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Cross-border implementation of Institutional Repository: A case of Aga Khan University

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Title: Cross-border Implementation of Institutional Repository: A case of Aga Khan University

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Ashraf Sharif acquired an MA in Library Science from University of the Punjab, Lahore, Pakistan. He also holds a Master's degree in Mass Communication from the same institution. He joined Aga Khan University, Karachi, Pakistan in May 2009. Prior to this, he worked with Lahore University of Management Sciences (LUMS), Lahore, Pakistan as Senior Librarian, System & Services. He has been on the panel of instructors of Pakistan Library Association's Computer Training Center, Lahore, from 1998–2003, where he taught library automation to working librarians and students of library schools. Overall he has 15 years' experience of academic institutions, including 10 years as Systems Librarian in the institutions of higher education in Pakistan. He was team leader for implementation of ILS and IR systems in 9 AKU libraries across three continents.

Peter Gatiti is the Regional Librarian at Aga Khan University, East Africa. He holds BLS (Hons) Information & Library Studies from Loughborough University and MSc Information Systems from Leeds Metropolitan University. He also holds Diploma in Management from the Chartered Management Institute (UK). Peter has held senior roles in the information industry both in the academic and health sector. He previously worked as a Specialist Librarian at the Mid Yorkshire Hospitals NHS Trust (UK). He joined Aga Khan University in December 2010 where he heads Library and Information Services in the East Africa Region. Peter is passionate about Information Systems and he has been involved in the implementation of various knowledge management portals. He coordinated the implementation of the AKU Institutional Repository in East Africa.

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Abstract

Institutions globally have increasingly embraced Institutional Repositories (IRs) to collect, showcase, archive, and preserve their intellectual and scholarly output. Many benefits are gained from implementation of the platform including: the institution's visibility, status and reputation is increased; authors get wider public access and visibility thus more citations for their work; long-term preservation of research; and the library benefits from its new role in information creation and distribution thus the opportunity to re-assert its importance in the face of declining user dependence on libraries for simple access to information (Sharif 2013).

Despite the high uptake of IRs to manage institutions' digital resources more effectively, little has been written on the experience of cross-border implementation. This paper seeks to fill this gap by presenting unique lessons learnt from the implementation of Digital Commons (DC), a proprietary hosted institutional repository platform by Bepress. The platform is implemented across AKU's 7 campuses in 5 countries (United Kingdom, Pakistan, Kenya, Uganda and Tanzania). The varying technological, economical, and cultural contexts of these countries have had effect on the implementation of the platform and have presented some unique and interesting lessons.

Cross-border implementation faces many distinctive challenges. From AKU experience, these include lack of a national body for co-ordinating IRs in majority of the countries where AKU is operating; and inequalities in technical expertise, internet access, extent of use, and social support. On the other hand, institutions receive immense benefits from cross-border implementation. Key benefits include: IR helps address the unevenness in availability of researchers' output where Africa for instance accounts for only 2% of the world's research output (Christian 2008); and implementation team benefits from networking with colleagues.

Being part of the implementation team and working collaboratively with the entire implementation team, the authors share the challenges and best practices learnt first-hand.

Keywords: Library, institutional repository, digital repository, cross-border implementation, collaboration, Aga Khan University

1. Introduction

The traditional role of libraries of custodian, access, and distributor has been challenged in the technological age into a new role as part of the ‘creation and distribution process’ (Rao 2007 pp.694). Institutions globally, particularly academic and research institutions have increasingly adopted Institutional Repositories and this has especially been proliferated by availability of open-source IR systems (Foster and Gibbons 2005). The library involvement in IR implementation has helped in re-asserting its importance in the institution in the face of declining user dependence on libraries for simple access to information and elevated the library’s visibility and relevance ‘not only at the institutional level, but also at national and global levels’ (Sheau-Hwang Chang 2003 pp.79).

An Institutional repository also known as digital repository, is ‘an electronic system that captures, preserves, and provides access to the digital work products of a community’ (Foster and Gibbons 2005 pp.1). Crow (2002) defines IR as a digital collection that captures and preserves the intellectual output of either a single university or multiple institutions. AKU IR which is open access, has been implemented to collect scholarly information; showcase AKU research output; archive and preserve AKU intellectual and scholarly output; and showcase other AKU digital elements.

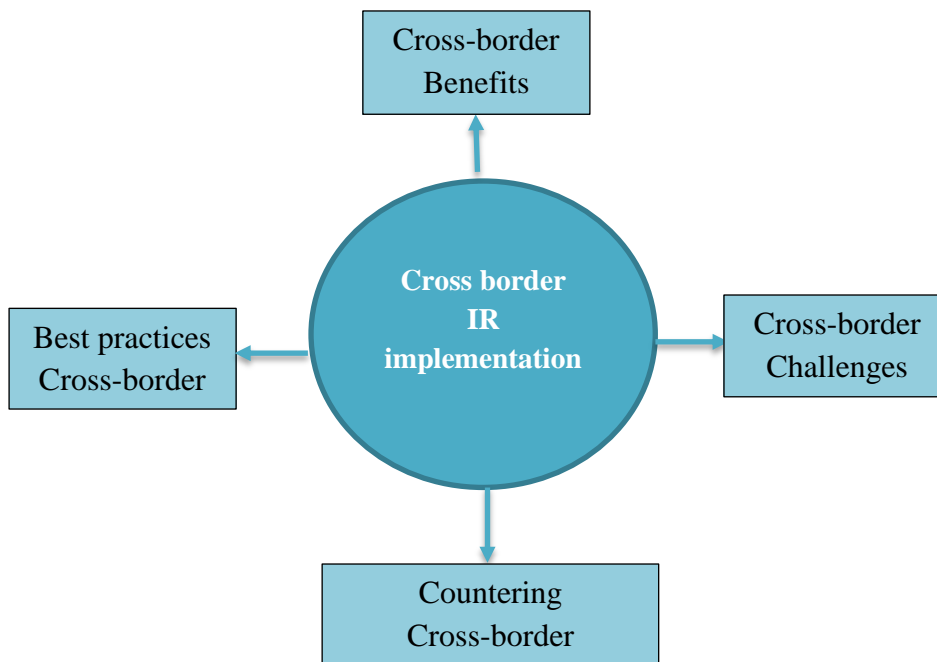
The institution, faculty, researchers, students and the library all benefit from IR implementation. The institution’s visibility, status and reputation is increased in addition to showcasing the relevance of an institution’s research to national development. Libraries can collaborate in multi-institution or multi-campus settings to strengthen provision of services and software. This paper elaborates on multi-campus collaboration in implementation of IR in Aga Khan University.

2. Research objectives

This paper seeks to share the experience of Aga Khan University (AKU) Librarians from the cross-border implementation of IR. AKU’s IR, dubbed eCommons@AKU, has been implemented across the institution’s seven campuses in five countries: Pakistan, United Kingdom, Kenya, Tanzania, and Uganda. This study aimed at exploring, from key informant interviews, the benefits; challenges; best practises; and unique lessons learnt from the successful implementation of AKU IR. The study specifically aims to share from experience possible barriers to successful implementation of IR in a cross-border environment in addition to defining a set of best practices that need to be addressed to help overcome these barriers. Unique lessons learnt are valuable as they are a reflection of the librarians’ ‘real world’ experience in the implementation of the IR.

IR implementation requires a ‘considerable financial, personnel, and technical investment’ and it is important that academic institutions learn from one another by ‘sharing their experiences, building models, and formulating best practices’ (Markey et al. 2007 pp.1). This paper makes a unique contribution by sharing the experiences of Librarians drawn from diverse cultural, technological, and economical settings and helps to further the body of knowledge as regards cross-border experiences which is limited in literature. Best practices learnt from the successful implementation of the IR are also shared. In a nutshell, this paper aims to share from a cross-border perspectives the benefits, challenges, best practises, and unique lessons learnt (illustrated in Figure 1 below), which come in handy for current and future IR implementers’ cross-border.

Figure 1: Institutional Repository implementation in a cross-border environment



3. Research methods

The research method employed is a case study of AKU Institutional Repository conducted using a survey research strategy. The survey was conducted using a questionnaire on nine key informants, all of whom were purposively selected for being involved in the implementation of AKU IR, and were representatives of the seven campuses where AKU operates from. Of the nine selected informants, eight responses were received which were full representation of AKU-wide campuses as shown in table 1 below. The survey had six categories of questions representing the various ‘first hand’ experiences learnt from AKU successful IR implementation, all in relation to cross-border implementation: benefits; challenges; ways of counteracting/overcoming encountered challenges; best practices learnt; and ‘need-to-know’ unique lessons for future IR implementers’ cross-border.

Table 1: Key informants

AKU Campus		No. of respondents requested	No. of responses received
Pakistan:	FHS	2	1
	IED	1	1
United Kingdom		1	1
Kenya		2	2
Uganda		1	1
Tanzania:	FHS	1	1
	IED	1	1

Key: *Faculty of Health Sciences (FHS)*
Institute for Education Development (IED)

All the questions were multiple choice questions based on literature and personal experience with the exception of the last question which was an open ended question aimed at eliciting respondents' personal experience and expertise on the unique lessons learnt which they wished to share with future IR implementers. The authors are members of the implementation team and this helped in better analysis and summary of the findings.

4. Findings and Discussion

Institutions have the option of implementing open source, proprietary or custom-built IR systems. AKU has implemented a proprietary hosted institutional repository platform, Digital Commons (DC), by Bepress. AKU IR, named *eCommons@aku*, is accessible at <http://ecommons.aku.edu/> and is used to collect and give global open access to AKU-wide research output and other publications including peer reviewed articles, journals, books, book chapters, conference papers, University's reports, newsletters, and magazines among others in digital form from a dedicated website. The choice of Digital Commons was based on the platform's management, display, and publication on the web in a highly visible online showcase that is well indexed by Google, Google Scholar and other search engines; ease of customization to suit the institution's preferences; an intuitive and easy to use interface; a secure and robust hosted service; an open access option model; the availability of professional-grade publishing tools and peer-review workflow that allows the institution to publish journals, books, and conference proceedings (Sharif 2013).

Using this platform, AKU has since published the Journal of Asian Midwives (JAM) - <http://ecommons.aku.edu/jam/>. In addition, the system has a 'SelectedWorks' pages which is a Bepress module that allows authors/researchers to have personal webpages highlighting their professional and research profile with links to their major publications. AKU SelectedWorks page is named '*Researchers Gallery*' and is available at http://ecommons.aku.edu/sw_gallery.html.

Recently, a feature has been added to the system by the vendor that allows viewing of real time downloads as they happen across the globe. Another appealing feature is the platform's interoperability function that ensures that research output across participating institutions is discoverable by facilitating searches across repositories through the Digital Commons network. Bepress Digital Commons Network brings together more than 1.2 million free, full-text scholarly articles (peer-reviewed journal articles, book chapters, dissertations, working papers, conference proceedings, and other original scholarly work) from more than 390 institutions worldwide - <http://network.bepress.com/>. The interoperability and Open Access features of an IR platform is noted to be a strong motivator as it increases awareness and access to an institution's research (Crow 2002).

For an IR to be successful especially in a cross-border context, 'manpower, technical, and policy issues' need to be ironed out (Gibbons 2004 pp.1). In line with this, the benefits; challenges; best practises; and unique lessons learnt from the successful implementation of AKU IR are discussed in the sections that follow.

4.1 Benefits of cross-border IR implementation

Cross-border implementation has many benefits. A key benefit is helping address the unevenness in availability of researchers' output globally where Africa for instance accounts for only 2% of the research output of the world (Christian 2008). Other benefits include: library staff acquire more technical skills through networking with colleagues; students have access to a wide range of theses and dissertations; and funders and donors are able to assess institution-wide research output. Additionally, institutions get a unique benefit of reduced cost of training and support from acquisition of a single platform serving multiple campuses (Crow 2002; Oliveira 2011). From the survey, AKU Librarians felt the benefits gained from the cross-border implementation ranked in order of most important benefit are as shown below:

S/n	Benefit	percentage
1.	Institutional Repository helps address the unevenness in availability of researchers' output across AKU campuses	100
2.	Students have the benefit of access to a wide range of theses and dissertations	75
3.	Funders and donors are able to assess AKU-wide research output	75
4.	AKU benefits from acquiring one package for all the institutions which reduces the cost of training and support	75
5.	Library staff acquire more technical skills from being part of the cross-border implementation team	62.5
6.	The implementation team benefits from networking with colleagues.	62.5

Significantly, IR has many other benefits which are not necessarily related to cross-border implementation. These include: the institution's visibility, status, and reputation is increased; authors get wider public access and visibility thus more citations for their work; long-term preservation of research; and library benefits from its new role in information creation, distribution and delivery. In AKU, there are additional benefits from this IR system in that, authors benefit from the personalised monthly reports on the viewing and downloading of their work from SelectedWork pages; as well as the system provides an open-access web publishing platform for e-journals, conference papers, e-books, and dissertations.

4.2 Challenges of cross-border IR implementation

Despite the numerous IR benefits, there are some challenges as well and especially in developing countries where IRs are still relatively new (Otando 2011). More over IRs globally are yet to come up with clear guiding principles and best practices on how the institutions are to handle the challenges that arise (Ngure et al. 2014). Based on the survey responses, AKU librarians have faced a myriad of challenges from the cross-border implementation which are listed below.

S/n	Challenge	Percentage
1.	Explaining to authors why the institution should have their works showcased without monetary benefits	87.5
2.	Inequalities in internet access, extent of use, knowledge of search strategies, and social support	62.5

3.	Time needed in consulting across border to ensure uniformity	62.5
4.	Challenge of contacting authors who have already left the institution	62.5
5.	Duplication of authors' publications who have served in more than one of AKU campuses	50
6.	Lack of a national body for co-ordinating Institutional Repositories in majority of the countries where AKU is operating	37.5
7.	Inequalities in technical expertise	37.5
8.	Inequalities in staffing	37.5
9.	Uneven representation of authors' work depending on availability of technical expertise in specific campuses	37.5
10.	A larger financial implication for implementing IR cross-border	37.5
11.	Lack of clear guiding principles and best practices on how the institution should handle the challenges that arise	25

An additional challenge that was identified by one of the informants is: *“Rights vary from region to region. Hard to negotiate access rights for multi-regional repositories as they are falling under different regions with different economic brackets. We also face funding problems to get the rights access as some publishers are charging USD 10 per page.”*

Prior to depositing any article, permission is sought from both the author and publisher. A key challenge encountered across all AKU campuses is disentangling copyright permissions. There is inconsistencies in publishers' permission (some allow deposit of pre-print only, others allow post-print, while other do not allow any deposit). Others demand high fees for permission or an embargo period and others had ceased operation such as East Africa Medical Journal (EAMJ) making copyright clearance even more challenging. On the other hand, some authors were not interested in participating without monetary benefit and there was no guiding policy on the same, while others had left the institution and it was difficult to contact them while others had lost their required pre-print versions. Another significant challenge is implication on budget. Multi-university collaboration has a significant implication on diverse resources including technical expertise and 'coordination costs for bridging institutional differences and geographic distance' thus need for a significant library budget (Giesecke, 2011: Cummings and Kiesler 2007 pp.1620)

Among the AKU campuses, there are great inequalities in internet access, extent of use, knowledge of search strategies, and social support with the challenges taking a toll in East Africa as depicted in the survey responses.

IR implementation faces various other challenges which are not necessarily as a result of cross-border implementation. These include: challenge of content recruitment; inadequate advocacy for open access repositories; poor or inadequate funding; lack of time for authors to populate their work in the repository; lack of knowledge or awareness of the nature and benefits of institutional repositories thus slow/no uptake; and additional workload on staff. In Africa, slow uptake of institutional repositories has been attributed to lack of knowledge or awareness of the nature and benefits of institutional repositories, poor information and communication technology, inadequate advocacy for open access repositories, poor or inadequate funding, and copyright and intellectual property rights (Christian 2008). Other challenges identified by Markey et al. (2007) include absence of campus-wide policy

regarding mandatory contribution of scholarly materials such as doctoral dissertations, master's theses, and faculty preprints; competition for resources from other priorities, projects, and initiatives; and the recurrent need to support all ongoing costs of an operational IR.

4.3 Counteracting cross-border IR implementation challenges

The challenges faced in cross-border implementation can be counteracted in various ways. From the survey and based on the informants experiences, the key ways are listed below.

S/n	Ways of countering challenges	percentage
1.	Offer training to authors to address challenge of permission from publishers	75
2.	Library should play the lead role in the implementation of the IR	75
3.	Have institution staff sign an agreement upon joining the institution to have their work published on IR	62.5
4.	Curating information on staff who have worked in more than one of the AKU campuses to avoid duplication	37.5
5.	By addressing staffing needs	25

Another way to counter challenges identified by one of the informants is: “*employ a project assistant to help with the implementation.*”

4.4 Key best practices for successful implementation of IR cross-border

To successfully implement an IR cross-border, there are some key best practices which should be taken into consideration. Sheau-Hwang Chang (2003) and Palmer et al. (2008) note that an effective institutional repository requires collaboration among librarians, information technologies, archives and records managers, faculty, university administrators, and policymakers.

In the context of AKU, key best practices identified in order of importance are:

S/n	Best practice	Percentage
1.	Creating an explicit and clear collaboration structure across campuses so that no campus lags behind	87.5
2.	Developing and implementing policies on digitization and copyright clearance	87.5
3.	Training authors on their publication and copyrights so that they understand the implications of agreements that they sign	87.5
4.	Incorporating training for users/authors into Information Literacy programme	75.00
5.	Marketing and promoting the platform to users	75
6.	Offering additional technical skills and copyright training to library staff to better assist researchers who wish to make their work available on IR	75
7.	Implementing a well-thought out training and promotion strategy to explain to researchers and authors the importance of IRs and the benefits to them for participating	62.5

8.	Sharing with department/authors on monthly system generated reports on downloads per series to increase usage of the platform	62.5
9.	Having in place a high level of management in order to support the impact on budget, training and additional workload	50
10.	Training users/authors on how to create RSS feeds on their areas of interest	50
11.	Training librarians on ICT skills for successful implementation of IR projects	50
12.	Implementing mechanisms for acknowledging researchers	50
13.	Requiring Librarians to publish so that a shared body of knowledge is developed.	50

AKU carries out global skills training to staff involved in implementation of the system so that staff skills are at the same level across all campuses of AKU. Markey et al. (2007) and Rao (2007 pp.694) note that to lower barrier to participation the library should play the lead role and offer services such as digitization, copyright clearance, ‘librarian mediated deposit rather than pure-self archiving’, as well as funding IR projects. AKU Library plays the lead role in the implementation. Equipping Librarians with necessary ICT skills is therefore crucial (Mapulanga 2012). IR modules are being designed for inclusion in the Information Literacy (IL) courses to train users how to navigate through the platform and do searches both within the repository and across Digital Commons Network. Authors as well will be trained on their publication and copy rights so that they understand the implications of copyright agreements that they sign. It is also important to train on plagiarism and its implication as this is a major concern to a number of faculty members. Given the varying cultures of different campuses, it is important that the AKU global training courses be customized to suit varying contexts and trainees’ needs. Pilot testing of IR systems and ‘adopting the same open-access and interoperable framework as pre-print archives’ with wide range of research output produced by one institution are other key best practises as identified by Krishnamurthy et al. (2011 pp.1) and Markey et al. (2007).

Promotion of the IR platform is another good practise and this has been carried out through AKU’s global mailing lists, campus specific trainings, and flyers. Since the system provides monthly reports on downloads per series, it has been very useful to share these reports with specific departments and authors whose articles have received highest downloads in a month to encourage more deposits. Training users to create RSS feeds on their series of interest will further increase articles’ download as users will receive alerts whenever new articles are added (Ngure et al. 2014).

As content recruitment has been identified as a the single most pressing challenge facing institutional repositories (Brown et al. 2008), AKU has been able to overcome this through a recent initiative of creation of Faculty profile pages on AKU website requiring a link to individual faculty publications work on the IR. This has helped in collating faculty details and a list of all their publications through the research office. This has had three fold benefits on IR implementation:

- It has helped faculty provide the library with a list of all their publications.
- No need to seek permission clearance from these Faculty as they are willing that their work be deposited on the repository.

- This in its own right is acting as a marketing toll as authors not only go to the platform to view their publications but are also able to refer others to a listing of all their publications

Additionally, AKU recently acquired a plagiarism check tool (Turnitin) which is being used to check all dissertations that are submitted. Previously, only abstracts were deposited, and this new development will help in future deposit and access of full text dissertations on the platform.

4.5 Unique lessons learnt from the cross-border implementation: Librarians experience

The survey concluded by asking respondents of the unique lessons they had learnt based on their personal experience, which they thought were important ‘need-to-know’ for successful implementation of IR cross-border. From the responses it was noted that there is need to:

- Maintain standards across the borders such as author naming convention for uniformity
- Conduct trainings and current awareness
- Stakeholders (Faculty) as well as Librarians should be given frequent training
- Put plan together before implementation
- Keep on educating authors on the benefits that they get by participating or having their works uploaded to IR. Some still think that they are losing more than what they gain by doing this
- Future IR implementers should ensure they have well outlined structures to assist in collaboration and above all clear guidelines and policies which should cater for copyright issues, uniformity among others
- Bring clarity in roles to get the access rights region wise and advocate the faculty to publish in the open access. This also involves the training about the authors’ rights while publishing and many publishing institutional own open access journal. There is also a need to identify the avenues for researchers to publish their work
- Be aware of cultural differences, time differences and different expectations regarding the value and importance of research in different countries

5. Conclusion

This study shared the experience of AKU Librarians in cross-border implementation of IR. Owing to the benefits of implementing IR, it is recommended that institutions take up the challenge and implement the platforms. As libraries play a key role in successful implementation of IR projects, there is need to equip librarians with necessary ICT skills. Senior management support; clear and precise policies on digitization and copyright clearance; adequate budgetary allocation; and marketing of the platform are key for smooth implementation and running of IR systems especially in cross-border environments. To promote usage of the platform, there should be context specific training programmes for both staff and authors which from AKU experience are best included in libraries’ Information Literacy Programme.

As the library and information science community gains experience in the implementation and management of IRs, it is essential that institutions learn from one another by librarians

evaluating and publishing their experiences so that a shared body of knowledge is developed. In addition, Librarians should advocate for the creation of National bodies for co-ordinating institutional repositories through their local Library Associations and Consortiums.

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