leading them to favour the idea that SCAP's implementation initiative should focus on the development of an information management and library science journal within DLIS. The department had taken some steps in doing this itself but hoped that SCAP would be able to make it more sustainable. One of the problems, however, was that not everyone agreed that such a journal should be open access, one of the key conditions of SCAP's engagement with the department.[93] While university managers tended to agree that "there is no doubt that

[93] This hesitation toward open access is discussed in greater detail in Chapter 5 where it is revealed that 25% of our FoH survey respondents either disagreed with or were unconvinced of the merits of OA publishing.

open access is the way to go", DLIS academics were more cautious and worried "that they will be giving their knowledge away to the world" without any benefit accruing to themselves.

Resources

For the most part, academics felt that the UB library was well-resourced, with one senior researcher going so far as to state that "I know the library has always been generously funded. As a matter of fact, we struggle to exhaust the budget almost every year. I don't think any scholar has ever complained of inadequacy of resources. Besides, the library is a member of SABINET [the Southern African Bibliographic Information Network] and can obtain any request that is not available from any member library without any problem." Other DLIS scholars tended to agree with this positive assessment. Statistics on library resources[94] at the time of writing were as follows:

- Books: 459,956
- Pamphlets: 32,749
- Periodical titles: 1,200
- Full text journals: 123,236
- Internet dedicated workstations: 187
- Registered users: 23,539
- Seating capacity: 1,132

For the PI team, this high level of reported satisfaction with the university's library resources was difficult to reconcile with our knowledge that UB had only recently adopted the research mission[95] and that, compared to other, more established research universities in the region, its resources appeared quite small. (For instance, UB's 1,200 periodical titles are dwarfed by the periodical counts at UCT[96] and while inter-library loan serves as a valuable mechanism for resource sharing, it can be slow at times.) So why did the UB scholars think their library resources were adequate? During our research, survey responses and interviews revealed that most UB academics engage in interpretive or derivative research, meaning that they do not require vast amounts of empirical data, but can rely largely on secondary literature (and any other data that they may have gathered from earlier in their careers, such as through their PhD dissertation research). In this context, they considered their library holdings as adequate. However, it is likely that, over time, the level of resources will need to grow as scholars embark on more original, empirical research, in line with the mission of a research university.

Gatekeeping

Many scholars and librarians also identified the main UB website as being inadequate for profiling content, existing more to serve the management's objectives rather than those

[94] UB Facts and Figures available at: www.ub.bw/content/id/1989/Facts-and-Figures/ [accessed 22 July 2013]
[95] The UB Research and Development Policy was articulated in 2002, but consists primarily of aspirational statements, not an operationlisable plan for achieving them. Only in 2008 was the University Research Strategy ratified by the UB Senate.
[96] At the time of writing the UCT library provided access to "more than 72 000 electronic journals." See: www.uct.ac.za/research/libraries/ [accessed 22 July 2013]

of the academic staff members and students. Academics complained about gatekeeping practices that made it impossible for them to have any input on the content that appeared on the website, and as a result felt that it did not speak to their own profiling needs. In a global context where the internet is seen as the predominant mechanism for information exchange – and where university websites are supposed to highlight the research strengths of its faculty members – the UB website was seen as significantly limiting the visibility of UB research.

Buy-in

Lastly, academics complained about UBRISA because of long lag periods between content submission and deposit. Though the IR had been operating for two years by the time of SCAP's first site visit, it was struggling to achieve a critical mass of outputs because of mismanagement and scholars' resulting lack of buy-in. One senior academic claimed that the content she had submitted more than a year earlier had still not been uploaded onto the repository, nor had anyone bothered to acknowledge receipt of her item. Because of such experiences, the UB scholars we interviewed believed that they were justified in resisting this administrative initiative because they saw it as a marketing exercise by the administration, not something that would provide the academics with any real benefits. As one scholar said of UBRISA, "the university wants to give publicity to itself. If they want us to do this [submit materials to UBRISA] we should be remunerated."

Determining a focus for SCAP implementation activity

During our consultations with the DLIS participants, they suggested that SCAP's intervention should support the development of a new journal produced from within the department called *Infotrends: An International Journal of Information & Knowledge Management*. DLIS had published the first (print only) issue of *Infotrends* in 2011 under the editorship of the then DLIS HoD, Professor SM Mutula, just as the SCAP pilot scoping process was getting underway. Facing uncertainties around financial and editorial sustainability, DLIS hoped that the SCAP initiative could bolster the journal and give it an electronic presence. In the wake of the first site visit, the SCAP PI team explored various options for how it might utilise UB's OJS setup and establish a workflow process that ported content directly into UBRISA upon publication. However, despite our shared enthusiasm for this proposal, it had to be abandoned when, during the second site visit, it emerged that (a) the journal was not recognised by UB's Office of Research and Development (ORD) on its official list of UB-accredited journals; (b) the founding editor-in-chief had departed; and (c) the journal had no business model or publication plan in place to proceed to a second issue. After that site visit, the PI team reassessed the partnership's options and proposed an alternative approach for implementation activity.

We therefore recommended that our intervention focus on piloting a QA process that would help with assessing and profiling alternative research outputs via the IR. This was a process that had been envisioned by the UB management, but which had never been implemented–a fact that contributed to the UBRISA's relative stagnation. Our proposal was to pilot a sustainable workflow process incorporating quality assurance, copyright

clearance and uploading procedures so that more UB research could be profiled on the IR. This was in line with the UB Digital Repository Policy (UB 2009b: 8) which states that "realisation of the UBRISA requires institution-wide effort, mainly at departmental levels where submission and management of collected research output will first occur. Ideally, senior academics should be appointed as collection manager(s) and reviewer(s) at each point of submission, which is the Department."

We proposed that DLIS select 20 research outputs from its faculty members to put through a process – involving quality assurance, intellectual property clearance, repository deposit and content description/indexing – for uploading onto the repository. The intervention would focus on:

- Working with ORD, DLIS and the UBRISA repository team in consolidating a strategic approach towards content management and deposit in the IR.
- Identifying appropriate content from within DLIS that can be shared via the repository, ideally comprising multiple genres, including reports, working papers, seminar papers and conference presentations.
- Exploring content deposit processes in UBRISA and adding metadata.
- Experimenting with QA processes, IP clearance procedures and departmental vetting of content prior to uploading.

To support the initiative, SCAP hired a South African-based libraries and metadata expert with experience in institutional knowledge management processes while the PI team drafted a QA workflow process (see Appendix 1) that could be appropriated for pilot purposes. The resulting proposal was constituted by four phases.

Phase 1: Articulation of concept and gaining buy-in of institutional stakeholders

SCAP's institutional grant was utilised to bring on board a DLIS content coordinator (CC) to liaise with ORD, DLIS and UBRISA in order to coordinate the initiative locally. The CC was to get academics' buy-in to the initiative and ensure that the interests of all relevant parties were represented, and that institutional policies and protocols were adhered to. The CC would additionally be responsible for articulating and managing the content workflow from submission through review and, ultimately, deposit in UBRISA.

Phase 2: Establishment of the DLIS Research and Publications Committee (DRPC)

It was proposed that DLIS establish its Department Research and Publications Committee (DRPC), as called for in the University Research Strategy Terms of Reference document (UB 2009c). The DRPC would be responsible for identifying the minimum 20 resources, putting them through a QA process and supporting the CC in liaising with authors.

Phase 3: Content initiative

The CC would work with DLIS academics to identify 20 scholarly resources to go through the QA and IP-vetting process, as administered by the DRPC. The CC would also give regular feedback to the PI team so that it could monitor the results of the initiative and

incorporate these changes into the final proposal given to UB which, it was hoped, would be scalable and implementable by other UB departments in the long term.

Phase 4: UBRISA deposit and metadata capture

Once content had been cleared for exposure on the IR, it would be published via the repository and the DLIS CC would work with the UBRISA manager, the PI team and the SCAP consultant in articulating a suitable, efficient process for future content deposit and description. In articulating this framework, there were three principal areas of concern:

1. DLIS academics and managers might be reluctant to participate given the additional workload this process entailed and the fact that the previous proposal (to publish *Infotrends*) had been abandoned.
2. The late proposal change might mean that our results were not meaningful due to a lack of time to pilot and monitor results.
3. IP and third-party copyright considerations constituted a significant challenge in terms of sharing multiple genre outputs, requiring the DLIS pilot to follow best practice and adhere to local and national policy in this regard.

Despite these concerns, DLIS and the PI team embarked on the pilot initiative, the results of which are discussed below.

Implementation of the pilot initiative

Implementation activity was comprised of three steps: identifying resources for submission, the DRPC review process and the deposit of content to the UBRISA team.

Step 1: Identifying resources for submission

The DLIS pilot process got underway in October 2012 with the appointment of Dr Olugbade Oladokun as the CC. A senior academic in the department who had also served as a university librarian (at the main library and one of the satellite campuses), Oladokun was a regular participant in SCAP workshops and was passionate about raising the visibility of DLIS research.

He started by requesting that the DLIS HoD, Dr BN Jorosi, circulate a memo to DLIS academics enjoining them to cooperate with the efforts of the CC and the SCAP initiative. Oladokun and the PI team understood early on that it was important to involve the leadership structures in such initiatives if they were to be taken seriously by the academic staff. Thereafter, Oladokun embarked on a door-to-door campaign to engage the 17 members of the department in one-on-one meetings. This exercise generated the submission of 15 outputs: 11 of these were journal articles with single or joint authorship while the remaining four were reports or commissioned work. (This was fewer than the 20 outputs that we had originally hoped for, but due to intensifying time constraints, we agreed that 15 outputs would still be suitable for our purposes.)

Step 2: The DRPC content review process

The five-member DRPC then met in October 2012 to review the 15 resources, at which stage the CC briefed members on requirements of the pilot initiative and introduced them to the principles of SCAP's proposed QA process.

According to this QA model (discussed in Appendix 1), reviewers were asked to assess outputs according to three key criteria: methodological rigour, logical coherence and completeness. The process was meant to be transparent and "light", with review duties done in rotation so that no one would be burdened in an unsustainable fashion.

The 15 pilot outputs went through a single review process (sometimes "blind", sometimes not, depending on the preference of the reviewer). Reviewer reports were sent to the CC, who then communicated reviewers' commentary to the authors. The PI team monitored this feedback process and found it to be thoughtful and robust, suggesting that DRCP members saw this QA process as an opportunity to mentor some of the younger staff members through serious intellectual engagement.

However, in some cases, where the CC judged the comments to be too "blunt" (meaning that the tone communicated in the comments did not match the tone intended by the otherwise supportive reviewer), the CC used his discretion to "massage" some of the language of the comments so that the author did not feel attacked or upset by this (unremunerated) process. Though the PI team had not anticipated how important it would be for the process to be sensitive to authors' feelings, this ended up being crucial for one key reason: scholars were not obligated to participate in this QA process, thus if it to were to remain sustainable, they had to feel supported by it, not diminished.

In cases where a reviewer rejected an output for uploading, the output was to be sent to a second reviewer. Should the second reviewer also reject it, the authors would be given the opportunity to reassess it and resubmit it at a later date. But in cases where the second reviewer disagreed with the first reviewer (approving it for publication), the DRPC and CC would together make a decision on whether to submit the resource to UBRISA.

The collection and review process concluded in February 2013 with 15 outputs successfully reviewed – a significant achievement given the short time period in which it took place. There were no cases of outright rejection, but in cases where only minor revisions were required, authors made those revisions. However, due to the fact that no reward is given to those who publish their outputs in UBRISA, the authors of the two papers that required significant corrections did not bother to make them. Of the 15 outputs that were received, all but two were ready for submission by March 2013.

Step 3: Content deposit in UBRISA

Technically, this was where SCAP's implementation activity ended, with the delivery of quality-assured outputs to the UBRISA manager in the UB library. To that extent, the pilot implementation was a success, achieving precisely what it had hoped to. Unfortunately (as of time of writing), the final step in the actual deposit and uploading process – handled by the UBRISA management team in the library – has yet to occur. More than three months after the CC had submitted the objects to the library, the outputs had still not been uploaded onto UBRISA.

When the CC queried the library team about why there seemed to be a delay, he received two different explanations. One was that UBRISA was "down" and that nothing could be uploaded onto the server. This indeed appeared to be the case at times, at least from the erratic presence the website had when SCAP periodically checked on it. On some occasions, the web page showed a server error, suggesting technical difficulties. However, this appears not to have been a permanent state of affairs, but rather an occasional occurrence (similar to the periodic losses of electricity at the university).

Another library official offered a more revealing explanation, stating that s/he did not believe that it was appropriate to upload materials onto UBRISA that had "only" gone through a QA process run by the authors' immediate peers in their departments, suggesting that this might cause a conflict of interest and that it was not "blind" enough. Thus s/he would not upload them until s/he had received approval from a higher authority than the CC and the DRPC. This response is revealing for four reasons:

1. The librarian's statement directly contradicts the UBRISA workflow policy which identifies the department as the level at which an author's object gets quality assured, suggesting that s/he was either unfamiliar with these particular aspects of the policy or disagreed with them. (UB 2008b)
2. The librarian has amplified his/her role as a UBRISA gatekeeper, withholding services based on a putative concern for quality that goes beyond his/her remit.
3. Scholarly communication is not a politically neutral act. The library team has, for the last four years, been entrusted with identifying and "harvesting" UB scholars' journal articles and profiling them on UBRISA.[97] With the development of the QA process, in which departments are able to submit materials themselves, the importance of the library team would be correspondingly diminished. It would no longer control all facets of scholarly communication through UBRISA, but would be reduced to playing a more facilitative role. This power change is not insignificant.
4. This exemplifies one of the key findings offered in this report about scholarly communication at UB, that while the university has made great progress in *articulating* useful scholarly communication policies, it has been less successful in *implementing* them, precisely because of disjunctures like this in what should be a coordinated process.

Unfortunately, experiences like this seriously erode UB scholars' confidence in UBRISA, making them want to avoid it. Many scholars expressed dissatisfaction with their interactions surrounding uploading materials to the IR, and this departmental experience appears to reinforce that perception.

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[97] To start the process of populating UBRISA, the library team initially "harvested" UB scholars' articles from journal publishers' websites and then uploaded them onto the IR, but in a slightly altered format. Unfortunately, this harvesting process was inefficient, characterised by bad practice and likely illegal. It was inefficient because it required library staff to search online for scholars' outputs themselves rather than relying on scholars to submit them themselves. It went against best practice because many of the outputs were saved in formats that did not allow for search engines to crawl the text and identify them during searches. And it was likely illegal because many of the articles went through a "scrubbing" process, in which UBRISA members: downloaded UB scholars' articles from publishers' websites; photocopied them while blanking out the copyright information on the article; and then re-presented them on the IR as if they were open access files. This process was not based on negotiation with or permission from the publishers, but more on convenience for the library team. Given the lack of participation by UB scholars, the UBRISA team's actions were understandable, though not sustainable or desirable. The workflow process needs to be revised going forward.

Lessons learned

While this pilot initiative was located in a single academic department, the issues surfaced pertain to the entire institution, specifically as relates to the question of how to articulate institutional workflows for the profiling of a wide range of content outputs via an IR. Through this activity, SCAP was able to test a number of assumptions about quality assurance workflow processes within the UB institutional context. The lessons that we learned about the process include the following:

Lesson 1: Because UB FoH scholars do not see the value that UBRISA brings to them directly (through increased citations, financial reward, etc.), they feel virtually no incentive to submit their outputs to the IR. This sentiment also determines the amount of energy scholars are willing to expend in revising an article that has gone through a QA process: where small revisions are required, scholars are likely to make the effort; where large revisions are required, scholars will not bother to make them.

Lesson 2: Scholars must be given financial, temporal or symbolic incentives for consistently contributing their outputs to the IR. They must be rewarded not just for publication (as they are currently are), but for broader dissemination activity (that is, ensuring that their outputs are also profiled on the UB IR).

Lesson 3: Academic departments and faculties can serve as powerful and efficient QA entities. For them to remain sustainable, the workloads of the CC and DRPC will have to be relatively light (given their other commitments) and incentivised (with either PMS points or financial rewards).

Lesson 4: The success of the DLIS QA process relied on the motivation and wisdom of the CC, who not only spent significant time just trying to obtain the requisite number of outputs to put through the pilot process, but who ensured that the experience was a positive and supportive one for the participating scholars. This required substantial time, interest and knowledge of the departmental environment.

Lesson 5: The UBRISA management team does not have the time, resources, incentives or capacity (yet) to run the IR in an efficient and responsive manner. The UB administration has assumed that IR management activities could be simply added to librarians' other duties, thus underestimating the IR's temporal and capacity requirements. For UBRISA to live up to its potential, it will have to be overseen by a staff member for whom it is the top, or only, priority.

Lesson 6: Any intervention into a scholarly communication ecosystem is fraught with political consequences. Even if the initiative serves to enhance scholarly communication, it may positively or negatively affect various stakeholders' positions within that ecosystem, creating new obstacles and challenges.

Lesson 7: The QA process opens a space for structured mentoring between senior scholars on the DRCP review panel and the junior scholars submitting their outputs for review. This presents a major opportunity for the university to strengthen its research culture.

Chapter 7. Challenges, contradictions and opportunities

A key element of SCAP's research was to identify the main challenges, contradictions and opportunities in the University of Botswana Faculty of Humanities (UB FoH) scholarly communication ecosystem, especially as they pertain to the dissemination of digital research outputs (articles, conference papers, reports, etc.). By working with DLIS, the FoH and the Office of Research and Development (ORD) we were able to assess elements of this ecosystem as they pertain to departmental, faculty and institutional concerns. In this chapter we provide an analysis of this multilevel ecosystem that not only reflects UB scholars' reality, but offers critical and constructive insights for moving the discussion forward concerning the promotion of optimal scholarly communication at the university.

By "optimal" scholarly communication, we mean the dissemination of digital outputs that are open access (free to the user), visible (quickly findable on the internet), profiled and curated (typically on an IR), understandable to audiences that would most benefit from the knowledge contained within them, aligned with the mission and values of the university and the country, ambitious and original, adequately funded (by the university or another funding body), recognised by the author's colleagues and university as valuable, and of a high quality. This is an admittedly particular understanding of what constitutes optimal scholarly communication – and will hopefully add to the debate on such – but for the sake of the following discussion, this is what we mean by it.

Challenges

The challenges most impacting the UB FoH's scholarly communication ecosystem are those of institutional culture, research culture, funding, time, e-infrastructure, skills and capacity, and marginalisation. In this discussion, a "challenge" is defined as a crucial factor in the scholarly communication ecosystem that inhibits the optimal production and dissemination of research. A challenge can be a durable feature of that system (such as funding constraints) or an ephemeral one produced during a transitional phase (such

as a nascent research culture), but each stands as an obstacle to optimal scholarly communication and it is not easily remedied through the actions of any one agent (management, scholars, government personnel). Challenges are often the inadvertent by-product of a broader social, political, educational or financial concern, such as the global economic recession or the rapidly changing requirements of the information and communication technology (ICT) landscape. Typically, there is little that the institution itself can do in the short term to overcome these challenges, but through long-term strategic planning and implementation, they can certainly ameliorate them and, in some cases, turn them into opportunities.

Institutional culture

As discussed in Chapter 5, when asked how the African context shaped their research practices, a number of UB managers brought up certain cultural features that they felt inhibited the promotion of research at the university. These revolved around issues of hierarchy, orality and social/family obligations. While SCAP can only speculate on how Botswana's oral communication heritage might impact scholarly communication today, or how family obligations might influence various research commitments in a uniquely "African" way, we did obtain multiple pieces of research data suggesting that hierarchy was a comparatively important element in staff relations at UB (more important than at the other universities we studied) and that extrinsic motivations (through managerial dictates) were vital for scholars' production of research.

Unlike the other universities we profiled, the institutional culture at UB is best described as "managerial" (as opposed to, say, "collegial" at UCT or "developmental" at UNAM) (Bergquist & Pawlak 2008). This is true not only in the sense that the administration holds significant sway over the direction of university strategy and policies, but in the legitimacy that academics accord it as a strong, centralised authority structure.[98]

But that legitimacy has been questioned in recent years by scholars who feel that the management has gone too far in catering to its own interests rather than to those of the academic staff. They feel that the "top-heavy", "bloated" administrative structure – in which there are 1,992 non-academic staff compared to just 813 academic staff – has lost sight of the true mission of the university. As a report issued by a large segment of the academic staff states:

> *The University of Botswana has experienced gradual changes over time that seems to be out of kilter with its vision, mission and values. These are, among others, non-supportive University policies, a disconnected governance structure, repeated industrial actions by staff and students, low staff morale, poor staff welfare, staff attrition, recruitment and retention challenges, poor*

[98] These power relations resemble that of "paternalism", where a management stratum asks for, and is given, a great deal of authority (to create policy, dictate norms, etc.), with the understanding that it must fulfil certain critical moral obligations towards the governed strata (pay decent wages, be flexible with the application of rules when issues of personal dignity and public reputation are at stake, etc.). This authority structure is well-known in the history of Botswana, and in fact is seen by many analysts as describing the national government's relationship with its citizens (Holm 1987).

> *maintenance of facilities and equipment, lack of accountability, and poor support for teaching and learning*. (UB Academic Staff 2012: 3)

They feel that the management structure – which includes "twenty five directors, numerous deputy directors, assistant directors and managers" (UB Academic Staff 2012: 1), compared to just nine directors at UCT – costs too much to support financially, especially since they tend to earn more than the academic staff members (despite possessing lower qualifications). Even worse, most of the job descriptions for these high-level managers "are logistical (clerical) in nature and not strategic and can therefore be performed by lower ranking employees" (UB Academic Staff 2012: 17). All of this has combined to create a negative working environment which "has seen a number of disturbing academic staff turnover in recent years and it has been struggling to recruit and retain staff" (UB Academic Staff 2012: 1). In 2011 there were 163 unfilled academic posts, creating massive burdens on the remaining academic staff (UB Academic Staff 2012: 3).

The academics' depiction of this managerial system resembles that of a patronage network, in which the rationale for the system is its own growth, power and protection. Even though it is officially meant to support the academic enterprise, it has seemingly taken on a life and logic of its own. While most academics at UB are fine with a "strong" and "centralised" administrative authority, they believe that it should operate within certain guidelines – a "moral economy" – that also remain cognisant of scholars' interests. At the time of writing, they believed that the management had breached the terms of the unspoken contract between it and the academics, a fact which jeopardises a number of critical academic functions, including the research imperative.

The primary challenge for enhancing research through a managerial system is assuring that research production is sustainable. Since it was only in 2008 that the university Senate ratified comprehensive policies which would turn UB into a research university, it is too early to tell whether these extrinsic mechanisms – such as the PMS – will lead to sustainable productivity. Evidence suggests that the top-down mandate has successfully raised the level of research production in the short term, but some suggest that it is already breeding resistance and demoralisation amongst the staff (Marobela & Andrae-Marobela 2013). Thus a number of questions remain:

- Will these extrinsic mechanisms be enough to sustain a high level of productivity?
- Will they lead to quantity at the expense of quality?
- Will they be as efficient as a system in which intrinsic motivation – personal joy, desire to contribute to the field – drives research outputs?
- Will they foreclose the development of a more peer-regulated research culture where productivity is inspired by organic collegial expectations rather than expensive accountability and enforcement mechanisms?

These are open questions. For the moment, the institutional mandate requiring that scholars produce research is at least signalling to academics how important this imperative is. And, for the most part, scholars have responded, seeking more research funding and producing more outputs. But the issue going forward will be whether the university's preference for extrinsic motivational mechanisms will be sufficient for creating the kind of "research culture" that it says it desires. Based on the qualities that

now characterise the academic–management relationship – where the academics are organising themselves as a block, demanding that their interests be recognised – it would appear that such management-driven research mandates will be effective within certain limits because they fail to tap into the social and personal factors that are also important for motivating sustainable research activity.

Research culture

Beyond the question of institutional culture, both UB management and scholars are keen to develop a robust "research culture", one that is intellectually vibrant, productive and nurturing for younger people. At the time of writing, this was still to be achieved. A number of challenges emerge in this regard.

First, as discussed in Chapter 5, sharing between scholars is not as optimal as it could be, due to both fears of intellectual theft and the heavy teaching loads that occupy most of the academics' time.

Second, according to one scholar, the academic staff are essentially treated like glorified civil servants in that they are expected to spend their work hours in their offices rather than, say, out in the field conducting research (even during the summer break). As is often the case in managerial contexts, the office serves not only a workspace for scholars but a site of passive administrative surveillance: for as long as scholars are in their offices, they can be assumed to be "doing their jobs".

Third, in such a cautious and rule-sensitive environment, scholars say that it is difficult to get funding for researching "risky topics". Only "safe" research proposals get support, so academics find it difficult to "push the envelope", as one scholar complained. Though this is a highly subjective perception of research opportunities, it is reinforced by other related sentiments, such as that of another scholar who explained that UB was still modelled after an antiquated version of the British university, meaning that scholars had to demonstrate a high level of specialisation and expertise in a field before they could get funding to research something, "unlike Americans who can switch around research topics and still get support."[99]

Fourth, this comparatively conservative approach to research appears to shape classroom teaching practices as well. As one manager related:

> *teachers use material that is sourced from literature reviews for teaching rather than using research that is their own. If we linked our research and our teaching, most likely we'd be able to have very strong programmes, relatively, because then we would be teaching what we've also researched.*

[99] Despite the official narrative about increasing research outputs, academics feel that there is little encouragement and that the incentives may be misaligned. As one scholar noted, "in terms of giving you encouragement to publish, nobody does that. I think people are just expected to know that is part of your responsibility as an academic, to teach, to publish, to carry out research and community service." Another said: I don't really see the 'publish or perish' thing here; I don't really see it here. Let me be frank, there are individuals here who are lecturing but they have not over the years really published to meet the criteria that we set, but they are there. They may be brilliant but I don't know whether it's just a lack of time or maybe the system is not doing anything against them. In my country [of origin] I doubt if you could remain an academic if you were not publishing."

But that is not happening. It's easier to use the same notes year in and year out, instead of doing good research.

Of course, it is important to put all of this in context: UB only recently committed itself to becoming a research university, something it hopes to achieve by 2021, so this description of the institution's research culture is not the last word on what it is or will be. However, these challenges will remain unless scholars and the administration address the values underpinning their reproduction.

Funding

Another major challenge for conducting and disseminating research at UB is funding, not only for the direct financing of various projects, but for providing the ancillary materials necessary for carrying them out. It is important to stress that the government does provide money to the university for research, and that this has grown with the commitment by the institution to become a research university. However, the question here is whether the funding is enough to achieve that goal, of creating a dynamic research culture which consistently produces high-quality scholarly outputs. At the time of writing, scholars and managers agreed that more funding would be required to reach that ideal, hence the relatively low levels of funding create a series of challenges that impede the research imperative.

First, with limited money to disburse,[100] ORD is keen to fund as many projects as possible so as to spread research opportunities amongst the staff and to make sure everyone gets a fair chance at pursuing research. But that often reduces the amount available for any single project, inducing many scholars to conceptualise research projects that are small-scale, localised and inexpensive. (One manager lamented, "there is no funding that can help academics carry out their work. The most we can get, if your proposal gets chosen, is P25,000 [which is not enough].") Proposing small-scale projects increases scholars' chances of getting funding, but it also limits their ambitions, encouraging them to see research as something done in discrete little pockets, not as part of a long-term career-developing contribution to scholarship.

One scholar summed up the results of this approach, stating, "we have a situation where we really don't have a path that leads to publications, a path that makes somebody an expert in a particular field …. People just do the smallest of things so that they can be counted amongst those that have done research or are doing research."

Second, the small amount of research funding also means that many people have to conduct it without any financial support. In the humanities, certainly some research can be carried out without extra money (such as a literary analysis of a novel), but most others involve some level of transportation (to field sites), equipment (tape recorders), and support services (transcription) that, if unfunded, have to come out of the scholars' pockets. This is indeed the case for many scholars who set aside their own money for

[100] In 2009, academics applied for P7.5 million in research funding, but only P2.6 million was available to disperse.

their small projects. They admit that this is not ideal, leading to very narrow research foci.

Third, lack of funding also limits the level of interaction that scholars can have with their peers elsewhere, particularly at conferences. UB academics are keen to go to regional and international conferences to present their work, get critical feedback, network with their peers and consider collaborative opportunities with people outside UB. But as the travel fund is limited, most scholars are only able to go to local conferences, or perhaps one in a neighbouring country occasionally. Ironically, as one academic relayed, "scholars are told to research and present their findings, but we're given too little money to actually go to conferences."

Fourth, financial constraints also impact research-related services, such as the library's ability to subscribe to journals that academics need. This impacts the ability of scholars to do the necessary preparation for conceptualising a project, assuring their work is original and fulfilling scholarly norms of engagement and attribution. While some academics get around this by asking foreign scholars to send them copies of journal articles that they are able to access through their wealthier institutions' subscriptions, this can act as a brake on carrying out timely and robust research.

Lastly, the lack of funding essentially confines all UB research activity to Botswana. As one scholar pointed out, this has the effect of making UB research inward-looking and provincial because scholars lack the means to cast their analytical gaze beyond their borders. For many scholars, this is fine because they desire mainly to contribute to the development and understanding of Botswana itself. But it also inadvertently reinforces a global power dynamic in which scholars in Botswana can only study themselves whereas "Westerners" are able to study not just themselves, but Batswana and other Africans too. What would be preferable, this scholar suggests, is if UB scholars were free to do both, and had the financial capacity to do so.

Time

One of the greatest deterrents to the production of research at UB – and indeed at most African universities – is the lack of time that faculty members have for conducting it. Burdened by heavy teaching and administrative loads, they claim that they do not have enough time to meet the growing demands for research outputs put on them by the administration. This is not a new finding, as most other literature on African higher education makes the same point (DHET 2012; Lindow 2011; Mamdani 2007, 2008; Mlambo 2007; Mouton *et al.* 2008; Sall 2003; Sawyerr 2004; Zeleza 2002), but SCAP's research does suggest that, if UB is going to reach its goal of becoming a research university in the future, it will have to attend to the fact that UB scholars are still overwhelmingly preoccupied with non-research activities. The teaching-oriented legacy of the university remains powerful, and so do the current teaching demands that structure academic labour.

This challenge is acknowledged by everyone at UB, not just the scholars. As one manager explained:

> *Another reason why research is thin … is the staff allocation workload. Here we've got very big classes. You know, the teacher/student ratio is terrible. Officially, it is one to sixteen. But in reality, it will be one to 200, because I know of people who teach 400 students in one semester …. So teaching is very heavy and that compromises the space left for research. That is one reason why people end up doing easier parts of research and not the kind of research that they would normally wish to do.*

This is compounded by the burden of administrative tasks that take scholars away from their core academic functions. As another manager reported:

> *We find that academics often have to do clerical duties like registering students. You sit the whole week in an office or some conference room registering students manually. And this means that you don't even move an inch until the registration is done. That's not all. The production of transcripts and grades and the invigilation of exams are all done by the academics. So they spend maybe a third of their time doing clerical duties like those.*

Though this temporal challenge is mentioned frequently in discussions about African scholarly communication, its commonplaceness as an explanation for reduced research capacity cannot be trivialised.[101] It also stands as one of the more difficult challenges to overcome unless the university can hire more academics or reassign certain administrative tasks to graduate students or clerical staff, either of which would require significant money and capacity.

e-Infrastructure

Despite the various financial constraints that UB faces, it is nonetheless relatively well-resourced compared to many other African universities. This is made clear by the fact that, when scholars were asked what technological challenges the university faced in its research endeavours, the only one that was brought up with any consistency was the slow internet speed ("low bandwidth") of the university broadband system. This is, of course, a relative concept, but the SCAP team saw first-hand how lengthy download times led to websites timing out (not rendering pages because it took too long) and slowed down research work that would be completed more quickly with a higher-speed connection.

This slowness was also recognised by the administration which has embargoed certain high-traffic sites, such as Facebook, between 8am–5pm. This serves another purpose as

[101] The HERANA reports on universities and economic development in Africa assess teaching loads at eight African universities according to official student-staff ratios. At UB, the authors indicate that in 2001, the student-staff ratio was 1:14, but by 2007, it was 1:27, almost doubling in just six years (Cloete, Bailey & Maassen 2011: 27). They conclude that this was "manageable" (2011: xix) for teaching purposes, and that the numbers do "not support the stereotype of 'mass overcrowding' in African higher education, certainly not at flagship universities" (2011: xix). While it may be true that the teaching loads are "manageable", our ethnographic and interview data suggest that UB teaching loads (at least for Humanities staff) are substantial enough to hinder research production significantly. We find the student:staff ratio too blunt an indicator to reveal how teaching and teaching-related duties impact scholars' temporal regimes.

well, to keep students focused on academic rather than social activities, but it is primarily meant to preserve the limited bandwidth for educational work.

Low bandwidth is a problem elsewhere in Africa, but it is often accompanied by a general lack of technological facilities. This is not the case at UB which is relatively well-provisioned, boasting an IR, staff and student computers, a state-of-the-art archival scanner, high-powered research management software, etc. Thus, for the most part, the university has the technology it needs, but the challenge it faces is in developing an e-infrastructure strategy that utilises not only this technology, but leverages the university's human capital to maximise the production and dissemination of research.

Skills and capacity

UB personnel recognise that they have some skills gaps that, if bridged, would improve their research and communication. When asked if they would benefit from training in certain research and dissemination activities, 61% of FoH survey respondents said that they would for "publishing in journals", 61% for "publishing books or monographs", 95% for "using open access platforms", and 78% for "engaging in Web 2.0 activities". While most have some familiarity with these processes, most believe that some directed instruction to streamline their efforts would be useful.

This is also true for librarians who understand that, as scholarly communication evolves, their skills set to meet the new demands must also evolve. This requires occasional, yet consistent, training for keeping up with trends and offering the best service to academics. As one librarian intimated, this also means helping to train professors how to use the resources that the library has. As it becomes more of a digital research hub, scholars need to know how to use the powerful search tools in the library.

During SCAP's visits to UB over the course of two years, it hired a consultant to carry out a number of training sessions with librarians regarding the use of DSpace (a metadata language for profiling and curating digital objects on IRs). Her experiences with the UB librarians revealed the extent to which UB is reliant on the library staff to help promote new forms of scholarly communication, but also how ill-prepared they are for that role, as they were originally educated to be "traditional" librarians, dealing with paper materials and rigid classification procedures. The move to digital has upended all of the certainties of the field, requiring a new strategy and set of skills for leveraging human capacity at the university.

African marginalisation

Finally, UB scholars must contend with Africa's marginality politically (Mkandawire 2011); geographically, in that it is located comparatively far from the major population centres of Eurasia and North America (Olukoshi 2009: 17); and intellectually, in that it is a small player in the competitive world of academic knowledge production (Abrahams, Burke & Mouton 2010; ASSAF 2006; Gray 2006; Limb 2007; Tijssen 2007). While this condition shapes many aspects of African higher education, Africa's political, economic and geographic marginality are not issues that most UB scholars get overly concerned

about, simply because none of these situations are easily changed. They will likely remain stable features of their future.

However, the relative invisibility of African scholarship globally does discourage and upset them, especially since they believe that this is unnecessary. One professor explained, "we really want to draw attention that there's a lot of good material, a lot of research that has been generated within Africa with some real good results, comparable to whatever is being done elsewhere. But nobody seems to know about it." This sentiment animates the response that many UB scholars have had to the potential of open access scholarly communication, seeing various Web 2.0 tools as opportunities for raising the visibility of their work.

This coincides with another concern about the marginalised status of African language research (both *on* and *in* African languages) which, for the most part, remains unrecognised on the continent and beyond. As one scholar lamented:

> *We have colleagues who are experts in African languages, and they write their publications and most of their research is on African languages and they publish African books in African languages. But when they get out there, they're not considered as experts, because all they've been writing is about either Zulu, Tswana, Ndebele … and they are experts in their own right. Their works are really worth thousands and thousands of pulas, or dollars, but because they are writing using their local languages, or their main interest is in writing using the local language, they are not considered as experts out there. So I don't know how we can really address some of those concerns.*

This is a situation that African scholars have some ability to respond to and change, if at least on the continent, but the impetus to challenge the dominance of European languages in African higher education appears to have subsided since the early years of the independence era.

Contradictions

While the UB FoH scholarly communication ecosystem faces the challenges listed above, it is also beset by a key "contradiction", an element within the system that hinders it from operating optimally, usually in a directly oppositional manner. Unlike challenges, which are typically obstacles that emanate from broader social, political or financial contexts, contradictions emerge from within the activity system and can be remedied from within it.

The primary mechanism by which we identified contradictions in the UB scholarly communication ecosystem was by assessing it through the CHAT triangles that we employed during our change lab workshops. This was an intensive process that allowed SCAP and the academics to explore every node of their activity system, evaluating whether there were any misalignments ("contradictions") in it that could be addressed.

The primary contradiction we identified is likely a temporary by-product of UB's transition from a teaching university to a research university. In this period of flux, new tensions and stresses have been placed on the scholarly communication ecosystem,

placing certain processes in opposition with each other. But this contradiction could become more permanent if it is not dealt with soon. Ideally, this contradiction would stop forming obstacles in the activity system and rather perform as a "productive tension" that leads to higher levels of research productivity, innovation and dissemination (a concept we will explore below).

In this section, we will discuss five key contradictions currently impacting UB's scholarly communication ecosystem: articulation vs implementation, policy vs policy, open vs closed communication, teaching vs research, quantity vs quality outputs and accountability vs productivity.

Articulation vs implementation

One of the reasons why SCAP was keen to work with UB was its impressive level of policy development regarding research production and open access dissemination. For instance, after producing a short policy document in 2002 signalling its desire to become a more research-intensive university, it produced a bevy of policy documents in 2008 detailing how it planned to become a full-fledged research university by 2021. This coincided with the rollout of policies for its open access IR. The collection of associated policy documents is thorough, imaginative and far-sighted, anticipating issues that will emerge over time as the institution grows into a research role.

Yet these well-articulated policies have not delivered their intended outcomes. There are two key reasons for this. First, they are the product of managerial processes that failed to secure sufficient academic staff buy-in. Because of this, many staff have actively resisted such policies which they claim are meant to enhance the prestige of the administration. This belongs to the discussion above concerning the managerial institutional culture, but these specific instances show the unexpected ways in which that debate takes place. Even useful policies that would genuinely enhance scholarly communication are targeted for resistance by scholars who feel disempowered and alienated with each new managerial dictate.

Second, these policies lack effective enforcement mechanisms, making them feel more like optional "guidelines" for the academic staff. This is compounded by the fact that the administration has burdened itself with a number of obligations that it needs to fulfil before scholars can even start to comply with the policies. Thus, for instance, the UBRISA policy calls for academics to self-deposit their work onto the IR, but only after they receive training. Yet according to the scholars we interviewed, this has not occurred.[102]

Moreover, because there are no positive incentives (such as money or PMS points) to induce scholars to submit their materials to the IR, nor are there any penalties (such as docked PMS points) for failing to comply with the IR submission policy, they do not achieve what they were meant to. In fact, in this instance, the administration has left the process to the librarians who have started to populate the IR by "harvesting" UB scholars'

[102] According to an academic who attended the one and, at the time of writing, only UBRISA training meeting, scholars never received the training they were supposed to because it turned into a debate about whether scholars should get paid for this extra work of depositing. This outcome also meant that the scholars never learned the skills that they were supposed to take to train other members of their departments.

outputs from journal publishers' websites. When strategic goals such as open access dissemination are achieved in this way, it does not lead to a self-sustaining culture.

Policy vs policy

UB produced a number of policies relevant for scholarly communication in 2008 and 2009, though some of them appear to have been developed in isolation from each other since some of their values do not appear to be in alignment. As discussed in Chapter 4, the Digital Repository Policy promotes open access dissemination of scholar-submitted materials, while the PMS does not incentivise open access dissemination or scholarly submission to UBRISA. The Digital Repository Policy makes clear commitments to open access communication while the Research Strategy makes only vague overtures to the notion, but without committing to it. Essentially, the UBRISA policy makes a strong commitment to OA communication while the Research Policy and PMS (which carry greater weight with academics than the UBRISA policy) do not.

Part of the problem is that the university has adopted a technology (the IR) that is tailor-made for OA dissemination but without situating it within a broader communications strategy that would leverage it. The Research Strategy contains positive language about seeking to have university research reach a broad national audience, but stops short of identifying exactly how that will be done. UBRISA helps to answer that need, in part, but because the Strategy and the PMS do not require scholars to submit their work to the IR or publish in an OA fashion, it is an optional decision for them.

This is likely just a temporary policy misalignment, if the administration decides to refine and revise its various research and communications strategies further. A key priority for future planning will be to rationalise these strategies so that they align with each other for the sake of promoting open access dissemination.

Open vs closed communication

One of the more stark contradictions in the UB scholarly communication ecosystem concerns the misalignment between the university's IR (UBRISA) and the official UB website. On the IR, UB scholarship is showcased to the world in an open access manner; on the website, UB scholars and their work are rendered essentially invisible in favour of official mission statements, managerial organograms and secretarial contact details. One platform is open, the other essentially closed.

As the UB Academic Staff (2012: 6) report on the state of the university reveals:

> *The University of Botswana website fails academic staff members as it does not allow them to place their (full) profiles online as is the case with other universities (even those from poorer countries than our own). As a result, our visibility on the net is next to non-existent. Universities are ranked on the basis of good university websites where staff members periodically update and showcase their new research and teaching activities online. As a result, UB is invisible online and therefore receives poor ratings.*

Visitors to the site do not get a sense of the kind of intellectual power that a department has, nor of its research strengths. More worryingly, this approach fails to leverage the kinds of benefits that come from public profiling: students can seek out professors with similar interests; staff can highlight their contributions to a field; and scholars outside UB can see who they might want to collaborate with on a research project at the university.

Many academics feel this level of administrative rigidity is unnecessary. As one scholar said, "the UB Public Relations department controls websites, so scholars cannot change their web pages without great effort – they feel infantilised by this level of control, which they don't see at other international universities." Another scholar complained, "we don't have individual websites, we don't have faculty websites, we don't have departmental websites. We have only one university website which does not have anything to do with us [scholars]. It has everything to do with governance: who is in power, who is the director, how many sub-directors do they have, whatever."

But the management's tight control of the site has also made academics sceptical of the administration's motives in creating the IR, something that, in theory, would enhance individual scholars' reputations. Yet even though it profiles their work, they felt it to be a mechanism for promoting the university administration, not themselves.

This cynical view offers a way of making sense of the apparent contradiction between the "closed" website and the "open" IR: while the former shares institutional and departmental mission statements and the latter shares academics' outputs, neither offers any detailed information about the staff who fulfil those missions or the faculty who produce those outputs. Their individual personalities are submerged under a broader (monolithic) collective "UB" identity.[103] In a managerial institutional culture, this approach makes sense, as it accords the administration the primary role in determining the configuration of that institutional identity.

However, while this communication strategy is consistent with the aim of reproducing managerial power, it contradicts the administration's own stated desires of basing its scholarly communication policies on openness, collaboration and innovation.

In some ways, this contradiction mimics the differences between the Web 1.0 approach to internet communication (static, owner-controlled websites "delivering" information to passive consumers) and the Web 2.0 approach (dynamic, user-influenced websites "cross-sharing" information between active co-constructors). UB's official website is a classic Web 1.0 artefact, well-suited to its managerial sensibilities. But the new technologies that it hopes to employ to raise its prestige (such as the IR) call for a more open, dynamic and responsive approach to both content producers (UB staff members) and users (students and global visitors). The fact that the management has utilised the same techniques for managing the UB website as UBRISA has made scholars disinterested in submitting their content to it.

This contradiction will not end soon, as it belongs to a broader debate taking place at the university concerning the virtue and viability of the managerial system (UB Academic

[103] Even on the IR, where a faculty member's name is attached to his or her paper, there is no corresponding personal profile to which one could link to find out more about the author.

Staff 2012). Thus while the university continues to invest in impressive technologies to enhance its scholarly communication potential, the challenges surrounding the questions of power and strategy will likely continue to impact their effectiveness.

Teaching vs research

Like most African universities, UB has focused on teaching undergraduate students during most of its history. That focus is now changing – or at least expanding – to include the training of graduate students and a greater emphasis on the production of research outputs by the staff. Now the management intends to develop the institution into a research university by the year 2021. It is still early days in this process; however, many staff see this transition as a fraught experience with teaching and research existing in competition with and isolation from each other. They do not yet feel that both teaching and researching are equally important components of their work, but that the new research requirements have been simply piled on top of their heavy teaching schedules, placing them at odds with each other.

A number of academics suggested that there was an imbalance between these enterprises, with teaching remaining prioritised in reality, while research was "not properly incentivised." Many compared UB to the South African context where scholars who produce research outputs garner further research funds from the government for their institutions, faculties, departments or themselves (Mouton 2010). They believed that this positive form of reinforcement was better for promoting research than the complicated PMS system that governed their research activity. In any case, the general consensus was that their core responsibility was to teach a full load each semester while research had to be considered in light of this primary obligation.

UB's management is aware of this problem, with one explaining that "unfortunately the teachers feel that research is an additional thing. They feel forced to do research. They think that the research must be an issue for the Research Office and not for them. They don't see that research and teaching go hand-in-hand."

This suggests that UB scholars currently experience the teaching and research missions as contradictory, not complementary. They understand the value of research to the teaching process and enjoy bringing their new knowledge to the classroom, but they also understand that, while the management may want to become a research university in the future, the institution is still largely structured according to its long-held teaching obligations.

This dichotomy between teaching and research is not a timeless or static contradiction, but rather a temporary challenge that is the product of the institution's transition from a teaching-focused to a research-focused university. At some point in the future, UB scholars will hopefully experience these dual imperatives as part of an integrated whole, not as compartmentalised features of their work lives. But in the meantime, university scholars and managers must continue to negotiate the difficult terrain of this transition period.

Quantity vs quality

In an ideal situation, scholars would continuously produce a large number of high-quality outputs. In reality, there is a trade-off between the speed or volume at which scholarly outputs are produced and their quality. At UB, everyone would prefer to have both, but scholars agree that they are currently being incentivised to focus on quantity over quality.

Many suggest that the annual performance assessments create an incentive to produce anything to "get the box ticked" at evaluation time. This can, understandably, lead academics who are pressed for time and resources to focus more on just getting it done than on ensuring that it reaches a certain standard of quality. This notion is reinforced by another scholar who said "PMS leads to low-quality outputs because there is constant pressure for regular outputs – also, big efforts like books are not weighted much more than journal articles."

This focus on quantity may be due to the fact that the research mission is relatively new to the university, thus the management may feel that it is more important to get scholars in the habit of producing outputs, regardless of quality at this point. In any event, the PMS does offer greater points for outputs published in "high impact" outlets such as WoS-rated journals; but most scholars do not have the time to aim for those highly selective publications. To satisfy the minimum demands of the PMS, they are incentivised to produce quick, short pieces for publications that have high acceptance rates.

Because of this, many UB FoH scholars do not factor in quality considerations when choosing the journals or publishers that they engage. For instance, in our interviews, not a single person mentioned Impact Factor as something that they consider when choosing which journal to submit their work to, a consideration that one would have expected to hear mentioned (even if as a low priority) by at least a few scholars, if they were concerned about quality. This is reinforced by the fact that a number of scholars reported authoring or editing books that were published by "predatory publishers" (i.e. publishers that claim to provide academic support services – such as peer review, editing and proofreading – while in reality offering only some, or none, of them, yet then requiring the scholars to pay for the outputs to be "published".)[104] The UB FoH scholars themselves did not see these publishers as "predatory", and were largely unaware of the debates surrounding them. This suggests that, when pressed by the institutional demand to produce publications, many scholars will seek the path of least resistance and go for publishers that are distinguished not by quality but simply by accessibility.

While this tension between quantity and quality exists at every university, and is experienced by every scholar personally, it is often a productive tension, one that pushes scholars to find a balance between their research efforts and their values. At UB, scholars describe this tension not as a creative one but as a contradictory one, where they have to choose between one or the other. As mentioned above, this may simply be a temporary feature of the university's transition to a research mission, but it may also become the

[104] Jeffrey Beall, a librarian at the University of Colorado Denver, keeps a list of what he regards as "predatory publishers" on his Scholarly Open Access blog. Despite criticisms of certain aspects of his methodology for determining what counts as a predatory publisher, his list is regarded as the most authoritative at the moment. It was clear from our discussions with UB staff that few were aware of this list, or of the implications of dealing with publishers on this list. See: http://scholarlyoa.com/publishers/

foundations of the type of research culture that UB builds over the next decades (one that rewards quantity over quality). Whatever the case, both the management and the staff must remain keenly aware of the type of research environment they are creating with their policies and actions.

Accountability vs productivity

According to a number of scholars, the PMS also inhibits research productivity because, as a complex, time-intensive accounting mechanism, the PMS takes up academics' time with a lot of unnecessary self-auditing tasks. The system includes certain rewards and incentives which are meant to promote research, but the very act of complying with the PMS and accounting for one's own activities reduces the amount of time for simply getting on with the work. As one scholar said, "PMS was another problem because we spent all our time trying to justify what we do here and basically what we do here is clerical and teaching. In the end you suffer because you get lower marks for research and lower marks for professional and community services."

Another scholar even went so far as to suggest that the PMS's self-auditing requirements stifle the sense of freedom necessary for energetically embracing the research endeavour. This might be overpainting the picture for some, but it does highlight the fact that auditing activities can impede the very efforts they are ostensibly designed to foster if they take up too much of a person's time, or if they subtly encourage scholars to confine their research ambitions to "safe" topics.

Opportunities

With the above challenges and contradictions in mind, it is now important to consider the aspects of UB's scholarly communication ecosystem that are working well. The CHAT methodology allows us to do this because it not only shines a light on an ecosystem's contradictions, but also illuminates areas of alignment (thereby allowing site members to leverage them and improve the functioning of the system as a whole). This is not only strategically sensible, but also allows us to move beyond any sense of Afro-pessimism that can start to creep into a discussion about African universities' "challenges" and "contradictions". Because the fact is, UB is already making crucial strides in transitioning from a teaching to a research university, though the process remains fraught and incomplete, especially in the context of scholarly communication.

In this section, we will identify promising "alignments" that arise from an analysis of the UB FoH activity system. We will do so by looking at the opportunities afforded by the institutional culture, rewards and incentive structure, open access commitments, tools, funding and QA processes.

Centralised coordination

Despite the challenges that a managerial institutional culture portends for an academic community that desires some degree of autonomy and independence, most UB academics are familiar with and accepting of this top-down leadership structure. Indeed, many Batswana would say that they have benefited greatly from a similar form of

"paternalistic" national leadership (Holm 1987) that was able to steer them from severe poverty and illiteracy at independence to relative prosperity and opportunity today (Sebudubudu & Botlhomilwe 2012). Thus, though UB academics have a number of concerns about the university management, they also understand how a strong, centralised structure offers opportunities that a decentralised authority would not.

First, one of the benefits of a strong administration is that, if the leadership embarks on a wise course of action, its decision can have a broad, positive impact on the entire institution. Take the university's decision to embrace an open access ethic in its UBRISA operational guidelines in 2008. This would have been much more difficult to achieve if power were distributed across the institution and located in, say, the faculties. Moreover, a strong progressive leadership can overcome the objections of "conservative" faculty blocks that reject new research imperatives and the trend toward open scholarly communication.

Second, because the management is connected with the national government through politically appointed staff (such as the vice chancellor), the administration can play a powerful role in encouraging the production of research that benefits the broader Batswana community. Rather than allowing scholars to chase prestige at the expense of relevance, the management can play a role in supporting efforts by scholars to produce and disseminate research that will make a difference locally.

Third, though academics often feel that the administration is a bloated entity placed on top of them, a strong administration could play a much more robust role in arguing for a greater role of the university in driving national innovation and research. Rather than just managing academics, the administration could seek to turn its gaze outwards, pushing for a greater role in development with the government. It could act as a booster of the intellectual talent at the university, promoting its virtues and leveraging academics' abilities. For the moment, the administration appears to be corralling academics so that they abide by the terms of their job descriptions rather than seeking to connect them with government ministers, NGOs and community leaders. This is an opportunity that a strong administration could take to represent and promote actively the interests, insights and innovations that the UB staff have to offer.

Rewards in the Research Strategy

Though the research imperative was only recently articulated at UB, the institution has already laid out some useful strategies for rewarding research. This is done through the annual PMS assessments, the promotion review, official research awards and other discretionary arrangements. While many scholars say that they approve of these incentives in theory, they have either not yet been fully implemented or they are too narrowly focused.

One of the innovative elements of the PMS is that it allows scholars to set their own research goals (within certain limits). The UB Research Strategy states that the PMS enables "the structuring of one's professional role in terms of the proportion of time allocated to research" (UB 2008c: 10). This means that, while academics are obligated to perform their three functions – teaching, researching and service (to the university,

profession and community) – they have some discretion in how they allocate the proportion of time for each. The ranges are:

- Teaching: 55–75%
- Research: 20–40%
- Service: 5–20%

Unfortunately, many academics feel that this policy is not being implemented because, while they may state that they would like to spend a greater proportion of their time on research, their teaching loads do not change (which is usually the key determinant in whether they have time for research). The percentages that they list are just notions, not an indication of their reality. Despite this, the proposal would have great merit if it could be implemented in a way that is truly reflected in the scholars' work regimes. If more academics enjoyed the full 40% of research time allowed, the university would benefit in terms of greater research production.

However, the Research Strategy does spell out the opportunity for decreased teaching in one particular instance: "the obtaining of external research grants and contracts provides opportunities for release time from teaching" (UB 2008c: 10). This is given in recognition of the money that a scholar has brought into the university and for the new work that s/he will have to take on to complete the work. This is excellent, except that staff find it quite difficult to get the types of grants and contracts that would warrant their release from teaching duties, at least in the eyes of the management.

Another useful proposal that the Research Strategy calls for is the performance-related pay system where "successful research accomplishment will be recognised" through better pay (UB 2008c: 10). Considering that UB's research culture is still nascent, for many academics who see themselves primarily as teachers, the direct payment system for quality research offers an expedient stimulus for kick-starting research production. It is also a factor that scholars themselves say that they would respond to. When asked if they receive indirect or direct financial incentives for producing or disseminating research, more than 80% of our FoH survey respondents said "no". But when asked about the potential importance of such incentives, over 80% said that indirect financial rewards would be important while close to 60% said that direct financial rewards would also be important. Thus the university's exploration of different financial rewards and incentives appears suitable to pursue at this time.[105]

Lastly, one of the more far-sighted elements of the PMS scoring system is the relatively high marks given to scholars who publish in "Listed National Journals which have special significance" (UB 2008a: 29). These comprise a small set of journals rated by ORD as meeting certain standards of quality, consistency and importance. Though publication in them rates slightly fewer than publishing in international journals with high Impact Factors, the university's support of them through the generous scores offered to scholars for publishing in them is crucial for the development of a strong, stable research culture. Though all admit that they would like to raise the standard, profile and level of

[105] The Best Researchers Award, involving a prize of P10,000 has been in existence for five years but apparently "most professors don't apply, there is a lot of documentation involved just for P10,000 so mostly professor level people don't bother." Adding a layer of bureaucracy (an application process) on top of this positive incentive ends up disincentivising it to the point of triviality.

production of the journals, they are proud of the contribution they make and are keen to continue publishing in them.

But to truly leverage the opportunity that these locally produced journals offer, the university should use its rewards system to incentivise the improvement of the journals by offering high points (and perhaps even financial bonuses) for editors who are able to produce titles on a regular basis in an open access format. Currently, even the best journals come out sporadically and are not always open access. If UB scholars are motivated not only to submit and edit articles for their local journals, but to ensure that they are published consistently and are of a high quality, the confidence and level of peer expectation concerning research at the institution would rise.

Incentivising accountability

Another ambivalent element of UB's scholarly communication ecosystem that offers some opportunities for the future – in some revised format – is the PMS which hitherto governed so much of the academics' lives. As was noted above, many scholars feel great antipathy towards it, but most also recognise that they need some form of accountability mechanism if they are going to produce, and gain recognition for, research. Indeed, though the PMS was suspended during our engagement with UB because there was a question about its effectiveness, both scholars and managers expressed some concern that the research imperative might be compromised without it. As one manager noted:

> *PMS imposed some structure on the research habits of academics. Because it was a requirement that for one to get promoted, his or her research should be such that it addresses local issues, regional, national and international, one could not just concentrate on international issues, neglecting the local ones. So, with its suspension, one foresees a situation where research might be negatively affected because academics are not really sure what is going to come up. We're not even sure whether research is still going to pay a key part …. Some kind of discipline had been introduced and initially there was a lot of resistance, but I think it generated some kind of work ethic which I think is valuable and was missing prior to that. I have got some worries that things may not be so good with the absence of PMS.*

Inspired by the global audit revolution that has sought to "professionalise" higher education and make it more "streamlined" and "effective," the PMS introduced some measures that were useful for moving academics beyond a teaching-oriented mindset to a research-oriented one. The problem is that it did so in an alienating way.

The key contribution it made was to encourage scholars to think of themselves as having a research and publication "career" in which they would plan to produce a series of publications that would roll out over time and make a contribution to their field. By verbalising that plan with the HoD, they would receive departmental support for their efforts and start enjoying the fruits of intellectual engagement. Such performance agreements can be quite empowering (or intimidating), but the point was that they introduced a measure of positive pressure in an environment where such pressure to produce had never really been present.

Another manager made this point clear, stating that the PMS "allows you to plan and monitor how you are doing, because you have a goal that you want to achieve and then you put the plan in place – 'that this is what I'm going to do over the next three to five years to get to there' – and then you monitor on an annual basis. I think it's a very useful tool."

UB scholars and managers are currently pondering the lessons learned from the PMS saga and whether to go ahead with some revised version of it in the future. It would seem important, given the absence of an informally regulated research culture on campus, to provide some official mechanism for generating a sense of scholarly accountability for producing research outputs and disseminating them openly.

Open access

ORD has written open access principles into the Digital Repository Policy with the recognition that it would take some time before the policy would become operational. This remains the case today. The OA communication system has yet to be fully implemented, but UB has a massive opportunity to be a leader in the open access scholarly communication field on the continent due to its official commitment to it, its strong central administration which could enforce it, and its scholars' mildly positive feelings toward it.

One scholar explained the complicated situation concerning OA at the institution and the way forward in promoting it:

> *Open access is clearly on the institutional agenda, with the development of an institutional repository and the potential for converting university journals to open access. However, more information is required in order to educate academics and practitioners on the benefits of this approach, and on the various legal considerations which need to be engaged with. Academics at UB proved reluctant to consider a mandate for the deposit of journal articles in the repository and there is a need to encourage greater levels of participation in the repository.*

Despite academics' hesitance about the IR, the administration is supporting open access communication in other ways which are much more popular, especially through its provision of funding for the payment of article processing charges (APCs) that some OA journals charge for successful publication. ORD offers varying levels of financial assistance to UB academics based on their position at the institution. As one scholar explained, "if you are a lecturer, you pay 25% [of the APC] and ORD pays 75%. If you are a senior lecturer, it's 50/50. If you are an associate professor, you pay 75%, ORD pays 25%. If you are a full professor you pay for it yourself."

UB has already taken useful steps to promote OA scholarly communication at the university, but now is the time to make sure that OA policies are implemented through incentives that create an OA sensibility amongst UB scholars.

UBRISA, OJS and CRIS

With UB's investment in an IR, the university has radically enhanced its potential to disseminate its scholars' research to a broader audience. This is a tool that truly has the potential to optimise UB's scholarly communication ecosystem, helping scholars to achieve their goal of disseminating a broad range of scholarly objects for the sake of national development.

At its best, an IR should profile, curate and make accessible every scholarly output produced by a university's academics. Even if certain objects are bound by intellectual property constraints (i.e. if they are under copyright of a commercial journal publisher), the IR can profile the object through metadata descriptions and link to it if it is available elsewhere. In this way, the IR can act as a "shopfront window" for the university's research production, giving a sense of the institution's intellectual contribution to the nation and the world. This has become increasingly important as governments demand that universities, as recipients of public funds, justify their actions and their value. Beyond the numbers of graduates that they produce, universities are increasingly forced to offer their research outputs as an indicator of their productivity and importance.

For the university management, UBRISA offers the platform for promoting an open access ethic. As one librarian said, the installation of the IR "was a way of enhancing access to information."

However, as UB has learned, an IR is not a politically neutral technology, nor does it run itself. To this day, many academics suspect that UBRISA is just a "prestige project to boost the image of the university management", not something for promoting the work of the individual scholars. Thus academic interest in it has been strikingly low. Yet most librarians remain positive, especially about the idea of winning the academics over to an open access principle: "there's still a need for more advocacy for them to understand the concept of open access but I think it's starting with UBRISA."

Moreover, the technological and administrative skills necessary to populate and maintain an IR are substantial, a fact which has stretched library staff beyond their capacity. Because of this, the IR has not yet lived up to its potential, but has been a relatively static and shallow receptacle for academic outputs. Nonetheless, UBRISA represents a real opportunity for UB to take some control in showcasing and disseminating its own research, especially to those outside the academy (policymakers, NGOs, community activists) who might be able to leverage this research for developmental purposes.

The other key tool that the university possesses, which could radically enhance not only its production of local research but its open access dissemination potential, is the Open Journal Systems (OJS) software. This tool aids publishers, scholars and managers with the production of journals. To date, this system has not been utilised to its full potential, leaving many UB-affiliated journals struggling to keep up with the demands of a new digital scholarly communication paradigm. But broader knowledge and use of OJS at UB could allow for the creation of more publishing platforms that produce outputs on a more consistent basis.

An even broader ambition would be to monitor all of this research and dissemination through the university's Current Research Information System (CRIS). The CRIS has the potential to give the administration a greater understanding of the research work being

done by its scholars – and also, then, create an awareness of strategies to improve it. At the time of writing, it is being used in a more limited way, mainly to track the financial pay-outs of various research grants to researchers. Yet the CRIS could do so much more in terms of rendering the university's research activity legible to the management and the government, providing them with a precise means of accounting for the public funds that the university is spending on research for development.

Expanding research

Since the university announced its new research mission in 2008 (after signalling its desire for more research productivity in a short policy document in 2002), requests for research funding, as well as the amount of funding granted, have gone up significantly. According to the UB Annual Report 2010/2011, university faculties and departments dramatically increased their research budget requests from P3.5 million in 2008 to P7.5 million in 2009, while the actual amount distributed increased from P1.6 million to P2.6 million. This is a promising start, and the fact that demand has outstripped supply shows that scholars are keen to increase their research activity. Considering that the university is the top source of funding for many UB FoH research projects, and adequate research funding is key for developing a strong, stable research culture, it is crucial that the university grows this source of funds so that it rises closer to the level of demand.

Another opportunity that everyone at UB has been keen to leverage is that of consultancy work. For many scholars, this represents their only chance to do funded research despite the downside of not being able to publish it and gain academic recognition for it.[106] However, it gives scholars critical experience in researching and writing, it builds knowledge capacity, it boosts their incomes and it relieves the university of some of the strain to fund every project. Most academics are aware of the arguments against it – that it takes them away from their primary academic functions, that it does not strengthen the academic core, and that it does not add to public knowledge – but felt that, given all of the other challenges they face in engaging in research production, it remains an important opportunity for them to do some research nonetheless.

The management is also keen for academics to engage in consultancy work because it brings money into the university. A minimum of 35% of the consultancy fee is paid to the university for overheads, but as one academic complained, "the money that the university takes does not trickle down to the department." It is disbursed across the university into different funds, but not the researchers' departments directly. Some feel this disincentivises them from seeking consultancy opportunities, knowing that so much of the money will be siphoned away into broader overhead accounts.

Consultancy work will likely remain an important part of the UB research mix – as it is for most other southern African universities[107] – but the university must strike a

[106] Though colleagues may not be able to give recognition for a scholar's consultancy research work, the university offers recognition in the form of PMS points, ranging from one point for individual consultancies, two points for institutional consultancies or technical reports, and three points for institutional consultancies or technical reports with special commendation. Private work, where the author receives direct payment for the consultancy, is not included.

[107] According to Mouton (2010: 15), "more than two thirds of all academics in the fourteen SADC countries regularly engage in consultancy."

reasonable balance between its desire to enhance its revenues with that of spurring research development and actual scholarly research output.

Quality assurance

As part of SCAP's implementation initiative at UB, we developed a QA workflow process through which DLIS used to put its research outputs prior to submitting them for uploading on UBRISA. This process had been envisaged and sketched in earlier UBRISA policy documents, but had never been operationalised because the library (which hosts UBRISA) was still more focused on profiling journal articles that had already been peer-reviewed (or quality assured) than on the many non-traditional outputs that UB scholars have also produced (such as conference papers and reports) that are not necessarily peer-reviewed. Though the management wanted all UB outputs to be eventually profiled on the IR, it only wanted to do so if they had met certain standards of quality. The process of determining that would have to fall to the UB academics themselves.

As described in greater detail in Appendix 1, DLIS piloted our proposed QA process – which was quite similar to the one envisaged by the ORD in its UBRISA policy documents – and was able to shepherd 15 outputs through it successfully. It entailed a single-blind review process by members of the DLIS Departmental Research and Publications Committee (DRPC) who gave useful and, at times, extensive feedback to authors who were asked to make either small or major corrections before sending them to the UBRISA team.

The virtue of this exercise was that we were able to determine that a QA process could work at the departmental level (as ORD had hoped) and that quality could be determined through this bespoke peer-review process (or what we called "peer review lite"). Since all of these outputs had already been delivered to their primary audiences (at conferences, etc.), the point of this process was not to peer review the outputs for future publication, but simply to assess whether they were worth profiling on the IR after the fact.

Due to the useful feedback that the authors received, those who only had to make light corrections decided to make them so that their outputs could be profiled on the IR. But those who were asked to make extensive revisions decided not to do so because they did not feel that the outcome justified the time it would take, so those materials were not sent on for profiling.

Thus, while the process did what it was supposed to – ensuring quality by sending only those outputs which reached a certain high standard whilst blocking those that did not – it taught us and the UB staff two important things for going forwards. First, because there is no reward or incentive listed in the PMS regarding submitting one's outputs to the IR, scholars will likely only be willing to make light revisions to their work to bring it up to standard; they will not make extensive revisions. Second, this is a model that could be utilised by other departments at the university. This is the scenario that ORD had imagined all along, but never implemented. This pilot process shows that UB scholars could, given the right structure and incentives, raise the level of their own scholarship at the same time as they were embracing open scholarly dissemination through the IR.

Conclusion

Our discussion of the challenges, contradictions and opportunities characterising the UB FoH's scholarly communication ecosystem reveals an institution that is in transition. It is slowly trying to ramp up its research production and make the university a centre of "research excellence". This process is not without its difficulties, as we have seen. There are not only the usual teething problems that come with a change from a teaching-oriented mission to a research-oriented one, but there are larger administrative debates impacting every element of the activity system. While it is often healthy for an institution to go through bouts of self-questioning, this debate about the role and limits of the university administration is symptomatic of what appears to be a deep unhappiness amongst many academic staff members (UB Academic Staff 2012). Under these conditions, it will be difficult for the university to establish the kind of robust, collaborative and self-sustaining research culture it desires. Yet, as we have shown, there are real opportunities for growth and development that scholars and managers can leverage.

One exercise that would be beneficial for the university to do – in addition to the ones mentioned above – is to identify what is already working in terms of research at UB and try to replicate it across the institution. For instance, many scholars mentioned that UB's research centres, such as the Okavango Research Institute, produce excellent work that is high in both quantity and quality. Because these are formal research centres, they enjoy certain research privileges that the normal academic teaching staff do not, such as access to more time and funding. But this means that UB has already been able to create the conditions necessary for research excellence. Within this experience there are lessons that could be applied more broadly at the institution to help create a stronger research culture at UB.

Chapter 8.
Key findings

In seeking to answer our two research questions concerning the state of scholarly communication at four Southern African universities, and how ICTs and open access publishing models can improve that state with appropriate institutional support, SCAP has amassed a substantial amount of data on the University of Botswana's research and communication practices, its policy landscape and its level of e-readiness. We have analysed that data in the previous chapters, but here we will condense that analysis into a single chapter where we present our key findings.

Before we begin, however, it is worth foregrounding a foundational assumption that we have confirmed through our research, which we now restate as a finding:

➔ *Finding 1. UB scholarship is comparatively marginal and invisible in the global context of academic research production.*

This coincides with the literature that shaped our initial assumption, that scholarly research from Africa is relatively marginal and invisible in the broader context of global research production. This is also true of Botswana and its flagship research institution, UB. With a small population, a tiny higher education sector, a modest financial base and a tertiary education system that has, until recently, focused on teaching rather than research, Botswana struggles to achieve distinction through traditional academic indices (such as WoS-rated journal article production).

This general condition of marginality and invisibility is due to both external and internal factors. Externally, the wealth and productivity of Northern institutions (and increasingly other Southern ones in China, India and Brazil) simply dwarf the research potential of smaller countries such as Botswana, a fact that will not change soon. However, it is also influenced by internal factors that, if altered, could increase the reach, prestige and relevance of Botswana's research.

In this chapter, we will highlight the key findings from our research into UB's scholarly communication ecosystem, as they pertain to UB's research and communication

practices, its policies and its infrastructure and capacity. These comprise the "internal factors" influencing the visibility of UB scholarship and offer points of contact for interventions that seek to improve them.

Research and communication practices

To understand the state of scholarly communication at UB, we focused on the research and communication practices of the Faculty of Humanities (FoH), the broader entity in which SCAP's pilot site, the Department of Library and Information Studies (DLIS), is located. However, the various research instruments that we used to obtain information criss-crossed institutional, faculty and departmental levels, shedding light on each in turn. Thus some of our insights are applicable to the whole institution while others can only speak to the faculty or departmental level. We will be as explicit as possible about the scope of each finding so that readers can see the complexity of this nested ecosystem.

Values

To get a full picture of scholarly communication practices at UB, we started by trying to grasp academics' motivations for conducting research and publishing their findings in the first place. Based on numerous interviews, surveys, conversations and observations with members of the UB FoH, we found that FoH scholars were motivated by both extrinsic factors (mandates) and intrinsic ones (personal desire), but that the institutional mandate is currently the most important.

➔ *Finding 2. The foremost reason why UB FoH scholars conduct research is to comply with the university's research mandate to do so.*

This is a highly extrinsic motivating factor, ranking much higher amongst UB FoH members than those at the other SCAP pilot sites. But this makes sense for a couple of reasons. First, UB has historically been a teaching-oriented university, thus many of the faculty members (of whom the majority of FoH staff are over the age of 50) developed their sense of academic identity and purpose according to a teaching mission. With the administration's plan for UB to become a research university expressed in detail only recently (2008), this institutional mandate has been a crucial mechanism for encouraging scholars to incorporate research into their work. Second, for a variety of historical, cultural and practical reasons, the management plays an overwhelming role in directing UB activities. Scholars are comparatively sensitive to the directives given by the administration because they emanate from a source of substantial power.

This is an important finding because it is not clear that an extrinsic motivator such as a research mandate can lead to sustained levels of high-quality research outputs. It has served to ramp up research production from a previously low base, but it remains an open question whether a "research culture" can develop from such a top-down source of motivation.

Another key finding that emerged from our values research concerned scholars' own desire for visibility. Initially, SCAP assumed that all scholars wanted their research

outputs to be visible, as it accorded with our understanding of what comprised a "typical" academic identity. However, we soon learned not all Southern African scholars want their work to be visible.

➔ *Finding 3. Some UB FoH scholars want their work to remain invisible.*

For a number of personal, social, cultural and professional reasons, some UB FoH academics revealed that, though they want their research production to count towards their annual performance assessments, they would prefer that their research – or at least some portion of it – remains unseen. The reasons they give for this stem from:

- anxieties about quality, peer judgment and community exposure (especially if they doubt the quality of their research contributions).
- a culturally informed sense of modesty (where it is considered improper to engage in "self-promotion", such as calling attention to one's own work).
- a minimalist communications strategy (where dissemination is achieved through reading a paper at a conference, or perhaps allowing a journal to publish it, but nothing further).
- fear that others may steal their ideas/data (especially if still in gestational form).
- a teaching- rather than research-oriented approach to scholarship (which speaks to one's sense of academic identity, as a "teacher" rather than a "researcher").

While most UB FoH scholars are keen to share their research with the world (as is probably true of most academics at UB), it is crucial to remain cognizant of the reasons that some would have for hiding their work, as a number of these rationales are likely to be relevant in marginalised, postcolonial settings where academics face significant resource and access constraints.

Research production

UB FoH scholars say that they spend the majority of their time engaged in teaching-related activities (timetabling, prepping, lecturing, marking, advising, invigilating, etc.). They also say that they shoulder significant administrative duties. This would be fine for a teaching-oriented institution, but not for one that seeks to become a research university; this hinders UB from achieving the goals of its new research mission.

➔ *Finding 4. Heavy teaching and administrative loads hinder research production in UB's FoH.*

This is likely true of all the faculties at UB, not just the FoH. In fact, this finding conforms to the image presented by other studies of African higher education which show that scholars across the continent are burdened by similar challenges. The simple lack of time available for carrying out research has a massive impact on whether African scholars can pursue research projects, or whether they can do so with any regard for quality and consistency.

For UB FoH scholars who are able to make time for research, many claim to face serious funding hurdles. Most are unable to source funding for their projects, either locally or internationally, and those who do rely mostly on the limited funds that the university can offer.

➔ *Finding 5. The majority of UB humanities scholars' research is either unfunded or funded by the university.*

The university's financial support for research has grown over the last few years, but the Office of Research and Development (ORD) is able to provide for only about one-third of funding requests. This challenge is compounded by the fact that many scholars opt out of applying for funding at all from the university because they feel that the application process is too bureaucratically burdensome.

The result of this unfunded and university-funded research is that scholars must try to achieve their research aims with quite limited financial resources. This impacts the size, scope and ambition of the kinds of research projects that they engage in.

➔ *Finding 6. The majority of UB FoH research projects are small, local projects, confined to an immediate geographical area.*

One way in which scholars try to overcome this limitation is to participate in consultancy research, an opportunity that the university encourages. Though consultancy work can often draw scholars away from their primary research interests to attend to those of their funders, it can sometimes compensate for this by allowing scholars a chance to engage in empirical research and contribute to a project that may have national development potential. The major problem, however, is that these consultancies are often bound by strict confidentiality clauses, disallowing them from publishing their results.

➔ *Finding 7. Consultancy research often offers UB FoH scholars the only opportunity to do empirical research, though they are rarely able to leverage it to boost their scholarly profiles through academic publication.*

Outputs

The university recognises a broad range of research outputs and gives weighted points for the production of each. UB's reward and incentive structure encourages scholars to create a diversity of outputs aimed at local and international audiences, as well as scholars and non-scholars. This official recognition is important because it helps to shape the types of outputs that UB FoH scholars produce.

➔ *Finding 8. UB FoH scholars produce a wide variety of scholarly outputs due to a rewards and incentive structure that recognises multiple formats for multiple audiences.*

This stands in contrast to other institutions where only formal scholar-to-scholar publications are recognised, but it may also inadvertently promote the production of outputs that do not end up supporting the development of a sustainable research culture (the "academic core"). This is because UB scholars are rewarded for outputs that do not necessarily require new "research".

➔ *Finding 9. Many UB FoH outputs are interpretive, derivative or applied – they are less often the product of fresh, empirical research.*

During this build-up phase towards a more dynamic research culture at UB, this focus by academics on such outputs is perhaps inevitable. At the moment, it may be more important for the university to focus on simply increasing the production of outputs by its scholars, creating greater research capacity so that, in the future, more academics will be able to engage in high-level, empirical research. For the moment, however, UB FoH staff will feel the pull between quantity vs quality, between producing outputs to satisfy an external requirement vs producing outputs that might have an impact on their field.

Communication

While the UB FoH staff members slowly ramp up their research production to meet the standards required of a research university, they are far less responsive to the changing communication opportunities that new ICTs offer for disseminating their work. For the most part, they confine their communication activities to traditional modes, such as reading their papers at regional conferences, sharing drafts with colleagues who request copies, incorporating insights from their research into classroom teaching or submitting their articles for publication in journals. While the open access movement and availability of free online tools have radically expanded the opportunities for individual academics to profile their work on the internet and seek out collaborative partners, most UB FoH scholars have yet to take advantage of them.

➔ *Finding 10: Most UB FoH scholars do not utilise social media technologies in their scholarly work because they lack knowledge about them, training in how to leverage them and the time to be able to incorporate them into their research and dissemination practices.*

This means that UB FoH scholars typically rely on face-to-face contact for disseminating their work, or they leave it to commercial publishing firms to handle. They usually do not have a strategic dissemination plan that leverages the online platforms that would give greater visibility to their outputs. Nor are they encouraged to do so by UB, as they receive no rewards or incentives for publishing in OA journals or making their work available on UB's institutional repository (IR). One of the consequences of this is that UB research

does not reach audiences that could most benefit from it, such as the government, development NGOs or community leaders.

➔ *Finding 11: UB FoH scholars rarely, if ever, communicate their findings to government.*

This is unfortunate, especially since UB scholars are encouraged to produce a wide range of outputs, many of which would be accessible and of interest to non-academic audiences. But this challenge of connecting with audiences outside the academy is compounded by many UB FoH scholars' disinterest in an open access ethic (the very principle that might lead scholars to develop a dissemination strategy that went beyond scholar-to-scholar communication). This is due to their association of OA with certain managerial initiatives (such as UBRISA) that have tainted it, and their fear that powerful outsiders will exploit their knowledge for commercial gain (without accruing them any benefits).

➔ *Finding 12: UB scholars' enthusiasm for OA is dampened by its association with the UB management's IR initiative, as well as certain negative historical experiences involving foreigners' exploitation of "open" indigenous knowledge.*

In addition to this negative perception, UB FoH scholars do not see the value that dissemination through UBRISA would bring to them personally (through increased citations, financial reward, etc.), hence they feel virtually no incentive to submit their outputs to the IR.

Networks and collaboration

Perhaps ironically, this relative wariness of open access dissemination has not led UB FoH scholars to focus their dissemination practices inwards towards their university colleagues. Quite the opposite. They say that they do not have strong networks within the UB community and that they do not collaborate much with each other.

➔ *Finding 13: UB FoH scholars do not network, collaborate or share much with each other.*

This is largely due to the fact that they lack the seminar series platforms for sharing their work with colleagues, they lack the time to prepare research presentations for collegial engagement and many worry that their ideas might be "stolen" by their colleagues. They prefer, rather, to share their work at regional conferences where they're able to meet with internationals who share their research interests.

While some of these face-to-face interactions at regional conferences lead to research collaboration, they do not do so as often as scholars would like. They find that they face significant financial and practical obstacles in pursuing research collaborations with African partners, thus they often end up collaborating with Northern-based research projects that are looking for someone from Africa with whom to partner.

➔ *Finding 14: UB FoH scholars find it easier – for financial and practical reasons – to collaborate with scholars in the global North than in Africa.*

Research culture

These research, communication and networking conditions at UB have developed what we can call a "nascent" research culture. UB and the FoH are taking important strides in developing a more robust academic core based on a research mission, but its fulfilment will take time.

➔ *Finding 15: UB's research culture is best described as nascent.*

This description is warranted for several reasons, but primarily because:

- there is a low level of networking, collaboration and communication between colleagues, even within the same faculty space, such as the Humanities.
- there is a low sense of peer expectation regarding collegial research production (i.e. colleagues do not put pressure on each other to publish).
- there are comparatively low participation rates in journal review editorial boards, meaning that UB FoH scholars are not shaping their fields so much as following what others are doing.
- there is no external funding body in Botswana (such as a National Research Foundation) that could spur greater research opportunities for faculty members who either fail to get UB funding or who need large amounts of money to pay for their ambitious research projects.

This description is likely to change in the near future as the university continues to invest further resources into the research mission. But it provides a clear snapshot of this transitional moment in the university's history.

One of the desires of the SCAP pilot project was to imagine how this research culture might look if stimulated by new processes and incentives. This took the shape of the quality assurance (QA) process described in Chapter 6 and Appendix 1. The QA process included a powerful new process that radically enhanced collegial communication, collaborative engagement and senior-to-junior-scholar mentoring. During the review process of the scholars' outputs, members of the Departmental Research and Publications Committee (DRPC) often gave up their right to remain anonymous so that they could interact more freely with the authors, giving them advice and feedback in a more nuanced and supportive manner. This opportunity is fairly rare amongst DLIS faculty members because they do not have regular seminar opportunities where they can share their work with each other. But this QA process provided an unanticipated opportunity that could help build a more robust and sustainable research culture at UB.

➔ *Finding 16. The QA process opens up a space for structured mentoring between experienced departmental scholars and upcoming junior academics.*

Policy

This transition is being directed primarily by the UB administration, especially ORD, which has written a series of policies and guidelines that are meant to mark the path moving UB from a teaching-oriented institution to a research-oriented one. This high-level commitment to research development has been a crucial factor in shifting scholars' perception of UB's ambitions.

Rewards and incentives

The university's rewards and incentive structure – expressed in the PMS – successfully balances the university's desire for scholars' research to aid national development, secure international recognition and reach a broad national audience. It is successful in the sense that it awards points (for annual assessments and promotion) for multiple output types (articles, reports, etc.) that can reach multiple audiences and be leveraged for a variety of purposes.

However, while this is useful for increasing the "production" of research that could achieve these goals, it fails to tie these in with strategic (open access) "communication" mechanisms that would assure that these outputs are available for international and local audiences to access.

➔ *Finding 17. UB's PMS incentivises research that aids national development, secures international recognition and reaches a broad audience, but it does not attach to an open access policy.*

Managerialism

While all of this is laudable, it is also indicative of a more ambivalent state of affairs at UB that portends both great promise and great peril. The institutional culture at UB is best described as "managerial", in that there is a strong, centralised authority (which has grown quite large over the years) that wields power in a paternalistic, top-down fashion. This concentration of power has been useful in helping to speed up the process by which the entire institution falls in line with the new research mission and the open access ethic that the administration has (partially) embraced. Without such a strong central authority to elaborate its vision in detailed policy documents, these processes would take a lot longer.

However, this managerial approach has also bred resistance by faculty members who feel that their voices are not being heard in the higher structures of the administration. Many believe that the various initiatives that the management is pushing (such as UBRISA and the OA ethic) are for the glory of the administration, not the benefit of the academic staff. This means that even good ideas lose credibility if the process by which they were initiated is viewed cynically.

➔ *Finding 18: UB's "managerial" institutional culture is efficient at unifying the university under a single set of policies and guidelines, but it breeds resistance and cynicism because it is seen as favouring the interests of the administration over the academics.*

This ambivalence may help to explain some of the contradictions that currently beset UB's scholarly communication ecosystem. For instance, the administration wants all UB faculty to upload their outputs onto UBRISA (in an open access manner), but it controls the content of the official UB website so tightly that many FoH academics do not have departmental web pages profiling their work. Thus many scholars do not want to contribute their work to UBRISA because they see the IR as a prestige project for the management. They might feel differently if the administration took a more open approach to all of its sites, rather than just strategic ones.

Moreover, the resistance that scholars have shown to various policies is exacerbated by the fact that there appears to be no consequences for not following them. Thus, UB has written some of the most impressive policies and guidelines regarding optimised scholarly communication, yet it does not have a predictable impact on how scholarly communication actually takes place.

➔ *Finding 19. The UB management excels at articulating good policies regarding scholarly communication, but often fails to implement them.*

This disjunct between policy and action could, over time, hinder the transition of UB from a teaching to a research university, and lock academics into a more closed form of scholarly communication than if they were truly incentivised to share their work openly.

This would be a shame for another reason: UB has developed a series of mechanisms to encourage scholars to produce developmentally relevant research, which makes it that much more important that they are communicated to the appropriate audiences for the maximum impact. Indeed, UB's mission and research funding criteria mirror that of the national government's developmental priorities, putting them in harmony in this regard. Most UB FoH scholars agree with these priorities and thus try to remain cognizant of them as they pursue research topics. The key question, however, is: when they produce those outputs, do they reach beyond the scholarly community of which they are a part to enhance development in a more comprehensive way?

Open access

The UB administration has tried to respond to this question proactively by incorporating an open access ambition into its Digital Repository Policy and by providing financial support for the payment of scholars' APCs. Considering that this does not exist at many Southern African universities, UB is a leader in this regard.

However, this OA ambition is not expressed in any meaningful fashion in the UB Research Strategy or the PMS, the two most important policies regulating scholarly research and communication at the university. Currently there is no reward or incentive given for scholars who publish in an OA fashion or who submit their outputs to UBRISA.

Considering the time involved in making such things happen, scholars rarely bother to do either.

➔ *Finding 20. UB supports open access dissemination in one policy, but not in the other policies that matter most for shaping academics' behaviour. There is a misalignment in UB's various research and rewards policies that dampens UB scholars' interest in sharing their research openly or even on the repository.*

This is a hard truth, especially in an environment that faces many other challenges. But scholars' lack of buy-in to OA principles is due in part to an ecosystem where OA is supported by one policy (the Digital Repository Policy), but not the ones that have the most bearing on scholarly research and communication activities (the Research Strategy and the PMS).

Infrastructure and capacity

These findings have stressed the importance of motivational systems and policies because, for the most part, UB already possesses the technology necessary to optimise scholarly communication. The university boasts a state-of-the-art scanner for digitising rare manuscripts, a semi-functional IR, access to the Open Journal Systems (OJS) and a Current Research Information Systems (CRIS). Moreover, staff members have their own computers and access to (admittedly slow) broadband internet.

➔ *Finding 21. UB already possesses the technologies necessary for promoting open scholarly communication that can reach a broad audience.*

These technologies are maintained by a library staff that have received training in DSpace metadata profiling, in new digital scholarly communication principles and in general trends defining current academic dissemination practices. Yet despite this, the impressive technologies have not been used to their optimal levels for three reasons:

- The software and machines have not yet been incorporated into a more comprehensive scholarly communication strategy.
- The relevant staff have been either too busy with other aspects of their job or they have not been trained to know how to do so.
- The other stakeholders who would also benefit from the use of these technologies, such as scholars, have either ignored or resisted them in favour of more traditional scholarly communication approaches.

Thus, SCAP found that these technologies tended to be treated by everyone as fancy "add-ons," not as the primary means by which a scholarly communication strategy was operationalised. The scanner was virtually unused; scholars wanted little to do with UBRISA; and the OJS and CRIS platforms were not exploited to their full capacity. Part of the reason for this was that they were inserted into an ecosystem in which the skills available matched an outdated scholarly communication model. Though many have received some training in how to use these new technologies, few use them on a regular

basis or have a deep enough knowledge to be able to maintain that technology or train others.

➔ *Finding 22. The inclusion of new technologies into a scholarly communication ecosystem requires extensive and continued retraining of the relevant support staff, especially in the library.*

Conclusion

UB is in the process of trying to transition from a teaching-oriented institution to a research-oriented one. This is in line with the government's desire for the country to participate more in the global knowledge economy. University research contributes to that vision and, as the flagship university in the country, UB is meant to play an important part in helping to realise it. The university has been successful in aligning its research policies with that of the national government, creatively translating those goals into meaningful action at the institutional level. Thus while both the government and the university agree that UB should produce more research, the question has been, "what is the most optimal and sustainable way to do that"? Also, while both bodies desire that UB research reaches a broad audience that can leverage it for development, the question has been, "by what means can this goal be achieved"?

The answers to these questions are largely contained in the various research and dissemination strategies, guidelines and policies that UB has developed since 2008. This marked the moment when the university signalled its intent in earnest that it wanted to become a research-oriented university, a fact that the staff also had to adjust to. Coming from a teaching-oriented heritage, this transition has not always been comfortable for academics who see their primary contribution to the academy as teaching. Thus the institutional mandate for all scholars to produce research (a point reinforced through the PMS which regulates annual assessments and promotions) has had a massive impact on motivating scholars to ramp up their research production.

However, many FoH scholars carry heavy teaching and administrative burdens that decrease the time they have for research. Many find it difficult to access funding for their research and thus end up carrying out small-scale, local projects that are often interpretive or derivative in nature. They struggle to get funding beyond the small research budget at the university, unless it is through consultancy research (an opportunity that allows them to carry out original, empirical work, but whose dissemination is of restricted by proprietary data agreements). Further more, a minority of FoH scholars does not want their research to be visible due to a number of personal, social, cultural and professional reasons.

With regard to disseminating scholarly outputs, FoH academics produce a wide range of outputs that they share through a variety of professional, virtual and face-to-face means. The PMS rewards this broad production effort, but it does not offer any incentives for open or closed communication practices. Thus, while faculty members produce numerous items (articles, papers, briefs, reports, etc.), they rarely communicate their work to government personnel, nor do they utilise Web 2.0 platforms for communicating it to a broader audience. They are only mildly interested in open access because many

worry about losing their cultural patrimony to outsiders who might exploit their local knowledge without any benefits accruing to them. And though they have an IR on which they could profile their work, they have been led to feel that this is a prestige project for the university management rather than an initiative that would truly benefit them. Hence, despite their production of a broad range of outputs that would be of interest to multiple stakeholders, they do not share those outputs according to a cohesive strategy.

Lastly, with regard to the institutional context that shapes scholars' activities, UB's strong, centralised administration often creates unnecessary inefficiencies through bureaucratic demands. This has been exacerbated by the disruptions in the VC's office (through a difficult change in leadership) that created administrative uncertainty regarding the implementation of various research strategies. However, the university is tightly integrated with the mission and values of the national research infrastructure, thus aligning its efforts with that of the government. This is beneficial in most respects, except that these institutional policies are not in tight alignment with each other, creating some doubt about which policies are to be enforced and which ones are not to be. Thus, because the commitment to open access communication in the Digital Repository Policy is not reinforced by similar commitments in the University Research Strategy and the PMS, it is not yet operational. There is a mismatch between articulation and implementation.

Despite these challenges, SCAP does believe that Botswana, with the help of UB (and the FoH in particular), can contribute to the global knowledge economy and act as a hub of innovation in for the region. The country possesses all the talent and ambition necessary for this to become a reality. With this in mind, we will now offer our recommendations to the government, university, Humanities faculty and research funders for enhancing scholarly communication at UB.

Chapter 9. Recommendations

To optimise scholarly communication at the University of Botswana, the SCAP team believes that there are four stakeholders that can play a dynamic role in improving UB's dissemination activity: the national government, the UB administration, UB scholars and research funding agencies. Each of these groups contributes to research and communication practices at the institution, thereby impacting the potential visibility of UB scholars' research outputs. In this chapter, we provide recommendations tailored to each of these stakeholders with an eye for enhancing research production, open dissemination and regional collaborative opportunities.

To the national government

Build a national research infrastructure

Establish a national research foundation so that scholars can seek local funding from more sources than just the UB research budget. Use that foundation as a platform for providing larger grants than the university provides so that scholars can embark on more ambitious, empirical research projects.

Design a virtuous research funding cycle (similar to the SAPSE system in South Africa) in which, for each recognised output produced by a scholar and disseminated in an open access fashion, funds are directed into that scholar's faculty research budget for the sake of both rewarding and incentivising the future production of open access research.

To the UB administration

Enhance the institutional research culture

Continue to grow the university research budget so that it meets and accelerates the demand for research funds.

Offer a reduction in teaching time to scholars who demonstrate ambitious research activity (do not restrict this reward to those who bring in large consultancy fees).

Establish digital platforms for sharing publication success by UB scholars. Use website profiles, email circulars and other communication opportunities to tell stories that develop a collegial environment in which research, open dissemination and peer expectation (the social pressure to engage in research) is prized.

Incentivise open dissemination

Develop an open access policy which mandates that all publicly funded research be made OA, either through publication in OA journals, or through the payment of APCs in traditional or hybrid journals. Harmonise the OA commitments expressed in the Digital Repository Policy with those of the Research Strategy and the PMS.

Give digital project managers (of UBRISA, CRIS and OJS) the mandate, resources and time necessary to make these technologies live up to their potential.

Base performance assessment of scholars' outputs on what they deposit or profile in UBRISA. This will encourage academics to utilise the IR and take advantage of open access communication opportunities where possible.

Run all UB-affiliated journals on the Open Journals System (OJS) and make them open access.

Induce academic staff to create personal profiles on their departmental web pages in which they include a brief biography, research interests, classes taught, memberships and publications (with links to the relevant output profiles on UBRISA).

Provide support services for scholarly communication

Establish or identify support service providers who can translate scholars' research for government and community-based audiences (i.e. condensing journal articles into accessible policy briefs).

Pressure consultancies to make as much of any consultancy research usable by academics for their own scholarly outputs. This would require scholars and ORD to take a strategic, organised bargaining approach to consultancies, seeking outcomes that benefit both the funders and the academics.

Continue to invest in training for library staff so that they can operate effectively in the new scholarly communication paradigm.

Enhance the department-level research culture

Expand the quality assurance workflow process – as modelled by the DLIS implementation initiative – to more departments. Incentivise DRPC members to do this work by rewarding them for getting departmental outputs onto UBRISA and mentoring younger scholars in the process.

Reduce administrative duties for academics – such as registering students and invigilating exams – to an absolute minimum to free them for academically productive pursuits. Allow graduate students to handle such tasks, if possible.

Train and incentivise scholars to use Web 2.0 platforms so that they can share in the responsibility of making their own research more visible.

Leverage regional expertise

Collaborate in the construction of short-term regional exchanges for administrators and librarians. This would allow them to be immersed in other contexts in which they can learn new skills and approaches through the interaction with senior hosting staff members. They would be responsible for producing an output from their experience and sharing it with staff members at home.

Invest in regional journal production opportunities.

Incentivise regional research collaboration through enhanced funding and recognition for SADC-based activities.

To UB scholars

Raise personal visibility

Share responsibility with the administration for research visibility. Communicate research findings not only to the communities that the research may concern, but also to the audiences that could best leverage it for developmental purposes.

To research funding agencies

Include a plan for capacity-building at Southern African universities where technological interventions are envisaged. Do not assume that staff members in the region possess the same skills or job description as those with similar titles elsewhere. Indeed, more focus on capacity investment in the region would be welcome.

Determine the feasibility of developing a regional megajournal. Prepare costings for launching one new OA megajournal (in the style of *PLOS ONE*). The study should include consideration of: how to provide publishing services (hosting, editorial services, peer review management); researcher interest and willingness to take on the new challenges involved; readiness of research funders to support the venture in terms of cash and support for the principle and the practicalities involved; and how this journal can be made viable; and how it should be sustained and supported.

Fund research into a meta-level analysis of all "open" activities (open access, science, data, educational resources, etc.) both in the region and within the agency's funding umbrella, so that points of intersection can be explored in future projects.

Appendix 1. The implementation and prospects of a QA process at UB

By Henry Trotter and Olugbade Oladokun

The credibility and authority of published academic research is based, in large part, on the value attributed to the peer-review process that is meant to assure scholarly objects' methodological rigour, logical coherence and factual accuracy. Traditionally, this process takes place prior to publication, but new technologies have extended the temporal range of that process so that peers – indeed anyone – can review an output at almost any stage of the research and dissemination cycle, both before and after publication (Harley & Acord 2011; Kelty, Burrus & Baraniuk 2008; Poschl 2010; Poschl & Koop 2008; Rennie 2003; Rodriguez, Bollen & Van de Sompel 2006).

Most (unsolicited) books and journal articles go through a lengthy single- or double-blind peer-review process that enhances their prestige, value and commercial viability. However, for many academic (and non-academic) communities, there are many other types of scholarly outputs that are also useful to access, such as conference and seminar papers, research reports, policy briefs, etc. In the past, these materials were difficult to obtain because they were not widely distributed. Today, the low costs of digital distribution make it possible to publish, archive and distribute these materials online, and consequently to reach a much larger audience than before.

For scholars in Africa, whose contribution to the global production of journal articles is comparatively small (Tijssen 2007), open digital platforms provide the means to raise the visibility of their research by showcasing their full range of outputs, including "grey literature", which is relatively abundant on the continent and in the SADC region (Abrahams, Burke & Mouton 2010: 29).

Importantly, many of the non-traditional outputs that scholars in Africa produce deal with national development issues that are key imperatives for local governments and

universities. Many of these genres are actually more suitable for impacting development than formal journal/book publications. For instance, government officials draw on policy briefs, NGOs utilise research reports and journalists and community activists translate information from conference and seminar papers for their own local audiences.

With this in the mind, the Scholarly Communication for Africa Programme (SCAP) worked with academics in the Department of Library and Information Studies (DLIS) at the University of Botswana (UB) to raise the visibility of their scholarship by encouraging them to profile their various outputs on the university's institutional repository (called UBRISA). While the technology was already in place, the university had yet to operationalise a workflow process that would allow academics to get their outputs onto the institutional repository (IR). This was primarily due to the fact that the library, which managed the IR, faced significant challenges in handling the extra responsibilities entailed in running it, and because university departments, which were nominally responsible for vetting the quality and intellectual property (IP) rights of the submitted materials, had yet to establish a process for doing this. While these various workflow processes had been detailed in the IR policies written by the Office of Research and Development (ORD), they had not been implemented and were, in some respects, unfeasible (at least in the short term).[108]

To help deal with this, SCAP drafted a quality assurance process (QA) that would allow DLIS academics achieve their desire for greater visibility while maintaining a level of quality control. We drew inspiration for the process from the *PLOS ONE* model, in which the online *Public Library of Science* journal assesses the methodological rigour of a paper prior to publication, but leaves the disciplinary debates and critiques to readers who are free to participate in a post-publication peer review process.[109] We thought of this as a sort of "peer review lite" because it fulfilled certain key desires of the traditional peer-review process (assuring quality) while leaving aside others (such as adjudicating the "importance" of the output). For the items that DLIS academics planned on uploading to the IR, this was all that was required.

SCAP's proposed QA workflow process for DLIS

SCAP presented DLIS and ORD with a concept document explaining our proposed QA process in detail. In it, we reiterated the key rationales for implementing a QA process for their submissions to the IR. First, QA would be good for the IR visitor, assuring viewers that all materials were of a high quality, raising their trust in the IR's resources. Second, it would be good for the university, enhancing the UB brand. Third, it would be good for the submitting scholars, providing a measure of feedback for work that may not yet have been peer-reviewed.

[108] Operational Guidelines: UBRISA (UB 2008b); UB Department Research and Publication Committee Terms of Reference (UB 2009a); Digital Repository Policy: UBRISA (UB 2009b).
[109] These are the three criteria from the *PLOS ONE* model that are pertinent to our QA model: "experiments, statistics, and other analyses are performed to a high technical standard and are described in sufficient detail; conclusions are presented in an appropriate fashion and are supported by the data; the article is presented in an intelligible fashion and is written in standard English." See the list of PLOS ONE review criteria at: www.plosone.org/static/reviewerGuidelines#criteria

However, this process would not be applied to every genre of output, as many of them would already have been reviewed through an external QA process. Thus, we suggested that the following output genres be exempted from the department's QA process:

- Journal articles
- Books
- Book chapters
- Book reviews
- Theses/dissertations
- Reports (if already reviewed)
- Conference papers (if already reviewed)

In contrast to these, SCAP recommended that all other research-related non-peer-reviewed resources should go through the QA process:

- Reports (if not yet reviewed)
- Conference papers (if not yet reviewed)
- Monographs
- Posters (conference, research)
- Working papers
- Policy briefs
- Seminar papers
- Creative arts scholarship
- Reference entries
- Lectures (annual/guest/public)
- Datasets
- Manuals/toolkits
- Newspaper articles (op-eds)

For this QA process to be sustainable and effective, SCAP suggested that certain qualities should characterise it. It had to be *responsive* (quick turn-around time), *light* (not a burden to contributors or reviewers), *confidential* (reviewers' identities should remain private, if desired), *supportive* (scholars must be treated with respect, even if outputs are rejected) *transparent* (process is clear to all stakeholders) and *consistent* (process should be predictable and stable in execution).

With these qualities in mind, SCAP drafted the following QA workflow process for DLIS to follow.

A step-by-step approach to the QA process

Step 1: Submission (by scholar)

The scholar emails the object to the faculty content officer (FCO) along with an IR Submission Form that describes the object. (The FCO will be a new position created within the faculty – filled preferably by a graduate student – who coordinates the QA process. S/he will answer to a newly constituted faculty content advisory group (AG), a small team of academics who oversee the FCO's work and keep tabs on the submission process in the faculty.) The IR Submission Form will contain information such as:

- author name(s)
- author email(s)
- title of object
- object genre (article, report, conference paper, etc.)
- date submitted to FCO
- prior publication location (+ URL if available)
- keywords
- level of prior QA (double-blind peer review, workshop collaboration, etc.)
- third-party copyright issues (permission of co-authors to share)
- certification of rights to publish object on IR

Step 2: Logging, vetting and assessment (by FCO)

- Logging: The FCO logs this information into a Faculty IR spreadsheet/database.
- Vetting: The FCO assesses the IP status of the object according to the information provided by the author and a helpful IP checklist which SCAP will provide (with assistance by the Sherpa/Romeo website).[110]
- Assessing: The FCO establishes whether the object requires QA. If no, s/he initiates the process of uploading it onto the IR. If yes, s/he sends it to a faculty reviewer, chosen from a randomised list of scholars established in consultation with the AG.

Step 3: Peer review (by faculty member)

The randomly chosen reviewer receives the object and assesses it with three criteria in mind:

- methodological rigour
- logical coherence
- completeness (no obviously missing elements)

If the object is deemed to be of requisite quality, the reviewer writes to the FCO to approve the object's inclusion in the IR. If the object does not meet the requisite standard, s/he explains to the FCO how the object is deficient.

If the object is rejected, it is automatically sent to a second reviewer on the list. If this reviewer agrees with the judgement of the first reviewer, then the object is considered to have failed the QA test, and will not be placed on the IR. In that case, the FCO will alert the AG of the outcome and draft a suitable and supportive message to the scholar explaining why the object will not be included in the IR. (The scholars will be free to revise and resubmit objects.)

If the second reviewer disagrees with the first reviewer and deems it to be of requisite quality (leading to a "split decision"), the FCO will present the object to the AG for review. They will assess the object and decide whether to accept or reject it. In either case, they will have the FCO communicate their decision to the submitting scholar, after which the object's journey will either end or move on to the IR.

[110] See: www.sherpa.ac.uk/romeo/

(All reviewers will, by default, remain anonymous. However, if they would like to have their identities revealed to the submitting scholars, they may do so for the sake of furthering conversations about the work.)

Step 4 : Consolidation for publication (by FCO)

If the object is approved by the reviewer, the FCO will send it to the appropriate IR administrator for uploading. This marks the end of the QA process within the larger IR deposit and publication cycle. (There are other processes, such as the metadata description process, which will also occur, but these are outside of the QA process discussed here.)

Step 5 : Reflection and refinement (by all stakeholders)

During this pilot phase, all stakeholders (scholars, reviewers, the FCO and the AG) should give constructive feedback about their experience of the IR submission, vetting and QA process. This will surface any unanticipated problems that may develop during the course of the process.

The FCO should make recommendations – based on personal experience and feedback from scholars – to the AG to improve the submission, vetting and QA processes. Both should work together to find the best fit for the faculty.

The QA process in action

When the SCAP team presented this QA model to DLIS and ORD, we understood – and even desired – that the department would alter it to suit its own needs, which it duly did. A few months later, once the pilot engagement was completed, DLIS was able to provide critical feedback about its experience of the QA process, offering crucial insights into whether the model could be replicated in other departments at UB. The DLIS experience is described below with special attention paid to the decisions participants made to alter the model so that it would conform to local needs.

At the outset, to help stimulate QA activity at DLIS, SCAP dedicated a portion of funds to help the department assign and pay for the work of the FCO. SCAP had originally envisioned that the QA process should take place at the faculty level so as to spread the burden of reviewing across multiple departments and individuals. However, as this was a departmental pilot project, and because ORD had envisaged that the QA process should take place at the departmental level, DLIS appointed a content coordinator (CC) from within the department to handle the work ascribed to the FCO in the SCAP model. This did not negatively impact the QA process, but in fact aligned it with local desires and the pilot activity's mandate. Thus, DLIS named a senior lecturer, Dr Olugbade Oladokun as the CC in October 2012.

Dr Oladokun was tasked with soliciting unpublished outputs from DLIS colleagues, vetting the documents for IP restrictions, coordinating the QA process with reviewers in consultation with the Department Research and Publication Committee (DRPC), and liaising with the UBRISA team in the library for uploading the content.

To initiate the collection process, the DLIS HoD sent an email to the department informing members of Dr Oladokun's directive and the department's commitment to

participating in the pilot activity. This helped to smooth the way for the CC who commenced contacting individual staff members. Because the department had embarked on this process relatively late in the SCAP project, it faced significant time constraints in trying to secure the minimum of 20 objects that the team wanted to put through the QA process. Over the course of two weeks, Dr. Oladokun used every means at his disposal to solicit these items: he wrote numerous emails to his colleagues, sent them cellphone text messages, knocked on their doors multiple times, and approached them in the halls when he saw them. Through his persistence, he was able to obtain 15 objects from the staff. This was considered an achievement, given the challenges of motivating scholars to contribute. Eleven of these items were articles (single or joint authorship) and four were reports or commissioned work.

With the objects in hand, the CC approached the five-member DRPC to set the review process in motion. The Chair convened the Committee's maiden meeting in October 2012 where the CC briefed the committee members on the shared responsibility they had in putting the objects through the QA process. This was not only due to the department's commitment to the SCAP pilot process, but due to ORD's assignment of this role to it in its terms of reference, which stated that the committee must "ensure peer review of proposals, research reports and other outputs from the Department" and to "ensure mechanisms for the approval and uploading of Departmental outputs onto the Digital Repository" (UB 2009a: 2).

To a large extent, the DRPC adopted and applied the review process as outlined by SCAP. However, to optimise the process for the DLIS context, the Committee adapted it in crucial ways.

First, the eleven articles were distributed to members of the DRPC for review rather than to a randomised list of reviewers from the entire department. This fitted in with the vision set out in ORD policy documents, though this was the first instance in which the process was actually implemented at the university. The Committee reviewers were given a deadline by which to complete their task. Each reviewer was asked to forward the reviewed document with comments to the CC, who would then send them to the author for possible corrections. This approach made sure that submitted materials were reviewed by senior scholars in the department – as was desired by the administration – but it also added more work to their already oversubscribed schedules. While the committee was willing to deal with the high number of outputs for this pilot review process, members said that, in the future, they would prefer to deal with a smaller number per review session so that it did not become a burden.

Second, the content typically went through a single-blind review process in which the reviewers remained anonymous while the authors were known to the reviewer. This is common practice in the journal publishing business, especially in small sub-disciplines where everyone and their work is known to each other in a field. Any desire for double-blind review in those circumstances – and this one in DLIS – was considered unfeasible (and, indeed, unnecessary, given the purpose of this particular QA process).[111] However, all of the reviewers waived their right to anonymity so that the authors could engage

[111] For a useful discussion of single-blind and double-blind peer-review processes in formal journal publishing, see House of Commons Science and Technology Committee (2011:11–12).

them at a more personal level for improving the output. Their goal was to increase collegiality through this openness and provide better, more nuanced, feedback than might be available through textual commenting in the papers. The SCAP team saw this as a welcome development, enhancing the potential of the QA engagement.

Third, after the CC received the feedback from the reviewers, he made sure that the tone of their comments was "appropriate" before sending them back to the authors. He realised that this process had the potential to create tension between members of the department – and jeopardise the sustainability of future QA ventures – if the authors felt that the feedback was unfair or harsh, which was a real possibility if the feedback was "tone deaf" to such feelings. What the CC found (and what we as the SCAP principal investigation (PI) team confirmed) was that, while all of the reviewers' comments were rigorous, fair and useful, some were quite blunt and could have been construed as abrasive by the authors. Thus, the CC softened the tone of some of them while simultaneously preserving their meaning and intent. By doing this, he tried to serve two purposes: assure the quality of the outputs to be uploaded to the IR while enhancing the experiential outcome for departmental colleagues. It was by paying attention to this broader interpersonal dynamic that the CC sought to ensure the process would be sustainable, a key consideration if this pilot is to be replicated in other departments.

Fourth, while the reviewers did not reject any of the objects outright, they did require some of them to receive major corrections before being uploaded to the IR. The feedback attached to these particular objects was extensive, showing the committee's impressive level of commitment to the process. However, the authors of two of these papers refused to make the corrections, a result that led to a crucial insight for the DRPC: in cases where major revisions were required, scholars were unlikely to make those corrections in the absence of a concrete benefit spelled out in the university's Performance Management System (PMS). The committee speculated that, while authors might make major revisions for the sake of having a paper published in an actual journal (because the PMS rewarded such publications), there was no corresponding reward for simply making a paper "worthy" of uploading on UBRISA. The scholars would rather just leave them alone and move on to other projects. Only in cases where the necessary revisions were minimal did the authors make the corrections and return them for uploading.

Challenges for future implementation of the QA process

This experience showed DLIS that the QA process could do exactly what it was meant to do, which is to make sure that all outputs profiled on the IR meet a certain standard of quality. But it also revealed that the department and the university would have to grapple with a number of issues if they wanted this to move forwards and be a model for other departments. These are some of the challenges facing the implementation of the QA process at UB:

1. For departments to devote time to managing a QA process, it must form part of a larger, functional IR workflow process that leads from submission to vetting to quality assurance to upload in a predictable and timely manner. Until now, this has not been the case. While UBRISA has been online since February 2009 and holds hundreds of academic resources, it has been populated through the work of librarians who have

"harvested" UB scholars' journal articles from publishers' websites and put them on the IR themselves. While the administration would prefer the scholars to submit their own materials, few have done so, and those who have bothered reported negative experiences to SCAP (i.e. the librarians never acknowledged receipt of the scholars' submissions, nor uploaded them onto the IR). This has tainted the IR in many scholars' eyes, and would certainly impact their enthusiasm for the QA process. Until the other components of the IR workflow process are improved, departments will likely be unwilling to embrace the QA process.

2. UB scholars may also resist engaging the QA process because of what the process implicitly says about their work, that it cannot be shared with the world without first being vetted by an "authority" figure. This may not be the intent of the administration, and indeed, many UB academics would admit that some scholars' work should go through such a process because it may fall short of acceptable standards. But for most academics who have spoken to SCAP about UBRISA, the IR is seen as a "prestige project" for enhancing the image of the university, not for showcasing the work of the faculty members per se. They say this because of the way that UBRISA has been initiated and run in a top-down fashion, and because it has not been matched by other signs of interest in sharing the scholars' research (such as allowing them to have personal or departmental web pages to highlight their work). This is not a uniquely UB phenomenon, but in this context, "when led by management objectives, 'quality' appears as 'accountability' and 'managerialism'", not improvement or development (Newton 2000: 155). By participating in a QA process, scholars may feel like they are being forced to "audit" their own work for the sake of the administration's desire for prestige rather than engaging with their colleagues' work for the sake of enhancing it.[112] This tension – between the administration's desire for QA (an accountability mechanism) and scholars' desire for quality enhancement (an improvement mechanism) – is best captured by Elton, who states "assurance in itself is a negative concept which can at best ensure that things are done well, but it can never ensure that things are done better or better things are done. An institution dedicated to quality enhancement will provide quality assurance as a by-product; one dedicated to quality assurance has no incentive to extend this to quality enhancement" (quoted in Ratcliff 2003: 121). This tension, and the scholars' cynical perspective of the administration's motives, decreases academics' interest in participating in the IR-related QA process.
3. The number of outputs that a committee must deal with at a time can be a time-consuming exercise, pulling scholars away from their core teaching and research obligations. Members of the DRPC reported to SCAP that, for the process to remain feasible going forwards, the committee cannot deal with more than a few objects at a time, otherwise they will be overwhelmed by their competing temporal demands. This suggests that, if the university wants all scholarly objects placed on UBRISA, it may have to allow for more staff members than those only on the DRPC to be involved in the review process; or it may have to allow for committee members to set a maximum number of objects they will review between committee sessions.

[112] UB's quest for prestige is explicit. The header running across each page of UB's *Operational Guidelines: UBRISA* (UB 2008b) policy document is the slogan "Enhancing Research Dissemination and Institutional Visibility and Prestige."

4. This intra-departmental review process could also create tension amongst colleagues if it is not handled sensitively. After all, this review is not the same as one for improving an article for publication in a journal; it is simply a review to see if an object meets a minimum standard for uploading to the IR. If the comments in a review are interpreted as harsh or overly critical, this could reduce the interest in scholars submitting their work for consideration, especially since the stakes are relatively low. The CC in this pilot exercise anticipated this exact scenario, and took the proactive step of making mild editorial interventions so that all comments would be considered "constructive", even if they were critical. This QA process has the potential to unleash – or fall hostage to – deep emotional and personal issues between colleagues, if not managed correctly. The CC's approach, which likely led to the positive response that participants reported, should be incorporated into an updated model of the QA process so that it can be a sustainable venture (at least emotionally).
5. As a practical concern, if the QA process is supposed to be replicated in each of the dozens of departments in the university, then the outcome will likely be quite patchy as some departments perform while others do not. The IR will show pockets of high activity from certain departments, and relative absence from others. This is probably the case already for certain scholarly activities, but it is a potential concern for the administration nonetheless.
6. Lastly, but perhaps most importantly, no rewards or incentives are given to scholars who submit materials to the IR, nor are any given to those who manage the QA process. This fact alone jeopardises the future of all IR-related QA work. Indeed, virtually every UB scholar with whom we interacted said that if the university wanted them to engage with the IR in any fashion, it had to provide some rewards or incentives through the PMS. This could come in the form of various "carrots", such as financial rewards for contributing, points for promotion, increased research funding or reduced teaching obligations.[113] Or it could come in the form of various "sticks", such as refusing to count publications at assessment time which are not profiled on the IR, shaming non-compliant departments through public statements or establishing a university mandate compelling all scholars to participate.[114] Of course, most scholars would prefer a positive inducement over a negative one, but they say that, for it to be taken seriously by the UB faculty members, it must be incorporated into the PMS.

This list of challenges reveals how the QA process is enmeshed in a variety of other processes and concerns. DLIS has shown that the QA process can work (in admittedly artificial conditions, because SCAP paid a content coordinator to manage it, and the department had committed to piloting it), but the university will have to attend to a number of contributory challenges if it wants to make this process reproducible across

[113] The *Digital Repository Policy: UBRISA* (UB 2009b: 3) states that "this policy, while recognising that the PMS process already has in place different types of rewards for additional work by staff, nevertheless proposes a prize of a staff member who has the highest number of documents in the Digital Repositories in any year. The details of this prize will be presented separately as part of the revised UB Annual Research Awards." However, none of the staff SCAP talked to had ever heard of this prize, nor thought that it would be enough to induce their interest in submitting their materials to the IR.

[114] The *Digital Repository Policy: UBRISA* (UB 2009b: 2–3) suggests that the administration is already contemplating some of these ideas: "It is anticipated that eventually only the UBRISA entries and those from the Research Output database will be the official sources of research data outputs"; "It is the policy of the University of Botswana that all vetted research outcomes whether published or not, and other works be deposited in UBRISA as soon as possible after completion of the research."

departments and sustainable over time. SCAP believes that this is possible, and that the effort represents a great opportunity for the university to move into a position of greater visibility.

The broader implications of the QA process

When SCAP developed this QA process, it did not do so to be restrictive or punitive, but to elicit and promote the high-quality work that university faculty already produce in a range of genres. It was also not meant to be exhaustive, in that it would mark the completion of the review process. SCAP hopes that, once an object is published on the IR, scholars will be able to provide post-publication commentary, similar to the *PLOS ONE* model discussed above, which will further enhance the quality of the dissemination process.

However, this pilot QA initiative bears significance to a number of academic issues concerning peer review, institutional repositories, institutional prestige and academic agency.

First, regarding peer review, the QA process allows scholars and universities to take a fresh look at "old" materials that have already been presented in some fashion to an audience, but which have not been vetted by the same strict measures that traditional publications go through. This reverses the direction of traditional peer review (which looks "forwards", focusing on new, upcoming, potential publications), allowing African universities and scholars to look "backwards" as well, rediscovering their patrimony for the sake of sharing the best of it. This extends the power and range of peer review, making it a more practical, functional and flexible mechanism that can meet the needs of African academic institutions. However, that flexibility has its limits, for the QA process is still designed to deliver what all peer-review mechanisms promise: a guarantee that the outputs meet some abstract standard of quality that is desired by the institution, the scholar and the reader.

Second, by targeting non-traditional outputs, this QA process challenges certain assumptions in the debates around IRs which are largely set up to profile journal articles. Indeed, the major international IR aggregators such as OpenDOAR tend to harvest metadata from IRs that are populated by journal articles, but not other types of outputs such as the ones UB is keen to profile. This is due, in part, to the quality concerns about non-traditional outputs, but also to the fact that journal articles have become standardised units of communication that can be tracked with Digital Object Identifiers (DOIs) and other metrics. That singular focus on journal articles poses a challenge for African universities that want to put a variety of different outputs on their IRs. To deal with the possibility of having their IRs excluded from the international IR harvesters, they need to have two elements in place: a strategic plan for scholarly dissemination and the technical skills to separate output types on their IRs so that the journal articles can continue to be profiled by IR harvesters while the other outputs remain visible just on the local IR.

Third, this QA process speaks to an anxiety that many African universities have concerning their prestige. At UB, for example, the university management is very protective of the institution's reputation and image. It seeks the prestige that goes with

increasing scholarly output, and thus pushes academics to produce more through various positive and negative incentives. But it also worries that the resulting outputs may not be of a high quality standard. Thus it is ambivalent about profiling its academics and their work on the university website and the IR. The QA process offers a measure of confidence to managers who want some assurance that the materials they profile on their IR reflect well on the university.

Lastly, by locating the QA process within the university itself – as opposed to within a commercial journal publishing firm – African universities take greater agency and responsibility concerning the dissemination of their research outputs. It allows them to take ownership of the visibility of their academic heritage, an outcome that SCAP has certainly been keen to promote.

SCAP anticipates that there will be teething problems with the QA process, as it negotiates a number of procedural, technical and political issues through implementation. However, we hope that the process, as outlined here, is both robust and flexible enough to adapt to the institutions' needs while still delivering on its core mission of quality assurance.

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