# Evaluating the impact of the Institutional Repository, or positioning innovation between a rock and a hard place

## Abstract
Repositories remain an innovative but marginalized technology largely because there is no consensus about an agreed set of Performance Indicators (PIs) that demonstrate their overall impact on the research enterprise of our universities. A successful Institutional Repository should be evaluated in terms of the extent to which the open access repository builds a critical mass of scholarly content which is sustained and available through active university community engagement and ongoing scholarly contributions (faculty, researchers & students) that, when managed efficiently and effectively, ultimately strengthen, promote and give visibility to the research enterprise of the institution, and bring benefit to broader society. However, librarians are grappling with what and how best to demonstrate 'institutional good' but without clear evidence, assessment is fed by perception based on limited information which leads to diminished impact and value of the facility, a tyranny described as being caught between a rock and a hard place. Using Illuminative Evaluation to design a series of quantitative and qualitative metrics, it is proposed that a distinction be made between significant and secondary Performance Indicators where the former gather evidence to demonstrate the overall effect or impact of the IR on the individual and collective research community.

## Disruptive technology, innovation and evaluation
A plethora of literature exists that contains persuasive arguments for Institutional Repositories (IR) as an "institutional good" and that any university "worth its state subsidy" should have one. However, neither the literature nor the existing evaluative measures produce evidence on sufficient scale that demonstrates repositories should be accorded this status by institutional policy- and decision-makers. Institutional Repositories remain an innovative but marginalized technology largely because there is no consensus about an agreed set of Performance Indicators or metrics that demonstrate their overall impact on the research enterprise of our universities.

This article was prompted by a practical and pressing situation at Rhodes University where the Institutional Repository, known as Rhodes eResearch Repository (ReRR), remains grid-locked by views that it is primarily a library technology with limited influence when it comes to advancing research within the institution. Drawing comfort from published reports and discourses with academic library colleagues, it is evident that these perceptions and experiences are not unique to Rhodes University.

The purpose of this article is to explore some of the reasons why libraries generally are grappling with advancing Institutional Repository technology and services within their institutions and to narrow down those persistent factors that, despite strong advocacy for open access scholarly publishing, contribute to the failure in positioning Institutional Repositories within research and scholarly activities of universities. The article reminds the library community that university policy- and decision-makers will ultimately judge the 'success' of the Institutional Repository in terms of the extent to which it has a significant effect on the individual and collective research community and its potential to

strengthen, improve and raise the visibility of the research enterprise.  It is proposed that a distinction should be made between:

- significant Performance Indicators (PIs) that gather evidence to evaluate impact on the research enterprise at end-user, institutional and national level;
- secondary level Performance Indicators which demonstrate efficiencies and effectiveness based largely on quantitative evidence.

As a first step in the process towards migrating Institutional Repositories from innovatory to embedded technology, it is critical to develop a set of comprehensive Performance Indicators that will evaluate all aspects of the system and services, across its range of features and different levels of user groups.  A framework of metrics is presented which, giving the initial impression of a crowded arena of Performance Indicators, makes the point that it is incumbent on both  research and library managers to select carefully between significant and secondary level Performance Indicators.  The danger is, that all too often in the library, and elsewhere in the institution, the concern only with what is measurable, with the result, there is a tendency to ignore what is important in terms of impact and overall effect. The aim is that this article will go some way to outlining an approach and proposing a set of significant Performance Indicators that encourage the Institutional Repository managers and the research community to incorporate qualitative dimensions in their evaluations.

Although, Institutional Repository development is still in its infancy, it can be considered as a "disruptive technology, having emerged less than a decade ago when the Massachusetts Institute of Technology (MIT) took the lead in developing and deploying the DSpace Institutional Repository system (Lynch 2003:1).  Initially, the technology was developed to make journal article collections available in disciplines such as high energy physics.  Librarians, Information Technologists, Archivists, Researchers and Faculty responded proactively to this innovative technology and have implemented Institutional Repositories as an infrastructure to improve networked scholarship and change research practices in the digital age.  The growth of Institutional Repository  applications advanced rapidly on the back of a number of significant developments including:

- Open source software for operating systems (Linux)
- Open archive  initiatives to preserve digital content (Greenstone, DSpace & ePrints)
- Hardware maintenance is affordable
- Standards like open archives metadata harvesting protocol have been adopted.

A recent survey conducted by the Association of Research Libraries (Bailey 2006:21) indicated that 78% of the eighty seven respondents had either implemented an Institutional Repository or were planning to do so by the end of 2007.  In South Africa, a number of academic libraries have launched Institutional Repositories and made good progress in providing access primarily to e-Theses and Dissertations (ETD).   However, the difficulty remains that Institutional Repositories are essentially innovatory where achievements are recorded largely by way of numbers implemented, content loaded and downloads.  No precedent has emerged that enjoys broad acceptance when trying to

evaluate Institutional Repository effectiveness and success at either institutional or national initiative level.  Libraries are grappling with what and how best to demonstrate "institutional good" but without clear evidence, assessment is fed by perception based on limited information which leads to diminished impact and value of the facility.

Despite figures which demonstrate the growth phenomenon of this innovation, caution has been expressed by Davis and Connolly (2007:4) who warn that, "The success of institutional repositories has been somewhat spotty" and suggest that there is a need for further work before Institutional Repositories can be regarded as a significant factor in transforming scholarly communication and dissemination.  Similarly, Markless and Streatfield (2006:143), writing extensively in the field of library and information services evaluation, capture the challenge faced by innovation with their apt comment that "Problems arise if the programme you want to evaluate is inherently innovatory, unpredictable or even plain messy".  They recommend that, in the face of such uncertainty and limited evidence, the impact and value of innovatory programmes are best understood using an approach called 'Illuminative Evaluation' which was advanced by Parlett & Dearden in the 1970s as a technique for judging innovation regarded as evolving and messy (Markless & Streatfield 2006:144).   As long as the Institutional Repository remains characterized as an innovatory technology, there will be general uncertainty among university management of its effect.  This remains one of the key challenges for the future direction of Institutional Repositories.

**Challenges and issues facing evaluation of Institutional Repositories**

Much of what is raised in this article is drawn from the experience of managing an Institutional Repository at Rhodes University which is situated in a remote region of the Eastern Cape, South Africa.  It is a small university with less than six thousand students of whom almost 25% are post-graduates.  Rhodes is rated among the top six leading universities in the country with high levels of research output that included academics publishing 113 books and book chapters, 312 articles and contributing 636 papers to conferences in 2006.  One hundred and seventy students graduated with Master's degrees and forty seven Doctorates were awarded (Rhodes University  2006:2).

In response to developments driven by open access publishing and changing research practices, the Rhodes Library launched an institutional repository, known as the Rhodes eResearch Repository (ReRR), in 2006 as a showcase for the research production which includes research articles, electronic theses and dissertations, conference papers and presentations, cultural content, educational materials among others.  The project was started for all the "politically correct" reasons and to fulfill the following benefits:

- Enhanced visibility
- Increased dissemination of institutional scholarship
- Free, open, timely access to scholarship
- Preservation & long-term access to institutional scholarship
- Opportunity to educate faculty and researchers about copyright, open access & scholarly communication

The Rhodes University Library experience of managing and promoting an Institutional Repository over the past two years is to find this innovatory programme caught in a similar tyranny between a rock and a hard place. The 'rock challenge' is pressing on a number of fronts:

- The implementation, content development , management and promotion of Institutional Repositories is viewed by the university as firmly within the domain of a library activity and resource;
- The continued reliance on quantitative Performance Indicators to demonstrate the "benefit" of the Institutional Repository to the University contains an inherent danger of complacency based on statistics without analysis, comparison or benchmarking;
- The notion that Institutional Repositories are without costs because of open source software and open archives where content is voluntarily deposited, is not an accurate reflection of what is required to launch and implement this technology and associated services. It neither free nor cheap. In the case of open source software, there is often a 'contribution' payable by the user community towards development costs and enhancements. Furthermore, the Library cannot assume that there will be 'automatic support' for the Institutional Repository. It has to actively compete with other information delivery infrastructure and research activities for funding. In most cases, there is a start-up budget for the Institutional Repository but few libraries have a dedicated budget for operating costs. Similarly, there is hardware and maintenance of the infrastructure as well as staff costs. In the 2006 survey carried out by the Association of Research Libraries (Bailey 2006:21), it was estimated that the average start-up cost is $182,500 and the average operating budget is approximately $113,500. The typical Institutional Repository is supported by 28 staff members across a variety of functions (archives, cataloguing, collection development, subject librarians, IT) which accounts for a sizeable portion of the operating expenses.

Similarly, the hard place lessons are flashing warning lights for Institutional Repositories:

- Despite evidence of high usage and downloads that would suggest Institutional Repositories are part of the research 'good' in the university, the harsh reality is that they receive no more than cursory attention and/or polite acknowledgement from the key role players including the Research Office and University Administrators;
- The current range of measures used to report on the Institutional Repository performance is not sufficient for the key role players to respond by positioning it within the research activity of the University;
- The research policy- and decision-makers remain unconvinced that the Institutional Repository is a strategic research tool;
- Often Faculty remains unconvinced about Institutional Repositories coupled with a low awareness linked with few incentives to use the technology. Researchers tend to rely on their personal Webpages as well as discipline

repositories which they believe to have better quality content and impact. Similar experiences are reported in the literature. The point is made that while much attention had been given to the development and implementation of Institutional Repositories, limited work has been done on evaluating them. Davis and Connolly (2007:1) established that reasons for not using the Institutional Repository included perceived redundancy with other modes of disseminating scholarly information, challenges and difficulties associated with Intellectual Property and Copyright, confusion as to whether depositing a manuscript constitutes 'publishing' and fear of plagiarism. Among academics, the anticipated learning curve and associated time-intensive process to self-archive materials was a considered a major deterrent to making use of the facility;

- The Institutional Repository will not be considered as a significant Performance Indicator for organizational effectiveness within the university whilst it is relies on non-strategic P Performance Indicators to measure and assess its performance output. Institutional Repositories appear to have fallen into the trap of relying on 'bean-counting' to justify performance and fulfilling requirements;

Until a significant set of Performance Indicators is agreed across key research players in universities, the Institutional Repositories are likely to remain as a peripheral digital library resource. A recent survey carried out in South Africa by Fullard (2007:47), assesses current awareness, concerns and depth of support for open access among local researchers, research managers and policy makers in South Africa. Of the eleven respondents, out of the twenty-one Deans of Research and Deputy Vice-Chancellors (Academic) contacted, six indicated that open archives and institutional repositories had not yet been discussed at business meetings. The study also interviewed publishing researchers about issues of quality in the open access environment, article or author charges and the established academic reward system. It concluded that, within the prevailing framework, there is little prospect that academics would select to publish within open access journals or institutional repositories. Some university administrators in South Africa have also expressed concern that Institutional Repositories have the potential to undermine the revenue stream based on subsidy earned through research outputs should they disrupt the established publishing industry.

**Status of Institutional Repository performance indicators**

Institutional Repositories constitute a new dimension in the collection development and information services arena of libraries. This probably explains why Librarians are the most active institutional advocates of the Institutional Repository and have taken on the responsibility to design meaningful indicators that will tell us something about their 'success' in contributing to the research enterprise. Although existing measures are criticized for being primarily quantitative in nature and talk to the efficiencies of institutional repositories, it should be acknowledged that considerable effort and thought, on the part of Librarians, has resulted in an initial and useful set of Performance Indicators that gather useful evidence with respect to inputs, processes and outputs associated with Institutional Repositories. These include:

- The most widely used method to measure the 'success' of the Institutional Repository is to count the gross number of items in the live repository and to measure retrieval by counting hits and downloads with the option to sort by country. However, this approach falls into the arena of what Michael Berger (2007:2) labelled the "tyranny of bean-counting". Davis and Connolly (2007:18) caution about being seduced by steady growth patterns in the Institutional Repository because often these are collections supported by active policies that mandate the deposit of items eg theses and dissertations.

- Repository deposit activity measures have been designed by Carr and Brody (2007:18) who maintain that sustainable repositories are only possible with sustainable deposit profiles through active community engagement. They criticize occasional large volume deposits as a sign of failure and propose that regular but less high volume inputs are a preferred way to sustain Institutional Repositories, describing it as the difference between the "gappy" and continuous deposit profile. They propose, based on Faculty staff numbers, annual deposits should be estimated and broken down to daily deposit activity to ensure that deposits are spread across the institution. They propose the use of the Registry Service ROAR (Registry of Open Access Repositories) to examine the performance of repositories according to the daily activity of any of its repositories with counts of days with 1-9 deposits (weak); 10-99 (healthy) and batch imports (Carr & Brody 2007:8). Fascinating research, carried out across the 20 largest institutional repositories in ROAR to determine if there is evidence of double digit daily deposits across 12 months and also examine the thematic spread, revealed that when the focus is on consistency of medium volume deposit days rather than gross numbers 12 of the large Institutional Repositories disappear and are replaced by active repositories (Carr & Brody 2007:16)

- McDowell (2007:1) considers two types of evaluative measures as relevant. One is the total item count as a means to compare repositories but advocates "time-increment measures" rather than one-time-only counts. A second measure is "content material types" which assesses the proportion of types of materials in repositories beyond the pre- and post print content.

Whilst criticism has been levelled in some quarters that limited attempts have been made to design qualitative measures, this is not a true reflection of what has been achieved. A number of Performance Indicators have been advanced to assess the value of institutional repositories in qualitative terms. These include:

- Riegers (2007:5) proposes three broad metrics to assess the Institutional Repository:
  - The fit between the Institutional Repository and the organizational infrastructure (culture, policies, governance issues, goals) is as important as articulating technical infrastructure. A metric is desirable that evaluates the existing institutional policies, disciplinary cultures and organizational infrastructures;

- The levels of flexibility and interoperability to accommodate both the end user and system/service manager;
- The extent that it can accommodate accommodate expanding volume, content and service types and the capacity to expand usability and provide new features.

- Davis and Connolly (2007:5) believe that non-use is an important indicator to determine reasons why individuals and Faculty (as a collective) do not engage as a community in depositing research and other materials.  It provides a framework for outreach strategies and improvements to the system and processes;

- There are few attempts made in the literature to reflect on how the Institutional Repository reflects on the end-user.  In an article that looks at the usability of Institutional Repositories beyond the author, McKay (2007:1) laments that, "Virtually nothing is known about IR end-users…how many people are using IRs, whether they are academics or lay people, or how they most often find IRs…provide avenues for further investigation into how we might improve information seekers' IR experience".

- Arthur Sale (2007:1) investigates the role of mandates which determine the quality of participation levels in Institutional Repository content building and usage.  A mandate is a policy deployed by the institution to ensure that its scholarly output is deposited in the Institutional Repository.  Two types of 'pure policy' are distinguished, those that require (mandate) researchers to deposit content and those which rely on voluntary (spontaneous) participation.  However, the situation is far from satisfactory because the 'institutional mandate', whilst acceptable to a high percentage of researchers, it is acknowledged that university administrators are less convinced. According to Sale (2007:1), the route of relying on "voluntary participation" fails to achieve significant levels of deposits.

**Designing a Performance Indicator framework**

This articles proposes that a successful Institutional Repository should be evaluated in terms of the extent to which the open access repository builds a critical mass of scholarly content which is sustained and available through active university community engagement and ongoing scholarly contributions (faculty, researchers & students) that, when managed efficiently and effectively, ultimately strengthen, promote and give visibility to the research enterprise of the institution, and bring benefit to broader society. Whilst this definition clearly calls for a comprehensive set of well-formulated and tested Performance Indicators with guidelines for interpretation and presentation, the reality is that such a set of significant indicators does not yet exist.  This view is confirmed by Carr and Brody (2007:17) who urge for "a portfolio of more sophisticated metrics that account for a broad spectrum of desirable repository qualities" and continue with the recommendation that a "full picture of repository effectiveness will therefore require all these features (and more) to be taken into account" when it comes to assessment.

The challenge for librarians is what factors should be taken into account when evaluating the impact of innovation as opposed to the traditional measures that focus on service efficiencies, primarily inputs, processes and outputs.  To some extent, reassurance is givn by Markless and Streatfield (2006:144-145) who point out that other disciplines "have been trying to find ways of evaluating messy and evolving innovations for years" and that libraries can rely on Illuminative  Evaluation which makes provision for innovation where there is uncertainty about what evaluation questions to ask.  By means of a process called 'progressive focus', it is possible to gather impact evidence that indicates whether the institutional repository is working according to plan, can the innovation work better and are there lessons from current initiatives that need to be heeded, enabling one to concentrate more and more on what emerges as important as the initiative unfolds.

The Institutional Repository is a complex innovation and this is where repositories find themselves at cross-roads.  The tendency has been to focus on the comfort zone of inputs and outputs rather than assessing the extent of the 'fit between the innovation and institution'.  By applying the principles of Illuminative Evaluation, it is possible to develop a comprehensive set of Performance Indicators that reflect quantitative and qualitative metrics along a continuum that includes inputs, outputs and outcomes (aggregated outputs) to look at the workflow efficiencies as well indicators, using progressive focus, that gather evidence to demonstrate the overall effect or impact of systems and/or services on the individual and/or collective research community.  It is proposed that two levels of Performance Indicators can be distinguished:
- significant Performance Indicators that gather evidence to evaluate impact on the research enterprise at end-user, institutional and national level;
- secondary level Performance Indicators which demonstrate efficiencies and effectiveness based largely on quantitative evidence.

Tables 1 to 4 are an attempt to present the Performance Indicators in a framework that assists policy- and decision-makers to evaluate Institutional Repositories as required by individual organization.  For the inputs and outputs, the emphasis tends towards the statistical but with impact, the move is towards qualitative indicators that examine the fit between purpose of the service and the research goals of the university  ie the effect of the service on the end-user or institution.  The effect is given expression in the extent of the 'impact' on either the end-user or institution.

**Table 1: Input Performance Indicators**

| Level of participation | CONTENT | Performance indicator |
|---|---|---|
| Individual: Scholar/Researcher | Educational items Research outputs | Participation (use & non-use) Take-up levels |
|  | Participation | Voluntary/spontaneous rate of self-archiving |
| Community engagement: Faculty/Department | Educational items Research outputs | Participation (use & non-use) Take-up levels |
|  | Participation | Departmental mandate Self-archiving rate |

| Library/ Systems level | Size of repository | Deposited content - total items Daily deposit rate |
| --- | --- | --- |
| | Rate of repository growth | Steady vs dumping rates Collection deposit breakdown Deposit rate categories <ul><li>Weak</li><li>Healthy</li><li>Batch</li></ul> % Annual gain in content |
| | Metadata creation Indexing for search engines | Excellent metadata Search engine take-up within 24 hrs |
| | Collection currency | Publication date vs deposit date (within specified timespan) |
| | Collection scope | Subject disciplines represented Number of collections Proportion of types of objects (publications, reports, datasets) |
| | Collection usage | Metadata view counts Hits & downloads |
| Institutional: Research Office & University Administrators | Participation | Institutional mandate Participation rates (researchers, scholars) |
| | eResearch infrastructure policy, plans & in place | Integrated storehouse, preservation & digital curation workflows monitored |
| | Sustained deposits | Capture rate of institutional research outputs: <ul><li>Traditional outputs</li><li>Non-traditional outputs</li></ul> |
| | Deposit activity | Deposit rates per staff member |
| National research and development | National eResearch infrastructure policy, plans & funding in place | Size Deposit activity & annual growth rate Collection currency |

**Table 2: Output Performance Indicators**

| Level of participation | SERVICES/DELIVERY | Performance indicator |
| --- | --- | --- |
| Individual: Scholar/Researcher | Search engine functionality | Hits vs downloads Search functions Retrieval functions |

| | | |
|---|---|---|
| | Participation<br>Ease of submission | Rate of assisted archiving<br>Usability of IR user interface |
| Community engagement:<br>Faculty/Department | Participation | Academic duty (no of links from publications to content and datasets used in research) |
| Library Services<br>Systems level | Cost-effectiveness:content | Ratio<br>operating costs:deposited items |
| | Cost-effectiveness;operations | Ratio: staff costs:downloads |
| | Dissemination services<br>Access services | Descriptive data reports<br>Descriptive data reports<br>High visibility of objects |
| | Marketing & Promotion | Usage increases:<br>Deposit activity<br>Rate of downloads |
| | Preservation services | Successful data migration of content<br>Staff with digital curation skills |
| | Interoperability | Standards compliance (OMI-PHI)<br>Seamless |
| Institutional:<br>Research Office &<br>University<br>Administrators | Sustainability of IR functions | Website services fully functional, accessible and available |
| | Policies | Policies current & implemented |
| | Mandatory deposits | Institutional mandate |
| National research and development | National eResearch infrastructure maintained | Institution participation rate<br>Annual growth of content<br>Usability of interface (quick & easy visibility of objects)<br>Content accessible & available |

**TABLE 3: Impact Performance Indicators – end user (significant)**

| Level of participation | END-USER IMPACT/BENEFIT/VALUE | Performance indicator |
|---|---|---|
| Individual:<br>Scholar/Researcher | Performance-expectations<br>Usability<br>Accessibility<br>Availability<br>Relevance | Satisfaction levels<br>Functions, navigable, search engine |
| | Citation rate indexed literature | Impact factor<br>Formal citation rate<br>Citation rate pre-prints |

| | Exposure of IR content | Exposure rate |
|---|---|---|
| Community engagement: Faculty/Department | Performance-expectations<br>Usability<br>Accessibility<br>Availability<br>Relevance | Satisfaction levels<br>Functions, navigable, search engine<br>Information-seeking behaviour characteristics |
| | Citation rate indexed literature | Impact factor<br>Formal citation rate<br>Citation rate pre-prints |
| | Academics & researchers use IR as a resource and refer students to it | Exposure rate of teaching & research content |
| Library Services<br>Systems level | Assessment of content, services, participation and relevance | Assessment tools<br>User expectations<br>Performance levels |
| Institutional:<br>Research Office &<br>University<br>Administrators | Levels of IR usability | How many use content (academics or lay people)<br>How is content discovered |
| | Levels of usefulness | Level of ease to access electronic citation files for input to research management system<br>How much IR content is used in knowledge creation |
| | Showcase research enterprise | Increased hits on website per researcher |
| National research and development | Availability & accessibility of research enterprise | Satisfaction levels<br>User friendly interface<br>Effective search engine |
| | Citation rate indexed literature | Research impact factor |

**Table 4: Impact Performance Indicators – institutional (significant)**

| Level of participation | IMPACT/BENEFIT/VALUE | Performance indicator |
|---|---|---|
| Individual:<br>Scholar/Researcher | Career development<br><br>Citation rate | Individual participation levels<br>Exposure – downloads<br>Research impact Factor |
| Community engagement: Faculty/Department | Relevance for departmental research exposure<br><br>Dept research profile | No of departmental mandates active<br><br>Exposure – downloads |

| | | |
|---|---|---|
| | Scholarly communication | Improved & increased |
| | Synergy of collaboration | Interdepartmental teams – Lib, IT, archives, faculty, admin & policy makers |
| Library Services Systems level | Collection & content building | Monthly & annual reports |
| | Exposure of institutional research | Hits & downloads |
| | Synergy of commitment to stewardship long-term preservation | Rate of deposit activity (annual) |
| | | Range of items in IR (research & teaching items) – intellectual works of academics & students as well as traditional research & alternate research outputs. |
| Institutional: Research Office & University Administrators | Research progress of institution | Annual research report & growth rate of links to publications in IR |
| | Research reputation Public mind reputation | Fit between research output and strategy |
| | Relevance for institutional research production exposure(traditional & non-traditional content) | Fit between research strategy and institutional requirements |
| | Ownership by institution | Intellectual works of academics & students as well as traditional research & alternate research outputs. |
| | Collaboration to increase sharing of institutional research output Socio-political imperative | Participation rates Levels of motivation Levels of behaviour Extent to which public funded research available and accessible Reduced barriers to research knowledge |
| | Research management systems | Fit between IR workflow processes with research management information system |
| National research and development | Profile & visibility | Data sets (experimental & observation) |
| | Research progress | Deposit rate of fulltext ETD |

| | Socio-political imperative | Extent to which public funded research available and accessible |
|---|---|---|
| | Sustainability to ensure items stay usable over long-term | Levels of data migration for content & formats at risk |
| | Promote digital asset management | Extent to which Communities of Practice (CoP) are active & progressive |

**Future directions**

For university administrators in a university, the Institutional Repository is, not only a tool to assess the research and facilitate the measurement of research activity in the institution but also a 'showcase window' on the scholarship and innovation of our universities. The framework of metrics is intended as "toolbox" of both qualitative & quantitative Performance Indicators that could be further designed to gather evidence to demonstrate the effectiveness of an institutional repository. It is intended that combinations are selected to suit the needs and circumstances of each organization. An important factor that will contribute to the increased acceptance and visibility of Institutional Repositories in our universities will be to avoid distracting the university administration with 'noise' factors such as statistics about downloads and content building but rather to focus on the impact and success to the university and society.

It is recognized that the Performance Indicators are a starting point in a process that requires further testing and refining. However, if the Library and Information Services sector wants the Institutional Repository to survive, it is critical that its impact and value be articulated and measurable. The Performance Indicators presented in this article to evaluate impact at the end-user and the collective research community (institutional and national) should form the focus of the next stage of development. Attention needs to be given to designing the guidelines for implementation, gathering of evidence and interpretation. It will be important that these conversations take place at the individual, Faculty and institutional levels. The Institutional Repository cannot be developed and maintained as "an institutional good" in isolation, it is essential that its contribution to supporting and advancing research in the institution be evaluated in terms of the effect it has at individual, institutional and national level in positioning innovation and reducing barriers to research knowledge.

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