Embracing the future

Embedding digital repositories in higher education institutions

With the advances of technology, an increasing number of higher education institutions (HEIs) have implemented digital repositories (DRs). DRs can help HEIs to develop coherent and coordinated approaches to capture, identify, store and retrieve such intellectual assets as audio-visual objects, data-sets, presentations, learning material and research papers. This has allowed various stakeholders to benefit from DRs by enabling quicker, easier, wider and remote access to deposits, increasing visibility and adding value to the intellectual assets of the organisation.

Despite their potential benefits, repositories have yet to reach their full potential. Some HEIs have concerns about awareness of and commitment to repositories, and about their sustainability in future. This briefing paper provides guidance to HEIs that wish to invest in DRs as part of their institutional strategy. The potential benefits of DRs are different for researchers and for library staff; therefore the motivations to support investments in DRs will differ between stakeholder groups. This brief outlines stakeholder-specific motivations and proposes strategies to address the barriers that HEIs have encountered when embedding DRs in their institutional strategy.

Agree and develop a strategy and vision for a repository

i. link repository to the wider institutional strategy

We have identified seven motivations for investing in DRs (see table). These motivations differ by stakeholder group: librarians will be more interested in facilitating electronic access to scholarly publications, while lecturers will be concerned about sharing and reusing digital learning objects. Hence, DRs have different benefits for research-intensive universities than for institutions that have a focus on teaching. Similarly, use of digital resources and scholarly

Abstract

This briefing paper captures the key findings and recommendations of a study commissioned by the Joint Information Systems Committee on aspects of the strategic commitment of institutions to repository sustainability.[1] This project, labelled EMBRACE (EMBedding Repositories And Consortial Enhancement), is aimed at enhancing the functionality, interoperability and extensibility of the SHERPA-LEAP repository service, which currently supports the repositories of thirteen University of London institutions. This research brief aims to clarify the different motivations for using and investing in digital repositories, and to highlight potential ways of addressing the challenges of embedding these repositories in institutional strategy and daily operation. It is designed for use by higher education institutions, which are encouraged to adapt the recommendations to their specific context.

communication practices is often discipline-specific, and therefore the benefits of DRs will be dependent on the disciplines covered by an HEI.

A DR strategy should be closely linked to wide institutional strategic plans. Depending on the strategy, a DR could function as an e-print archive containing working papers only, a management tool for decision-making or even a sophisticated tool to facilitate sharing, reuse and manipulation of digital resources to create new content.

ii. clarify how repositories will be managed and the resources that will be available

The roles and responsibilities of those involved in DRs need to be clear in order to avoid confusion

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[1] The final report of this study (Hoorens et al., 2008) is available at: http://www.rand.org/pubs/technical_reports/TR625/.

Drivers for investing in digital repositories at higher education institutions, and the different stakeholders motivated by these drivers.

Drivers for investing digital repositories	Stakeholders
1. Fear of missing the boat HEIs operate in an increasingly competitive environment characterised by a continuous race to the top. In such an environment, the opportunity costs of not investing in this technology related to DRs – expressed as the costs of falling out of step with the top institutions – could be higher than the investment costs.	• **HEI management** • External relations • Library • Heads of department
2. Providing a shop window for HEIs DRs can offer a central location, visibility and the opportunity to showcase the intellectual assets of HEIs. DRs have the potential to contribute to the reputation, recognition and branding of the organisation, and thus add to the organisation's business success.	• **External relations** • **HEI management** • **Publishing** • Library • Heads of department • Researchers
3. Enabling archiving and preserving institutional assets Intellectual assets in HEIs, including such valuable objects as theses, course material and data-sets, have not always been systematically archived and stored. Digital registration, archiving and preservation give organisations the chance to take better care of institutional assets that are central to the core business of an HEI.	• **HEI management** • **Library** • IT department • Lecturers
4. Facilitating open access to scholarly outputs Large publishers often impose barriers to access, whereas DRs offer open and free access to digital content. Universal access is said to democratise information, accelerate research, enrich education and contribute to mutual learning between rich and poor countries.	• **Library** • Lecturers
5. Decreasing dependence on the traditional publishing model The market for academic publishing has become dominated by several large players with significant pricing power. However, with DRs supply has increased and a certain level of competition has been introduced, thereby reducing the dependence on and vulnerability of libraries to subscription fees.	• **Library** • **HEI management**
6. Providing an up-to-date overview of the scholarly output Institutional repositories can be used as a tool to harvest information to guide management decisions and research-unit funding. Furthermore, repositories can be used as instruments to record institutional performance and track the expertise and research interests available in the organisation.	• **HEI management** • **Researchers** • **Heads of department** • External relations • Library • Publishing
7. Exploiting the added value of digital content: cross-fertilisation and knowledge management Charting, mining, analysing, sorting, navigating and displaying knowledge involve the interaction of several professions and new techniques of analysis, retrieval and visualisation. Research libraries have a potentially crucial role to play here as intermediaries between research production and consumption.	• IT department • Library • Lecturers

1. Agree and develop a strategy and vision for a repository that

i. is linked to the wider institutional strategy

ii. is clear about how repositories will be managed and what resources they will have available

iii. takes into consideration the specific characteristics, interests and requirements of departments and institutions

and to support management effectively at the institutional level. The availability of dedicated resources – as well as their size and duration – also determines the extent to which stakeholders take ownership over the repository.

iii. take into consideration the specific characteristics, interests and requirements of departments and institutions

There is no 'one-size-fits-all' solution. In fact, depending on the characteristics and dimensions of the HEI, different strategies may be effective. Top-down approaches, such as an institutional mandate by senior management to deposit all scholarly outputs, may not be entirely effective. A mandate should be accompanied by bottom-up strategies aligned with the culture and performance incentives at department and unit level; for instance, language scholars are likely to have different incentives from cell biologists.

Embedding repositories requires communicating their benefits

iv. communicate with potential users and suppliers of repositories

It is important to inform stakeholders regularly about the existence of repositories and their status and benefits, as well as how they can affect daily working operations. Outreach events, campaigns and promotions can be targeted to the specific characteristics and requirements of stakeholders. Where possible, these campaigns can highlight the papers that have been downloaded most frequently from the archive. Departments, units or researchers can be rewarded for the volume of work deposited.

v. involve department heads and champions of repositories
Commitment from senior management is important to secure dedicated and sustainable resources for repositories. However, the direct involvement of department heads and declared advocates (champions) is also crucial for success. HEIs are decentralised organisations with considerable autonomy in departments. Organisational change has more leverage when it has the support of heads of department and other senior personnel who understand the user environment, the potential barriers and the benefits for the department.

vi. tie in with existing communication networks
Institutional repositories could be used as important communication tools and as instruments for exchanging ideas between academic peers. But they will not necessarily replace existing communication networks used by academics. These consist of journal publication as well as information exchange through working papers, online forums, (inter-)departmental meetings or conferences. In order to be effective, this communication strategy needs to link up to existing networks, which are often discipline-specific.

vii. address stakeholders' concerns and communicate regularly through consultation and feedback
Complicated copyright laws act as a barrier to depositing material by instilling a certain level of confusion about what may be publicly disseminated and what may not. Campaigns that guide authors by clarifying how copyright applies to the material deposited in a repository may contribute to decreasing the existing apathy about repository deposit. Some are concerned about the potential for DRs to contain contentious, sensitive or poor-quality material alongside peer-reviewed publications. The repository strategy should explain the mechanisms in place to monitor and guarantee the quality of a DR's content. Even if there is little reason for such concerns, it is important to collate them via regular feedback, and to explain how these concerns are addressed.

Providing incentives will change behaviour *vis-à-vis* repositories

viii. link incentives to research excellence framework
The research assessment exercise (RAE) has had a substantial impact on academic institutions' and individuals' behaviour. The same can be expected from the research excellence framework (REF). It is necessary to understand how incentive structures are related to behavioural change, and thus how they can affect behaviour vis-à-vis repositories. A top-down mandate is not required if researchers have an incentive to deposit all their research output in the repository. This could work, if the content in the DR is analysed by the HEI to assess individual, unit or department research output by developing metrics that capture the volume and perhaps even the quality of the output. These metrics will then help the institution to make management decisions regarding resources.

ix. reduce the administrative burden, especially for content providers
Repositories will not be regarded as instruments that can save time until they are fully integrated into the daily operations and become part of the daily routine for stakeholders at HEIs. Technology can contribute positively to the effectiveness of repositories, but its implementation may be met with resistance, particularly when it requires changing behaviour. Therefore, moving to an embedded DR should be seamless for users. Not only does the technical infrastructure (e.g., the user interface) have to be user friendly and adapted to the requirements of each discipline, but the administrative burden for the user should be minimised.

Stakeholders at HEIs make different uses of DRs and have different requirements with regard to the design and content of a DR. Efforts need to be coordinated to avoid approaching academics repeatedly about the same information.

x. award and support the heterogeneity of individuals and institutions
Interests, requirements and incentives for repositories are not aligned across departments, which undermines the formation of pooled constituencies to support repositories.

However, heterogeneity can be used as an opportunity to advance DRs. Aspiring academics, for example, may be more motivated than established ones to make their work accessible to a wider audience as they do not have well-developed contact networks or reputations, or a long-standing track record. Researchers in some subject areas – such as economics – regularly publish working papers to solicit feedback from peers. A DR is an obvious vehicle to facilitate this process. Above all, a DR showcases institutional research output.

In conclusion

This briefing paper provides guidance to HEIs that wish to invest in DRs as part of their institutional strategy. The potential benefits of DRs are different for researchers and for library staff; therefore the motivations to support investments in DRs will differ between stakeholder groups. DR managers can map their potential objectives against the motivations of stakeholders in their institution and the barriers that they perceive. This will allow repository managers to adjust their strategy to specific motivations as they receive feedback from groups of stakeholders, to communicate clearly what they are trying to achieve and to devise specific and targeted interventions to overcome the barriers relevant to the stakeholder groups that they seek to engage. This, in turn, could lead to sustained support from the institution and the embedding of the repository in institutional strategy. ■

Further RAND reading:

Hoorens, Stijn, Lidia Villalba van Dijk, and Christian van Stolk (2008) Embracing the Future: Embedding Digital Repositories in the University of London. RAND Europe, TR-625-UCL

Rothenberg, Jeff, and Stijn Hoorens (2008) Enabling Long-term Access to Scientific, Technical and Medical Data Collections. RAND Europe, TR-567-BL

Hoorens, Stijn, Jeff Rothenberg, Constantijn van Oranje-Nassau, Martin van der Mandele, and Ruth Levitt (2007) Addressing the Uncertain Future of Preserving the Past: Towards a Robust Strategy for Digital Archiving and Preservation. RAND Europe, TR-510-KB

Rothenberg, Jeff (1995) Ensuring the Longevity of Digital Documents. *Scientific American* 272(1): 42–7

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