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**JISC Final Report**

# The Embed Project

## Final Report

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Date: 31st March, 2009

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# 1.0 Executive Summary

The project set out to explore cultural barriers which constrain the engagement of research communities at two different institutions with their respective Institutional Repositories (IRs). Broadly the goals of the project were to identify solutions to these barriers in order to encourage increased content submission, repository enhancement, and the sustainability of the services.

Following a detailed user requirement study with researchers from a number of subject disciplines a revised set of aims and objectives were identified as below:

- Investigate and test sustainable advocacy strategies appropriate to the cultures and stage of development of the IRs at the two institutions
- Investigate the applicability and sustainability of a set of value added services
- Understand the publication processes and the associated workflows which affect willingness to submit
- Investigate system requirements for an effective submission process
- Develop and test a system concept amongst research communities at both institutions
- Assess the impact of both the advocacy and proposed system concepts on existing job roles

Work pre-dating Embed established broad principles of advocacy, but the project designed and tested, in detail, multiple strategies to raise awareness and to change perceptions and attitudes towards the repositories. At Cranfield University this involved a broad based approach which not only re-launched and re-branded the repository but also followed this up with a sustained professionally designed campaign aligned closely to the changing research agenda. At the Robert Gordon University a more targeted strategy was developed which identified would-be champions in key positions within the University research community and senior management and allied this to the involvement of key Faculty Liaison Advisors (whose annual 'objectives' included specific targets relating to the IR).

These strategies induced a number of positive outcomes including:

- A significant increase in submission rates at both institutions
- The inclusion of a greater variety of material in the RGU IR, including representations of art work
- Substantial evidence of raised awareness and associated cultural change.

At Cranfield the IR has been transformed from a purely "library activity" to its recognition as an essential component of the research management and dissemination process. At RGU there is evidence of a greater understanding of the opportunities afforded by the IR, particularly in terms of publicity for a range of research output. Formal operational changes at RGU involving Library and Research and Knowledge Transfer Committee staff have significantly raised the profile of the IR within this institution.

Within the timescale of the project it has been possible to identify the requirements for a system which would facilitate the more effective management of research outputs from submission to external exposure. The concept of repositioning the repository within an integrated Current Research Information System (CRIS) was tested in a final user evaluation. Although it has not been possible to build the CRIS during the lifetime of the project, nevertheless a number of useful conclusions can be drawn from this work including:

- The requirement for a flexible single submission system providing for one time deposit and uploading to multiple external dissemination outlets including IRs, subject repositories, personal and departmental web pages.
- The single submission system must be capable of collecting deposits at an early stage in the publication process, the optimum time appears to be when an item is accepted for publication.
- The need for more training and advocacy to ensure that researchers retain final pre-publication versions of their work where appropriate.
- The need for more guidance to researchers who produce output, such as art work, in non-print formats.

The project explored a number of repository service enhancements which are likely to underline the importance of IRs as tools for raising the visibility of researchers and demonstrating the impact of research outputs. These include: multi-media abstracts ("podstracts"); active dissemination strategies; Request Copy functionality; and repository statistics

Finally the project considered the implications and impact of delivering an enhanced service on existing repository support teams. A number of implications and recommendations are identified within the report and a comprehensive set of project outputs have been made available to the wider community via the Embed wiki.

## 2.0 Background

The concept of Institutional Repositories (IR) is still relatively new and almost all the repositories established to date in Higher Educational Institutions (HEI) are struggling to achieve a critical mass of content. Many institutions have already invested heavily in the establishment of repositories and there is increasing evidence that stakeholders want to see growth in terms of content and the value and impact of repositories on the business of the University. In order for Repository support teams to achieve the necessary step change in the rate of development it is vital that they understand the barriers to engagement, how best to position their repository within their institution , which service model is most appropriate for them and how to assist and encourage researchers to deposit material in the IR. Decisions must take into account local institutional cultures and drivers.

The Embed project examined the two service models not mutually exclusive for increasing content: through self-archiving and via a mediated service often provided by the Library. Advocates of self-archiving argue that this is the best way of achieving the necessary buy-in to ensure that repositories are embedded in research, teaching and learning processes. Interestingly, in contrast to the use of departmental or personal pages, self-archiving at the end of the article-preparation process is perceived as adding to the workload of researchers and/or their administrative nominees. Advocates of the mediated approach consider this a useful and valued support service. However, some librarians have expressed concern about the accuracy of the information uploaded by authors and the potential duplication of effort when time is needed to check entries. Critics of the mediated model have argued that it can operate against full engagement because it makes researchers one step removed for the process and is ultimately unsustainable.

Currently neither of these service models appears to have developed adequately to provide a complete solution to community engagement. A starting hypothesis for the project was that submission through either service model is not sufficiently embedded into the research process. The starting point for the Embed project was that the work undertaken at Cranfield as part of an unpublished MA study showed that academic staff are detached from the IR: basic awareness-raising is a challenge and getting buy-in in the form of voluntary, timely deposition of articles remains extremely difficult. Most institutions, including Cranfield and RGU have met with the twin challenges of author awareness and author indifference with regard to repositories.

Some institutions have addressed the issue through a mandate with variable success. It is recognised that top-down imposed mandates may not offer an appropriate solution if current institutional cultures and work practices are inconsistent with this approach. The starting assumption was that no single solution exists for all institutions but that engagement can only come with an understanding of the prevailing institutional cultures. The objective of the project team was to take advantage of the differences in the cultures prevailing at Cranfield University and RGU in order to produce recommendations for service models applicable to a range of UK HEIs. The IRs at the partner institutions are at different stages of their development and this also afforded and therefore the objective of the project team was to identify the cultures within the two institutions and to make recommendations for the most appropriate service models.

It is worth noting that the IRs at the two partner institutions are at different stages of their development and have very different cultures. This provided an opportunity to compare and contrast different strategies to overcome the barriers and to assess the most appropriate solutions for both established and new repositories.

## 3.0 Aims and Objectives

The aim of the Embed project was to increase understanding of how repositories can be used to support research and learning, integrating them fully into academic processes.

Project objectives were to:

- Produce a prototype service model which supports research workflows and enhances the presentation of research outputs;
- Assess technical capabilities for such a service;
- Assess skills requirements and to demonstrate how the service may impact on existing job roles;
- Investigate the integration of the service within university administrative systems;
- Identify which services might be scaled up on behalf of the entire HE community

The objectives of the project were modified in light of the results from the User Requirement Study which revealed both a serious awareness issue and a set of barriers which were closely related to the submission process. The revised objectives were to:

- Investigate and test sustainable advocacy strategies appropriate to the cultures and stage of development of the IRs at the two institutions
- Investigate the applicability and sustainability of a set of value added services (retained from the service model originally proposed)
- Understand the publication processes and the associated workflows which affects willingness to submit
- Investigate system requirements for an effective submission process
- Develop and test a system concept amongst research communities at both institutions
- Assess the impact of both the advocacy and proposed system concepts on existing job roles

The original objectives envisaged the creation of a standalone prototype system on which a new service model could be tested. Under the revised objectives the standalone prototype was abandoned in favour of exploring a system concept that would be capable of supporting institutional requirements which are being shaped by research strategies at both institutions. It should be noted that these requirements continued to evolve during the lifetime of the project in response to both the RAE, and post RAE with the need to prepare for the new Research Excellence Framework (REF).

## 4.0 Methodology

For a project which is essentially about cultural change most of the methodology we used was aimed at acquiring a better understanding of stakeholder attitudes, perceptions, behaviours and requirements.

### 4.1 Desk Research

Desk research was carried out to ensure that what we understood to be the situation at Cranfield and RGU was reflected across the repository community. The results of the desk research are included in the WP1 user requirement study which informed subsequent work on the project. This includes a comprehensive literature review covering a range of topics including: populating repositories; mandatory policies; advocacy; mediation; technology; embedding the repository. Some key references are included below but it is recommended that the User Requirement Study report is also consulted.

### 4.2 Structured Interviews

The perceptions and behaviours of research communities at Cranfield and RGU were investigated by means of structured interviews conducted face-to-face or by telephone with our pilot group communities. At Cranfield these were two contrasting pilot groups from The School of Management's Centre for Research in Economics and Finance (CENREF) and the School of Applied Sciences. At RGU researchers were interviewed from a number of different communities including Aberdeen Business School, Gray's School of Art, School of Nursing and Midwifery and School of Life Sciences.

This enabled us to capture feedback from a wide spectrum of disciplines. The completion of the WP1 study confirmed our understanding of the various barriers to engagement and allowed us to set a number of clear objectives for the rest of the project. Having identified this revised set of objectives we then aimed to check our conclusions internally and, also, externally with the wider HE community.

### 4.3 Focus Group

Internally this was achieved by means of a focus group conducted at one of the partner institutions. This focused on institutional cultures and practices that impinge on the specific publications process. The focus group involved representatives from researchers at different career stages and from all of the Schools on one campus of the University.

### 4.4 Seminar

Externally our assumptions were tested by means of a seminar which included contributions from both researchers and repository developers and managers. The 'Understanding Organisational Cultures' event held at Cranfield University attracted representatives from over 30 institutions. The format was particularly successful in bringing out the views of researchers who are both repository converts and those who remain to be convinced. Contributions addressed the applicability of mandates, advocacy and internal and external drivers for change. Continuity between the focus group and the seminar was ensured by the participation of academic and Library staff at both events.

### 4.5 Conference

The above seminar very much addressed the repository scene from a national perspective. However, representatives from the project also had the opportunity to attend two important international conferences. The 'ETD 2009' symposium allowed the Embed project team to publicise their work by means of a poster presentation, and the event provided them with an opportunity to learn more about the role of electronic theses and dissertations within IRs. The SPARC Digital Repositories Meeting 2008 provided an opportunity for Embed to disseminate information on the work on advocacy and cultural change. It also provided confirmation that many of the challenges facing repository managers in the UK are also being encountered in Europe, Japan and the US.

### 4.6 Practical Activities

As detailed in section 5 (below), a range of practical activities were undertaken at Cranfield and RGU in order to assess the amount of work involved, and the level of success achieved, in providing an advocacy campaign, obtaining input from senior management, and providing intensive one-to-one assistance for researchers.

### 4.7 Online Survey and Structured Interviews

The final stage of the Embed project has involved a second user study to evaluate what impact the advocacy and other Embed based intervention has had on awareness, attitudes, perceptions and behaviours. This has also provided an opportunity to user reactions to the proposed solution of repositioning the repository within a wider system solution involving the concept of a CRIS. This study has employed an online survey and face-to-face and telephone structured interviews. Both studies have been written up and have been made available to the JISC community via the Embed wiki.

### 4.8 Embed wiki

The Embed wiki has been used extensively to disseminate information about the project and to make available exemplar advocacy resources and case studies.

## 5.0 Implementation

### 5.1 User Requirement Study

A qualitative study was carried out to find out what researchers at both institutions think of their IRs, and what might be done to encourage them to increase their level of engagement with the repositories. The main barriers to engagement were identified as:

- Lack of awareness of both the institutional repositories and repositories generally
- Lack of understanding of the benefits of making research output available in IRs
- Lack of knowledge about how the system works
- Confusion about which version of a paper can be uploaded into the repository and which other material could be included

- Reluctance to submit accepted versions which are perceived to be less credible than the final published version and thereby might be at best ignored and at worse actually damage their reputations
- Concerns over increased workload
- Concerns about greater risks of plagiarism
- At the time the study took place, researchers have real fears that submitting to a repository will breach copyright and jeopardise their relationship with publishers and therefore seriously endanger their ability to publish in the top journals.

Our analysis of the information gained from the study gave us a very good understanding of how the prevailing cultures were affecting engagement with the repository. Our study very much backs up the earlier work conducted by Fried Foster and Gibbons (2005) at the University of Rochester and Davis and Connolly (2007) which revealed a similar set of issues and emphasises to properly understand the motivations which will encourage researchers to engage with the repository.

The study highlighted three serious causes for concern:

- The sustainability of the service model at Cranfield
- The resource (staff) intensive nature of the model at RGU
- The level of awareness at both institutions

**5.12 Service Model**

The Cranfield service model is wholly mediated and relies heavily on the use of database alerts to identify newly published Cranfield authored papers. The model is overly reliant on repository team members contacting authors to retrospectively request copies of the accepted versions. The study identified a number of issues:

- A risk of alienating some authors who feared an increase in their workload as a result of receiving multiple requests to locate and provide copies of their papers for several different purposes including:
  - internal research management databases created for the RAE
  - departmental web pages
  - submission to external subject based repositories
  - submission to their institution's IR
- Even authors who were not adverse to providing papers:
  - were clearly confused as to which version they were being asked to provide and even when they understood frequently no longer had the required copy available
  - wanted and expected the repository to contain the published version and were concerned that anything less could harm their reputation
  - feared damage to their reputation because if only a selection of their work appears in the repository academic peers will mistakenly assume that this represents the entirety of their published work. This extended to work they produced while employed at previous institutions.

The combination of these issues meant that the amount of content being submitted was, therefore, self-regulating and depended on how much time the single member of staff responsible for adding material to CERES could spend sending out requests and chasing authors and creating records for items received. The study questioned whether if we increased the number of submissions we would be able to cope with demand.

RGU also operates a fully mediated service and researchers have expressed concern about some similar issues to those experienced at Cranfield. Most notably, researchers are concerned about the duplication of effort involved in submitting details of their research output to the IR and to the research database that is used for internal management purposes (such as preparation for the RAE / pilot REF). Although the IR at RGU contains full text and the CRIS holds brief bibliographic details of publications, researchers consider the task of providing details to each system separately an unnecessary addition to their workload. Researchers at RGU also pointed out that they often do not have a final accepted version of an article available, especially if the item was produced some time ago. Some were concerned about the quality of the accepted version and were keen to support the suggestion that a cover sheet should be attached to encourage those who were citing the article to refer to the publisher's version.

Some of the issues identified as matters of concern at RGU will be overcome through changes to policies, operational matters and workflows. However, where research output takes a unique form for example, specific pieces of art work, the process of deciding what form of visual representation is included in the IR, and what accompanying information is provided, will continue to require individual discussions between the IR staff and relevant research staff.

**5.13 Level of Awareness**

The second major concern was the lack of awareness of the existence of the IRs, their benefits and how they work. Given that OPENAIR@RGU was relatively newly established this result was not altogether surprising. However, at Cranfield this was particularly disappointing as the repository had been in existence since 2003 and in spite of previous efforts made by the team to promote and raise awareness clearly these efforts had failed to communicate these key messages. The study also showed a lack of awareness of repositories and Open Access generally. The respondents were not searching repositories as part of their own information seeking behaviour and were not aware of the growth of services specifically designed to facilitate discovery of repository content such as OAIster, Intute and even Google Scholar.

Key lessons on advocacy learnt from the report are:

- It needs to be targeted at all stakeholders from decision makers, to research managers, to individual researchers and not least of all to their administrators. Given the timing of the study those involved in RAE/Research Excellence Framework (REF) planning were seen as potential champions.
- One off advocacy will not achieve the desired engagement. It needs to be sustained and repeated. A comment made by the researchers ("e-mails are not enough") suggested that a combination approach would be required involving a range of media reinforced by regular face-to-face contact. This confirmed the findings of work conducted elsewhere including the DAEDALUS project (2005).
- Approaches to advocacy should not assume that researchers have an understanding of the value of having material available on open access via an IR: key benefits, such as increased visibility, publicity and citations, need to be highlighted repeatedly.

The study re-defined the objectives and set the agenda for the rest of the project. It identified the need for a twin track approach: the creation of a professional, sustained and highly-targeted advocacy campaign; and secondly further investigation of the need for an improved submission system to address concerns over multiple submissions, workload and versioning. It was clear that this submission system also would have to be easy to use and embedded within existing workflow practices. The design of the submission system could not be undertaken without first understanding all of the different publication practices and workflows that we suspected existed within the different communities at the two institutions. The fact that the University of Rochester had come to similar conclusions following the work of Fried Foster and Gibbons (2005) provided confirmation that this was the correct approach to take.

## 5.2 Advocacy Strategies

In putting together a combination of advocacy strategies Embed was in the fortunate position of being able to call on a substantial body of work conducted across the repository community. This had already established the principle that a successful advocacy campaign is critical to the success of a repository. The IRIScotland Repository Toolkit provides a useful starting point for exploring good practice. Since the inception of the repository in 2003, the team at Cranfield University had engaged in a variety of advocacy activities, however, disappointingly as shown in the user requirement study report these efforts had failed to alter the perception held by the community at the University that the repository was a "library thing". Even worse it was clear that some researchers had not been touched at all by these advocacy efforts. The challenge facing the project team was to develop a coherent and sustained strategy that would address the previous failure. The project also provided an excellent opportunity to test different strategies to see which would prove effective in the different cultures which existed at the two institutions. Also the project allowed the teams at Cranfield and RGU to work collaboratively with colleagues facing similar challenges at other institutions. This was to prove extremely successful in the co-operation between Embed, NECTAR and WRAP in the organisation of two seminars which together explored firstly the theory and then the practice of advocacy.

Project members based at the Robert Gordon University approached the challenge of embedding the use of their institution's repository in the day-to-day workflow of their researcher community in a slightly different way to the approach adopted by colleagues at Cranfield University. This difference in approach reflects the different nature of RGU with its emphasis on undergraduate teaching as well as research but also the nature of the schools involved in the project which included the School of Nursing and Midwifery and Grays School of Art. Whereas Cranfield adopted a multi-faceted approach, including general awareness-raising through institution-wide promotional campaigns, RGU experimented with a process that targeted a relatively small number of individuals with whom they worked intensively on repository-related issues, while also offering mediated deposition of materials into the institution's repository to a broader spectrum of researchers. This provided an opportunity to test the efficacy of both approaches and to compare and contrast the results.

### 5.21 RGU – Creating Repository Champions through One-to-One Advocacy

To test the impact of a targeted advocacy strategy, RGU focused attention on selected areas to try to achieve greater awareness, understanding and use of the IR:

- Top level strategies
- Prioritising IR work within Library staff work schedules
- One-to-one advocacy work

#### 5.21.1 Top level strategies

Support from University senior management played a significant role in enhancing the role of the IR within RGU. Comments from the Vice-Principal (Research) about the relevance of the repository to the RAE and, later, the pilot REF led some researchers to show a significant increase in interest in OpenAIR@RGU. The decision to include the IR as a standing item on the agenda of the Research and Knowledge Transfer Committee provided a very useful means of involving members in discussions about proposed developments for the repository and an opportunity to highlight successes e.g. statistics which demonstrate increasing levels of use.

#### 5.21.2 Prioritising IR work within Library staff work schedules

During the 2008-2009 academic session, goals relating to achieving an increase in the number of items in the IR were included as part of relevant Library staff annual career / professional development reviews. The aim was not so much to achieve a target figure as to raise the importance of this element of work and to ensure that it was seen as a priority. The number of items deposited in OpenAIR though still only a fraction of the total research output at RGU rose sharply from the start of 2009 and the active involvement of the subject support staff was considered to be a contributory factor. Consideration is being given to whether it is necessary to continue this formal approach: members of Library staff are now committed to supporting the repository and it seems that the initial use of 'goals' has achieved its purpose. To ensure ongoing developments take place and to provide a focus for discussion about the progress of the repository, an IR working group has been established within the Library and this will continue to meet every two months.

#### 5.21.3 One-to-one advocacy work

One-to-one advocacy work with researchers at RGU achieved very positive results. Lengthy discussions with selected members of staff from Gray's School of Art led to an appreciation of both the difficulties and the opportunities associated with including representations of art work in the repository. The exercise demonstrated that guidance is likely to be needed in this area on an ongoing basis as each piece of research output may be unique and the way in which it is represented may need detailed discussion. However, the researchers involved in this project saw real benefits in being able to use the IR as a means of publicising their work, and those involved in the RAE considered it a useful means of providing access to information and representative images of their work.

One-to-one work with a member of staff from the School of Nursing and Midwifery led to a considerable amount of positive publicity. The researcher made his PhD thesis available in OpenAIR@RGU and followed this up with a campaign to promote its use and obtain feedback on it and associated publications. Encouraged by the number of times his work has been accessed, the researcher went on to undertake an advocacy campaign within the nursing profession to encourage others to make their research findings more available. The success of this element of the project is not only in terms of the publicity for the individual and the promotion of RGU's IR: it demonstrates how

an interested individual can influence members of the profession in which he or she is engaged. Further work in this area would allow a more in depth understanding of the value of pressure from professional bodies on researchers to deposit material on open access in their IRs.

The results achieved from the 'one-to-one' support approach are very positive. However, this method of targeting researchers is extremely labour intensive. A considerable amount of staff time is required and it is questionable whether this approach would be sustainable in the long term or possible if a large number of researchers were involved.

**5.22 Cranfield Advocacy Operational Plan**

To test the impact of a broader based, multi-staged advocacy strategy, an Advocacy Operational Plan (Appendix 1), was implemented at Cranfield. The plan was used to develop a professional, targeted, sustained advocacy campaign. Work was divided into four key areas and identified time-scale, critical success factors, and who was responsible. This is both a "top-down and bottom-up" approach:

- Top level strategies
- Face-to-face (community building)
- Promotional literature (internal)
- Project dissemination (external)

**5.22.1 Top level strategies**

In contrast to RGU which was able to capitalise on the more recent establishment of OPENAIR@RGU to plan an effective high impact launch to generate a wave of interest and to give their repository development valuable momentum, Cranfield with its earlier start and soft launch had missed this important awareness raising opportunity. At Cranfield the first task was to turn this into a new opportunity not just to re-brand and re-launch but in effect to re-engineer and reposition the repository some five years after its launch.

An early decision was to replace the name QUEPrints which the user study had shown to be meaningless to the research community with a new name which reflected the strategic purpose of the repository. Cranfield Collection of E-RESearch (CERES[1]) (pronounced Series) was deliberately chosen to reflect the strategic aim of the repository to raise the visibility of Cranfield research outputs. It also opened up the possibility of producing tailored instances of the repository for different research communities – in effect a series of repositories which could provide a sense of ownership.

Another important decision was to link this rebranding to what was identified as one of the key strategic drivers of the University. This was the initial discussions taking place amongst the management of the University on how to prepare the Institution for the proposed research excellence framework. REF's focus on metrics, and the implications for visibility and impact, provided a very real opportunity for CERES to become a central component of this strategy.

Having adopted the strategy a series of events were planned to communicate the key messages. These involved:

- a major re-launch event, hosted in the Cranfield Management Research Institute which included presentations from the Vice-Chancellor who chairs the REF Strategy Group, the SOM Director of Research and JISC. The format and location was deliberately chosen to de-emphasise the role of the library and to re-position CERES with the research community. Maximum efforts were made to capitalise on the opportunity ensuring that reports appeared in the Cranfield University newsletter *Perspectives* and the SOM newsletter *Forum.*
- joint CERES/Embed presentations to the Research Committee or Head of Schools meetings for all Schools – An example of one of these is included in the Embed wiki. These were carefully designed to address each of the concerns identified in the user study. The barriers to engagement were identified and discussed and the benefits of the repository were described in some detail. The message was reinforced by live demonstrations which showed the use of various discovery tools and how these linked to CERES records and most importantly to the full text. From the outset content population and usage statistics were

[1] Roman Goddess of the harvest

shown and discussed to get across the value of the repository and its links to key strategic objectives especially REF.

This round of top level presentations immediately led to a whole series of community building opportunities which are discussed below.

### 5.22.2 Community Building

The operational plan was also designed to address the detachment between the research communities and the repository which was seen to be very much a library activity rather than a research activity, an impression which to some extent was being reinforced by the mediated service model. The plan to address this involved efforts to create a research-focused repository partnership. The forging of this partnership was envisaged as a necessary first step in moving away from a wholly mediated to a more hybrid service model in which responsibility for submissions would be spread more evenly between individual researchers, administrators and the repository support team. In order to create the partnership three distinct elements were devised:

- Tailored presentations to specific research communities. These combined a set of common messages with the use of specific examples taken from the specific communities. Such was the impact of these that during the course of the project a distinct change in the culture was observed in which members of the repository team began to be invited to attend community events rather than having to seek opportunities. Also the nature of the discussion changed from a need to explain the benefits to a joint discussion on how best to move forwards.
- The targeting of individual researchers needed to become part of the normal Information Specialist liaison role. For this to be achieved advocacy had first to be targeted at this group. The approach adopted at Cranfield was to invite Information Specialists to participate in the above presentations in order to cascade knowledge which they could then use in their liaison work. This was in contrast to the more direct approach adopted at RGU where targets for obtaining content from academics were introduced as part of the Information Advisor PDR review process.
- The need to involve members of the repository team in providing training to research administrators to begin the process of skills and knowledge transfer required to support the move to a hybrid service model.

### 5.22.3 Promotional Literature (Internal)

The User Requirement Study provided another contribution to the growing body of research that shows the importance of persistent advocacy. Cranfield opted to produce a well designed set of promotional materials which incorporated a very clear message, as part of a coherent ongoing campaign to achieve the desired “drip feed” effect to the research communities. A brand identity and a strong visual image, closely aligned with the needs of and benefits to the community needed to be established.

It was decided to work with a professional designer to produce a concept for the campaign. This concept encompassed the development of a new brand identity, a new name, CERES and a new logo. The expression of this concept is the “Show Your True Colours” campaign which combines a series of formats: posters; postcards; presentations; publications with striking images from the natural world brought together under the slogan "Be Seen. Be Read. Be Cited." The slogan was deliberately intended to target the link between the benefits of the repository in terms of raising the visibility and increasing the impact of research with the predominant driver that is reshaping the research agenda – REF. All the materials produced so far have been made available on the Embed wiki.

Interestingly the importance of the “drip feed” effect of this advocacy can also be seen in similar work undertaken in parallel by Miggie Picton as part of the NECTAR project. Her campaign uses the slogan 'Visibility, accessibility, impact' as a call to action, which closely mirrors Embed’s own "Be Seen. Be Read. Be Cited."

### 5.22.4 Project Dissemination (External)

The fourth strand of the advocacy operational plan involved members of the project team becoming involved in a variety of external dissemination activities. This was considered important for two reasons:

- To share what the project team had learnt particularly as many other projects in the programme were also carrying out their own user requirement studies
- To explore whether the barriers and other cultural change issues identified were common across the repository community.

The most significant dissemination activities in which Embed participated included two linked seminars targeted at the UK repository and research community and also the Innovation Fair at the SPARC Repositories Meeting, Baltimore, November 2008.

### 5.22.5 Importance of Aligning Advocacy with Strategy

The importance of advocacy in achieving sustained growth and development of repositories is now widely recognised. The Embed approach has tied the message of raising visibility and research impact to the university imperative to prepare for the forthcoming HEFCE Research Excellence Framework (REF). The mission of the repositories to support Open Access to research, the strategic imperative of the research agenda and the advocacy campaign are all in alignment. The key element of the approach adopted within Embed has been to very clearly align the advocacy strategy, the stated aims and objectives of the repositories with the strategic imperative of the institutions. Although the principle of alignment is key, it is recognised that this will vary from one institution to another according to how institutional priorities are shaping repository development and content. The recent findings of the EMBRACE project, as reported by Hoorens, Villalba van Dijk and van Stolk (2009) noted *"HEIs currently lack a coherent vision of how digital repositories can assist these organisations in accomplishing their mission".* This very much echoes Embed's conclusion that a clear alignment between research strategy and the IR objectives and advocacy is key to success.

## 5.3 Investigation of Submission System Requirements

The user requirement study had identified a number of barriers that clearly could not be addressed through advocacy alone. Concerns over workload, confusion over versioning and the lack of clarity in terms of how the repository interfaced with other information systems could only be addressed by a thorough investigation of the submission process and how this related to existing publication workflows. At Cranfield there was the additional driver of the need to address the conclusion that the existing service model based around the use of alerts and the retrospective requesting of papers from authors was unsustainable.

This investigation consisted of a number of related studies which are briefly described below.

- Self-archiving
- Focus group on workflow practices from an author perspective
- Study of workflow practices from a publisher perspective
- Comparison of published and accepted version of an article
- Documenting changes in attitudes to disclosure, submission and dissemination
- Evolving new content and dissemination strategies to encourage engagement

### 5.31 Self-archiving

Conscious of the fact that there are examples within the wider repository community of the successful implementation of self-archiving linked to the imposition of formal mandates e.g. Queensland University of Technology as described by Cochrane and Callan (2007) and The School of Electronics & Computer Science at Southampton University, Carr (2007) there was a need at Cranfield to explore alternatives to the existing wholly mediated alert-driven service model. It was agreed to conduct a

small scale survey involving a set of structured interviews with those authors who had expressed an interest in submitting papers to the repository themselves. Respondents were asked a number of questions including:

- What is your motivation for self archiving?
- Do you see any problems with submitting papers to the repository?
- Given the choice between adding papers yourself or a librarian doing it for you do you have a preference? And why?
- Have you actually added a paper? If so, how did you find the process?

The findings revealed that of the group only one of the four had tried self-archiving and the rest of the respondents, having looked at the process decided that they preferred the mediated service. Given the small numbers involved it is difficult to generalise, however, the fact that so few authors had even expressed an interest in self-archiving suggests that a move to a service model based entirely on self-archiving would only increase resistance.

Comments received in the interviews which were reiterated in a subsequent focus group suggest that it is Cranfield's culture and in particular the requirement placed on academic and research staff to generate income that forces them to apportion value to their time. In this type of culture any task that appears to involve an increase in workload particularly on activities which are not regarded as being directly income generating will be considered a low priority. The issue was revisited both in the subsequent focus group and in the final user evaluation study.

At RGU members of staff were concerned about potential duplication of effort if asked to upload material into the IR as well as the university research management system (CREDO Online). They were also concerned about knowing which version of their research output to upload although discussions about SHERPA were helpful in allaying some of these fears. The main problem appeared to be in relation to retrospective uploading and the difficulty, and time involved, in tracking down an appropriate final pre-publication version of their work. There was a more positive approach to the possibility of uploading material in future if this is built into a streamlined system. Non-print publications, such as art work posed a greater problem and it appears that some degree of mediation, or provision of advice, will be needed in this area for the foreseeable future

**5.32 Focus group on workflow practices from an author perspective**

In order to develop a better understanding of publication processes and practices, a focus group was conducted at Cranfield with research community representatives from four of the Schools (Cranfield School of Management, School of Engineering, School of Applied Sciences and Cranfield Health) to explore:

- Cranfield authors experience of current publication workflows from manuscript creation to submission
- The alignment of these workflows with the current repository service model

The value of this approach was that it: provided feedback from researchers who were at different stages of their career; drew on representatives from different disciplines; expanded the project to draw on feedback from a wider range of community than the two initial test groups; enabled us to explore the variations in publication workflow practice.

The focus group probed a number of areas including:

- the identification of existing publication workflow practices
- variations between research communities and the reasons for these
- attitudes to internal disclosure of pre-published drafts and submitted versions
- attitudes to external disclosure of accepted versions via the IR
- attitudes to alternative service models
- internal and external factors shaping research agendas and publication strategies
- attitudes to formal mandates imposed at either University, School or Departmental levels

The focus group also presented an opportunity to check our hypothesis that the proposed value added services might help to reduce barriers to engagement and to find out whether the attendees shared similar views to the requirement study respondents.

The focus group produced a number of findings which the project team felt needed further clarification:

- The experience of the group, regardless of discipline, was that workflows seemed to be determined largely by the requirements of individual journals and editors rather than publishers;
- Authors make changes to submitted papers after the paper has been refereed and accepted. These are not necessarily reflected in the copy they hold and indeed in some cases changes are made to PDFs which means it is difficult to ensure consistency between the accepted and published versions.
- On the question of value added services the views of the focus group did not correlate with the findings of the user requirement study. Services such as proof-reading and reference checking, which had been identified as worth pursuing by the user requirement study were viewed by the focus group as opportunities for skills development rather than as incentives for encouraging engagement.
- Although not included in the original list of proposed value added services the focus group itself identified the availability of a facility to generate tailored researcher profiles to meet a variety of requirements including grant submissions, performance evaluation and promotion processes would be a strong incentive to engagement.
- Despite the trend towards the imposition of funder and institutional mandates as recorded by ROARMAP the group expressed doubts that this would have much effect on attitudes to submission at Cranfield. However, there did seem to be a consensus that more indirect mandates that linked internal performance review processes with the automatic generation of research outputs from the repository would have more effect. At the time of the focus group it appeared that funder mandates were not yet changing attitudes at Cranfield although there is evidence elsewhere as summarised by Harnad (2008). This may reflect the proportion of research income at Cranfield that is derived from private R&D in comparison to public sources. The Wellcome Trust Open Access: compliance audit being conducted in early 2009 will hopefully show more evidence of the impact of funder mandates.

**5.33 Discussion of workflow practices from a publisher perspective**

In order to shed more light on the variations identified at the focus group between workflow processes required by different journals and the reasons for the apparent discrepancies in content between the accepted and published versions of a paper, the project team conducted interviews with two major international publishers.

These discussions provided:

- A better understanding of the variety of submission processes and mechanisms including the role of Manuscript Central as a key but not exclusive system which publishers are now using to manage the submission process.
- Confirmation that the variation in workflow processes between different journals is often determined by the editors rather than the publishers.

It will be interesting to see if as a result of the work of the pan-European PEER project, more collaboration between publishers, repositories and researchers leads to a joint approach to solving the problem of reconciling accepted versions within repositories and the published paper within journals.

Future work on workflow collaboration between publishers, researchers and repositories might benefit from further investigation of the potential offered by Manuscript Central as a source of the accepted version of the article.

### 5.34 Comparison of published and accepted version of an article

In the light of the study of workflow practices from a publisher perspective and the degree of variation identified in different editorial policies an investigation was conducted at RGU to compare the extent of variation between the final pre-publication version and the publisher's version. A detailed analysis was carried out on one of the papers submitted to OPENAIR@RGU. The review of both documents revealed that most of the variations were of a very minor nature that would not affect the reader's appreciation or understanding of the research (i.e. the occasional typing inconsistency such as the use of capitals, the occasional substitution of 'a' / 'the', etc) However one date on a reference was found to vary between the two versions and such a discrepancy could have implications for the reader.

Again it is difficult to generalise from these findings and indeed anecdotal evidence from discussions with other researchers in other disciplines suggest that at times the changes might indeed be significant. For details of further comparative studies probably the best place to start is Alma Swan's blog post (2007) "What a difference a publisher makes".

Perhaps the most important issue raised by the RGU analysis is that the author of the paper could not confirm that the document analysed was the final accepted version. This highlights the continuing confusion over definitions and underlines the importance of version control and the ability to track changes through the publication workflow process.

The work conducted on the JISC funded VALREC project might, therefore be beneficial to repositories grappling with the problem of version control.

### 5.35 Attitudes to Disclosure, Submission and Dissemination

One of the predominant threads throughout the project has been the exploration of attitudes to disclosure, submission and dissemination. These attitudes appear to have shifted during the lifetime of the project and seem to reflect changes to research agendas influenced firstly by the RAE and subsequently by reactions to the evolving shape of REF.

#### 5.35.1 Key Drivers

To begin with it was very clear that perceptions and attitudes were being shaped very largely by concerns over both the forthcoming RAE submission and the announcement by HEFCE that the REF would utilise bibliometrics with a specific focus on citation analysis. This had the advantage of making the research communities receptive to advocacy which stressed the links between submission and the possibility of enhanced citations. However, it may also have skewed attitudes in other ways. There seemed to be an overriding concern with being able to link from accepted versions to published versions and ensuring that citations could be correctly reconciled with the published version. In the minds of academics certainly at Cranfield this seems to have been a bigger priority than trying to ensure early exposure of papers through the repository.

At Cranfield, dissemination strategies seemed to be largely limited to publishing as many articles as possible in as high quality journals as possible. Authors were, therefore, keen to have their work identified with published versions and were concerned about potential quality issues such as formatting and layout of accepted versions. This also seems to explain the directive from the research communities at both institutions to focus repository acquisition largely on peer-reviewed journal articles.

Researchers at RGU expressed concern about the possibility that the inclusion of an item in the IR might lead to it being cited rather than the published article, and the potential loss of opportunity if it did not contain an obvious link to the published version. . There was wide support for the suggestion that a cover sheet should be added to the papers in the repository – a first page, attached to the actual document, which provides bibliographic details of the published version. This adds to the work involved in adding content to the repository but, in view of the degree of enthusiasm for this procedure, it is now being undertaken as a matter of course at RGU.

#### 5.35.2 Changing Attitudes and Priorities

More recently some academics have begun to question whether there is a need to place quite as much emphasis on citations. While work has been done to compare submissions and citation rates in

different subject disciplines e.g. Hajjem, C., Harnad, S. and Gingras, Y. (2005) it should be noted that the Embed project team is still being asked to explore whether there is evidence of a link between submission and citations in specific disciplines relevant to Cranfield. The focus appears to be on whether submission can raise citation counts for papers that might otherwise be expected to receive few if any citations e.g. papers published in areas which are not considered to be current hot topics.

This shift seems to coincide with the picture emerging from HEFCE of the likely shape of REF, especially with the anticipated emphasis on the visibility and impact of research outputs outside academia and its influence on Business and the Community. This is changing attitudes to submission in a number of ways:

- It has increased interest in repository usage statistics especially in terms of what is being downloaded and by whom.
- There is every likelihood that there will be more receptivity to the argument that early submission will lead to higher visibility.
- It has also re-opened the debate over content in that other research outputs such as non-peer reviewed working papers, conference papers and reports might be seen as a more effective way of reaching out to practitioners and policy makers, especially when linked to highly targeted and proactive dissemination strategies. The case study developed at RGU described below is an excellent example which shows the potential value of publishing in repositories to business and community engagement.
- It has stimulated interest within a number of subject discipline communities in simultaneous submission to IRs and subject based repositories. A good example of this is the Management community at Cranfield which is anxious to relate academic research to practice in the business community. Social Sciences Research Network (SSRN) and RePEc (Research Papers in Economics) are seen as natural partners to CERES.
- It also presents more potential opportunities for the use of multimedia resources such as podstracts which are discussed in more detail below.

This shift in perceptions and attitudes was documented through the focus group, the community building presentations to individual research communities and via the Understanding Organisational Cultures seminar.

**5.35.3 Key Learning Outcomes**

This shift has been driven by both internal and external drivers on the research agenda and has had a profound impact on the direction of the project and on the key learning outcomes which can be summarised as follows:

- The need for a single submission system capable of feeding multiple dissemination outlets. Concerns over multiple requests to satisfy different internal and external demands plus a general anxiety about increased workloads showed that the standalone prototype system envisaged originally would not meet the requirement for a single integrated submission system.

- The project team recognise that the submission system needs to encourage authors to deposit their papers at as early a stage as possible in the publication process so that changes between versions can be tracked. In order to satisfy concerns over premature disclosure internally the submission system has to include access control mechanisms which allow research communities to define when and to whom work is disclosed internally.

- The need to provide a system capable of meeting the above requirements within the context of changing workflow practices to meet the requirements to plan effectively for REF meant that the project team had to devise a revised system solution. The need for content and workflow management allied to the requirement to bring data held on different internal information systems suggests that the repository needs to be repositioned within a fully integrated Current Research Information System (CRIS). This approach appears to be very much in line with current thinking in both the UK and Europe. The development of the CERIF standard now managed by euroCRIS is intended to enable the exchange of information and is likely to aid CRIS development. In the UK the JISC funded study on Embedding Repositories in Research Management Systems and Processes was due to report on six case studies in

late 2008. The resource availability, timescale and complexity needed to build the CRIS was far beyond the original scope of the project. However, it did provide an invaluable opportunity to devise and test the concept of a CRIS and to capitalise the hoped for increase in awareness generated by the enhanced advocacy.

- The need to maximise citation opportunities by ensuring that the full citation appears on the PDF version in the repository so that those who do not subscribe to the journals can still access and correctly cite the full text. The solution adopted at Cranfield was to initiate a programme of retrospectively checking and adding citations where these had not originally been included. At RGU, as described above, a cover sheet is now being added to journal articles in the repository. Either of these approaches is recommended to the repository community, the importance of which is underlined by Figure 1 below which shows a definite divergence between the number of record views and full text downloads. This has become more pronounced during the later stages of the project. Rather than using the repository interface, it seems that many more people discover repository content using popular internet search engines, and then click directly through to the full text file, without viewing the item record.

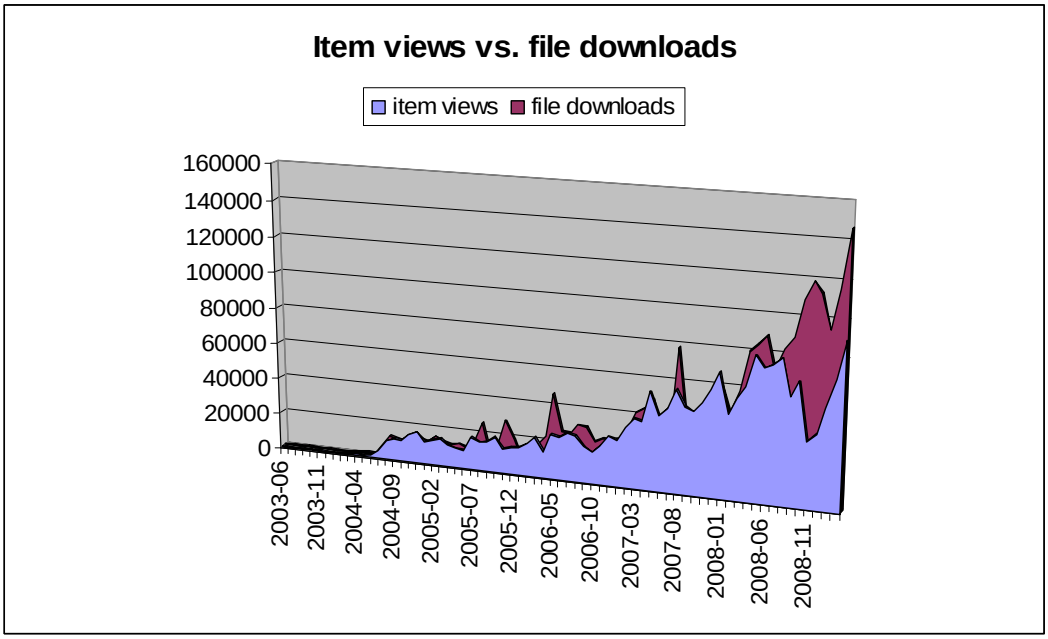



**Figure 1 Divergence between item views and file downloads**

- The reconciliation between accepted versions and published versions can be assisted with the inclusion of Digital Object Identifiers (DOIs) in repository records. Universal use of DOIs was recommended by the JISC/PALS funded PIRUS project as a mechanism for linking journal article versions on IRs and at publisher websites.
- The shift in emphasis to earlier exposure can be assisted by the application of Request Copy functionality. At Cranfield this has been used successfully to assist discovery and access to items which would otherwise be delayed through embargo. As can be seen in the screenshot below (Appendix 2) a stub record is created with link to an e-mail request so that copies of papers can be sent to requesters on demand. Currently the number of Request Copy items is relatively small but initial results show that each one will generate a number of requests very quickly
- The importance of enhanced usage statistics in order to demonstrate value. A corollary to this shift in attitudes and perceptions seems to be a change in expectations amongst the research community for access to regular and improved usage statistics. The ability to use these statistics to provide information which will help inform research strategies is a powerful incentive to encourage submission and engagement (Appendix 3). Such has been the interest

in usage that the statistics generated through these experiments have featured in the latest advocacy materials.

**5.35.4 Evolving New Content and Dissemination Strategies to Encourage Engagement**
Another interesting contrast in approach between the two partner institutions can be seen in relation to content and dissemination strategies.

At Cranfield the emphasis initially was on the alignment of the research strategy driven by the needs of RAE and REF with repository advocacy and a focus on content acquisition which targeted peer reviewed journal articles. More recently this debate has shifted with changing perceptions of HEFCE's thinking on REF.

One example of this change in attitude is the debate taking place within the School Management Research Committee which has been discussing the role of non-peer reviewed working papers; Research Papers which are subject to internal peer review; and journal articles. Are all judged to be of significant quality to be included in CERES as being representative of the School's research or should they be subject to an element of peer review? There seems to be growing recognition amongst this group of academics that the real value of including non-peer reviewed (grey) literature is that it might be a more timely and effective method of knowledge transfer to practitioner communities.

At RGU the issue of whether engagement between authors and repository support team could be enhanced through collaboration on the joint development of dissemination strategies was explored in some detail through a case study based on the publication of an electronic thesis. This is a powerful example of proactive dissemination. The decision was taken to include the thesis in the IR, to include links to related material on the researchers own web page, and for the researcher to e-mail relevant individuals and professional groups to draw attention to the recently completed work.

The results were dramatic: the thesis and associated web pages received hundreds of 'hits' within a very short space of time, the researcher was contacted by fellow nursing professionals in connection with the work, etc. This activity led to the researcher giving presentations at nursing conferences, having articles on the subject published, and receiving the Networked Digital Library of Theses and Dissertations 'Innovative Learning through ETDs Award' (sponsored by Adobe Systems) for 'a student whose professional life has been enhanced by the ETD process'.

The experience demonstrated how an individual can use the IR at a personal level to encourage readership of their work: incorporation of the thesis in the repository allows the work to be seen alongside related articles etc written by the same author and involved no additional work compared to making it available on a personal Web site.

This award winning study has been very well received amongst the community of external practitioners and decision makers in the nursing and midwifery community and demonstrates that disseminating research via IRs can be a powerful tool for Business and Community engagement (BCE) activities. With an increasing number of academic and other support staff now involved in these BCE activities they could become potentially important targets for repository advocacy efforts and if successful this group could become change agents.

Regardless of the strategies adopted for content and dissemination, the most encouraging aspect is that at both partner institutions these discussions are taking place in the most appropriate forums so it is more likely that academics within the community will accept and engage with the ultimate decisions as they are an integral part of the decision-making process.

## 5.4 Evaluation of Value Added Services

One of the starting hypotheses of the Embed project was that a mediated service model could be enhanced and made more attractive to research communities by the addition of a number of services which would add value to the repository and would offer real efficiency savings to the communities and would, therefore, encourage engagement and submission. The most promising of these included:

- "Podstracts" (multimedia interviews with authors of research papers highlighting key findings and recommendations for further work)
- Linking repository content to other resources e.g. datasets, departmental and personal websites and researcher profiles
- Other value added services (proof-reading, reference checking and formatting, dissemination strategies, copyright issues, practical help in using your institution's repository and depositing your work there)

The work conducted within the project to evaluate the potential benefits of these added services reveals a mixed picture.

**5.41 Podstracts**

As part of this work package there was an investigation into the production, by the authors, of webcasts and podcasts about their research. The aim of this was, to see whether their production and inclusion as content in the repository could be incorporated into our proposed new service model. During discussions at the second Embed Project Management Board meeting the term "podstracts" was adopted to describe these multimedia abstracts. The podstracts are seen as a means of adding value in that they will provide the author with an additional tool to market their research and add content not normally included in the final published article and thereby perhaps make the accepted version more attractive to both the author and the target audience. They would also be a way for the author to tailor key messages contained in the paper to the needs of different communities especially practitioners and in this way they could aid knowledge transfer. To some extent this mirrors the approach adopted by PLoS for its two flagship titles – Biology and Medicine which involves the use of journalists to write popular-level summaries of academic articles to appeal to a wider audience.

In total 7 podstracts were produced in order to test two different approaches. The first approach was very much hand crafted to produce a high quality product and tested with one of the pilot groups, the economists. It involved careful pre-interview preparation including a pre-interview with the author to discuss and agree an interview script and to explain the purpose of the process. The podstracts produced using this approach were between 10 and 20 minutes duration and this allowed a very full discussion of the research around the paper and recommendations for future research. It also involved the interviewer in having a working knowledge of the paper. While there is no doubting the quality of the output lessons learnt from the process raised concerns over its scalability. It was, therefore, decided to test a second approach using a standard set of questions which could be applied to any paper in any discipline, with the second pilot group, the water scientists. This produced a podcast of much shorter duration, 3 – 4 minutes, and involved much less time in pre-interview preparation. A full discussion of the findings from this work is included as Appendix 4, and a selection of the podcasts are openly accessible in CERES.

The main lessons learnt can be summarised as follows:

- The analysis of the time taken to produce results of sufficient quality suggests that neither of the approaches tested are likely to produce sufficient benefits in terms of enhanced engagement to justify the investment in time, equipment and new skills acquisition.
- Typical times that can be expected to produce tailored podcasts are shown in Figure 2 below:

| Task | Duration |
|---|---|
| Familiarisation with Apple Mac | 2 days |
| Template production for audio podcasts | 1 day |
| ***per interview*** | |
| Preparation for interview | 2 hrs |
| Interview setup | 15 mins |
| Interview | 30-45 mins |
| Audio editing/production/testing | 1 hour |
| Video editing/production/testing | 3-4 hours |

**Figure 2 Typical timescales encountered in production of audio/video interviews**

- Experience showed that it was more straightforward to engage with the economists than with the water scientists because the team involved with the podstracts production had closer existing links with that community. The requirement to persuade academics to engage with the process requires a very heavy investment in advocacy and liaison if this work is going to be undertaken by existing repository support teams.
- Although the second method tested did reduce the preparation times and did suggest that a standard set of questions could be produced it still proved extremely difficult to generate much enthusiasm from authors in the water scientists group to apply this technique to individual journal articles. However, during the life time of the project it was noted that the same group has begun to use YouTube to market the department's research as a whole.
- In light of the changing attitudes and perceptions and the evolution of new content and dissemination strategies described above it may be that the full potential of this approach is yet to be realised. Evidence that some disciplines are warming to the concept of podstracts can be seen in the decision taken within The School of Management at Cranfield to begin a new initiative through their Research Officer to add the top 50/60 papers from the School, each year, to CERES along with a 5 minute podstract. The Research Officer will obtain a Word copy of the post-refereed version of the article from the author and make the recording which he will then give to CERES. The podstracts will be aimed at targeting non-scholarly communities highlighting the practical applications of the research. This is a direct result of the work of the Embed project.
- RGU is not intending, at present, to include podstracts like those described above as part of OpenAIR@RGU. However, there are plans to include a promotional podcast which includes a member of academic staff speaking about the benefits of depositing copies of research output in the IR. This will be made available in the 'advice and guidance' section of the IT web page rather than as an item within the repository

**5.42 Linking**

The project investigated the possibility that enhanced linking of research papers to related sources such as departmental and personal websites and associated datasets would encourage engagement. Prior to starting work on the project the team through discussions with individual researchers and research managers had become aware that some preferred to see papers added to their departmental websites in the belief that this provided closer association between the authors and individuals in communities external to the universities who access and download the papers. The Embed project team investigated whether by making the repository the central location for authors' papers could still achieve this outcome while at the same time reducing wasteful duplication of effort and to ensure that the authors were working within copyright policies of the publishers.

- Individually authors do seem to be receptive to this approach. A good example of an author linking his personal homepage to his papers is http://www.richardwilding.info/ .
- As a result of the focus group it became clear that an even more important motivation is for researchers to be able to generate tailored profiles which bring together a whole variety of

content drawn from different existing sources including: career information; research interests; successful funding bids and listings of their research outputs linked to the full text.

- However, it is clear that the production of tailored profiles requires a degree of system integration which is not currently available at either of the partner institutions where the repositories are unable to communicate with other internal information systems which hold data that needs to be brought together such as finance, contracts and student information. Also it is clear that authors want these profiles and the associated links to refer to outputs produced throughout their publishing career. This takes the requirement beyond the capability of individual institutional repositories and emphasises the importance of the work currently being undertaken by projects and services contributing to the JISC Information Environment, such as Intute Repository Search and NAMES. It is recommended that JISC continue to fund work in the integration of information systems within institutions and the further development of supporting national infrastructure services.

**5.43 Other Value Added Services**

The purpose of this phase of the project was to investigate whether an expansion of the existing mediated service model to embrace a range of other tasks associated with the publication process would encourage authors to engage more readily. The user requirement study helped to prioritise the services identified in the original proposal for further investigation. These included: proof-reading; reference checking; formatting and copyright advice and checking all of which had been revealed by the WP1 User Requirement Study as potentially fruitful areas to investigate.

The focus of this phase of the project was modified following the user requirement study in response to the following:

- At Cranfield a divergence of opinion was encountered between the responses to the user requirement study and the subsequent focus group. The latter suggested an alternative strategy might be more in line with the organisational culture and emerging priorities within the research communities. When questioned about these other value added services the focus group participants expressed concerns that if the repository team undertook these tasks on behalf of researchers this could ultimately jeopardise the professional development of the researchers themselves, who were expected to have these skills.
- The expression of these concerns appeared to reflect wider concerns about career progression and professional development of researchers across the Higher Education Community, as evidenced for example in the recently published Revised Concordat to Support the Career Development of Researchers. At Cranfield the publication of the Concordat prompted the establishment of a Researcher Development Task Team which includes researchers from each School, HR, Learning Development and the repository support team. The objective of the Task Team is to encourage better co-ordination of development activities and this was seen as an opportunity to align the approach taken in Embed with this wider agenda.
- Concerns over the ability to provide these value added services and the impact this would have on the Cranfield repository support team which was already feeling the effects of increased workloads (retrospective adding of citations, Request Copy, checking of publication lists), which threatened to slow down the addition of new content. This concern was also expressed at RGU.

In response to the above, the investigation of these other value added services was modified in favour of the development of the concept of a researcher's toolkit which could be integrated within the CRIS concept which was devised and tested as part of the Final Evaluation Study. The advantage of this approach is that it was consistent with the desire to produce an integrated solution which would encompass other professional development resources for researchers being made available by the University's intranet.

It should be noted that most of the value added services identified in the User Requirement Study have been investigated. The provision of copyright advice and checking, the development of practical advice on submissions and help with developing dissemination strategies is either already provided or is the subject of on-going discussions with the research communities at both institutions. The only

enhancements which were not followed-up directly were proof-reading because of the concerns over workload and reference-checking and formatting which were viewed as development issues for researchers.

### 5.5 Understanding Organisational Cultures Seminar

Having modified the objectives of the project and undertaken the work described above the project team were able to develop a revised hypothesis that repository growth and development was more likely to be accelerated if two fundamental requirements were met:

- an integrated submission system based on the concept of a CRIS
- an effective advocacy strategy properly aligned with the institutional culture and shifting research strategies

The project team were pleased to have an opportunity to host a JISC funded seminar, at Cranfield, which aimed to check that the findings and views emerging from the research at Cranfield and RGU were also being experienced in the wider community. The seminar:

- Confirmed the barriers to engagement that Embed had already identified and clearly showed how the motivations of academics – e.g. power, reputation, money – can determine whether they will engage with the IR or not
- Confirmed the need for sustained and tailored advocacy. There is no "one size fits all" strategy. Academics are not persuaded by evidence produced by external studies alone. Repository support teams need to work closely with academic partners to study IR impact
- Provided further reinforcement that the IR needs to be integrated with a system that addresses the whole research life cycle. Representatives of funding councils highlighted the importance of incorporating data in the IR during the bidding process and the need to have a mechanism for auditing what outputs have been submitted to IRs
- Suggested that using increased citations as the main message to encourage authors to submit to the IR possibly needed to be reconsidered as raising visibility is equally important and a direct relationship between submission to the repository and increased citations is difficult to prove
- Confirmed that the development of IRs had been skewed by the needs of the RAE and that the needs of REF might have a similar impact in future.

### 5.6 Final User Evaluation

The final user evaluation provided an opportunity to draw together the two key strands of the project:

- The concept of repositioning the IR within an integrated research management system
- Whether the advocacy conducted at both institutions had transformed awareness of the repositories leading to a greater willingness amongst researchers to engage

The findings of the investigations above all suggest that research communities are more likely to engage with IRs if they are fully integrated with the other systems which they routinely use as part of their normal working life. For those involved in research management this means that the repository should be one part of an overarching research management system which offers a single submission mechanism, linked to other internal and external sources of researcher/research data including: career and research information; research income generated and listings of their research outputs which are linked to the full text, and is capable of generating a comprehensive set of usage reports which demonstrate the value of the repository. In other words the IR needs to be part of a wider Current Research Information System (CRIS). In light of these findings it was decided to test this hypothesis in the final user evaluation rather than the prototype system which had been proposed in the original proposal. The concept model used is shown in Figure 3 below.

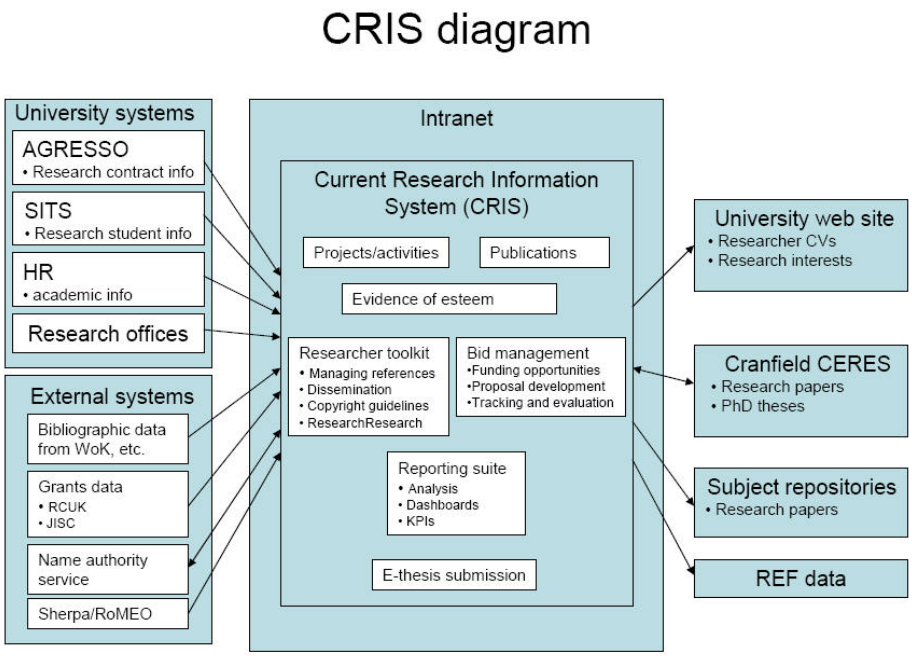



**Figure 3 CRIS concept diagram**

This was done via an online user survey which was then followed up where possible with structured interviews. The evaluation showed overwhelming support for the concept. The survey questions can be found at http://www.keyperspectives.co.uk/surveys/embed.htm.

There are 4 main findings of the evaluation:

- In general, researchers' awareness of the benefits of engaging with their institutional repository is higher now than it was previously
- Levels of deposition have increased. Much of this increased deposition has been mediated by project or library staff, however, and there appears to be some way to go before the desired cultural shift in favour of full engagement with institutional repositories is achieved.
- Conceptual advances by both partners, particularly in terms of the design of a one time deposit system, hold great promise for the future.
- It should be noted that researchers have not yet been able to see or try the proposed system, so the positive vote is for the *concept* of one-time data deposit. It is recommended that JISC fund further research into the development of a CRIS which integrates the IR with other research information and management systems

## 6.0 Outputs and Results

Many of the outputs are available on the Embed wiki http://cclibweb-1.dmz.cranfield.ac.uk/embed/

### 6.1 The User Requirement Study and Final User Evaluation

Copies of these studies produced by Key Perspectives Ltd are on the Embed wiki.

### 6.2 Advocacy materials

Including, posters, postcards and links to presentations.

### 6.3 Guidelines and Policy Information

The Robert Gordon University have produced guidelines and policy information about the RGU repository. These have been developed by an 'Institutional Repository Working Group' within the Library Service which now meets every two months. Where appropriate, recommendations from this group are considered by the university's 'Research and Knowledge Transfer Committee'. The approved information is made available on RGU Web pages (with links from the 'Policies' section at https://openair.rgu.ac.uk

### 6.4 Colin Macduff – E-thesis and related publications

Macduff, C. (2008) Think out loud: how to get your dissertation or thesis published on-line *Nursing Standard* 22 (21) 62-63.
Macduff, C. (2008) Editorial: The PhD thesis as a virtual guest house. *Journal of Clinical Nursing* 17 2381-2383.
Macduff, C. (2009) An evaluation of the process and initial impact of disseminating a nursing e-thesis. *Journal of Advanced Nursing* (in press) doi: 10.1111/j.1365-2648.2008.04937.x
Roberts, P., Priest, H. and Macduff, C. (in press) Sharing research knowledge. Book chapter within forthcoming edited book "Healthcare research: a handbook for students and practitioners".
Macduff, C., Copeland, S. and MacLean, C. (2008) Evaluating dissemination of a nursing PhD via an open-access electronic institutional repository. Royal College of Nursing International Nursing Research Conference. Liverpool. 8th April 2008.
Macduff, C. and MacLean, C. (2008) Evaluating the process and impact of active dissemination of an e-thesis: a new authorial model. Plenary paper as part of the Innovative Learning through ETDs Award Ceremony, Spreading the Light (11th International Symposium on Electronic Theses and Dissertations), Robert Gordon University 6th June 2008.
Macduff, C., Jones, P., Joseph, S. and MacLean, C. (2009) A mapping of UK nursing's e-theses and comparison of electronic search strategies. Royal College of Nursing International Nursing Research Conference. Cardiff. March 2009.
Macduff, C. (2008) Researcher perspective – the convert. Understanding Organisational Cultures: Impact on Repository Growth and Development. Cranfield University. 9th September 2008

Personal webpage http://www.rgu.ac.uk/nursing/research/page.cfm?pge=27219

### 6.5 Podstracts

Examples of Podstracts referred to in 5.41 above. Additionally there are three audio podcasts together with four video interviews. Five of these MP3 files have been uploaded in CERES:

- Figueira, C. & Nellis, J. (2007) 'Banking efficiency in non-core EU countries - A comparative analysis of Portugal and Spain', Research Paper Series, 2/07 http://hdl.handle.net/1826/2385
- Nellis, J. (2007), 'Winning the future - a business overview', Finance & Management, no. 146, pp 5 - 7. http://hdl.handle.net/1826/2054
- Parker, D. (2006) 'Regulatory Impact Assessment', Management Focus, Issue 24, November 2006, pp 4-7 http://hdl.handle.net/1826/2247
- Figueira, C., Nellis, J. & Schoenberg, R. (2007) 'Travel abroad or stay at home? Investigating the patterns of bank industry M&As in the EU', European Business Review, 19 (1) 23-39 http://hdl.handle.net/1826/2388

These are also available via the CERES blog http://cclibweb-1.dmz.cranfield.ac.uk/ceresblog/?feed=podcast

And are also available at: http://www.som.cranfield.ac.uk/som/research/centres/cref/bytes.asp

The lessons learned from making these podstracts are also available on the Embed wiki and in Appendix 4.

### 6.6 User and Stakeholder Engagement

As part of the process of community building, a number of presentations and papers were made to research communities which included

- CERES/Embed Presentation to Cranfield School of Applied Science (SAS) Heads of Department, 17th March 2008
- CERES/Embed Presentation to Cranfield School of Management Research Committee, 27th March 2008
- CERES Launch, 28th March 2008
- CERES/Embed SAS Technical Seminar, 16th April 2008
- CERES/Embed Presentation to Cranfield Health, 21st April 2008

- Betts-Gray, M (2008) Embedding CERES in the research process, *FYI Newsletter ,* Spring Issue
- CERES Operations Group (2008) Raising your research profile – how CERES can help, *Perspectives Supplement* , March.
- CERES/Embed presentation to the Demand Chain Management Community, SOM, 11 June 2008
- CERES/Embed presentation to the Demand Chain Management Community, SOM, 22 September 2008
- CERES/Embed presentation to the Cranfield School of Engineering, Operations Committee, 16th October 2008
- Harrington, J. (2008) Maintaining our distinctive research edge: the role we all have to play , *Perspectives*, August 2008

### 6.7 Dissemination

Members of the project team undertook a number of dissemination activities as part of the project which included:

- RSP Professional Briefing Day University of Northampton, Thursday 15th November 2007 Embed presentation
- Betts-Gray, M and Harrington, J D (2008) Cranfield CERES Case History In: Contributors, V. (2008) Repository Case Histories. In: Third International Conference on Open Repositories 2008, 1-4 April 2008, Southampton, United Kingdom p.17
- Copeland, S 'IPR and the EThOS Project' RSP - Copyright for Repositories Staff Training Workshop. Northampton, 28th October 2008
- In May a poster about 'Embed' was included in the Cranfield Multi-Strand Conference: Creating Wealth Through Research and Innovation (CMC 2008) http://cclibweb-1.dmz.cranfield.ac.uk/embed/images/c/cd/Library_Poster_portrait.pdf
- A poster about the 'Embed' project was included in the 11th International Symposium on Theses and Dissertations held at RGU in June http://cclibweb-1.dmz.cranfield.ac.uk/embed/images/8/80/ETD2008Poster.pdf
- On 9th September, Embed hosted the JISC funded 'Understanding Organisational Cultures: Impact on repository growth and Development'. This was extremely successful both in terms of numbers and the profile of attendees - a publisher, a representative from the Research Councils UK, and researchers in addition to those involved in developing IRs. The presentations were well received and sparked lively debate. Both formal and informal feedback was very positive and "honourable mentions" were subsequently made in three different blogs. Full details of the seminar, the presentations links to the blogs and feedback can be found on the project website. http://cclibweb-1.dmz.cranfield.ac.uk/embed/index.php?id=redirect
- Copeland, S. 'IPR and the EThOS Project' RSP - Copyright for Repositories Staff Training Workshop. Northampton, 28th October 2008
- Betts-Gray, M and Harrington, J D, Show your True Colours Advocacy Campaign poster session presentation at the SPARC Digital Repositories Meeting Innovation Fair, 17th-18th November 2008, Baltimore, Maryland
- See section 6.4 (above) for details of the papers and presentation by Dr Colin Macduff

## 7.0 Outcomes

The Embed project has essentially been about investigating the most effective strategies for repository enhancement, accelerating repository growth and achieving sustainable repositories. Overall it is contended that the project has made considerable progress towards the achievement of

the aims and objectives, specifically the project has facilitated the enhancement of the two repositories and has brought about a considerable cultural shift in the ways those repositories are regarded by research communities at both institutions. In terms of increasing content there has been some degree of success but perhaps not the hoped for step change. It should be noted that there is a commitment at both partner institutions to develop repositories which are populated entirely with research outputs (e.g. full-text documents, datasets, artworks, multimedia) and to avoid simply adding metadata records to increase numbers and this should be taken into account when considering content and submission rates.

Through its own investigations the project has identified two basic requirements: the need to integrate the repository within a wider system of research management and to promote this system with a sustained advocacy campaign.

It should be noted that neither of these two requirements are as yet fully met at either institution. Advocacy strategies have been devised and tested but more work needs to be done on building a fully joined up repository community. A concept for repository integration with internal and external information systems has been devised and tested but within the timescale available it has not been possible to implement this system in practice. If the findings of the Embed project are correct, this step change in repository content will not be fully realised until both of these requirements are in place.

If this is the broad picture, the specific outcomes from the project can be summarised as follows:

## 7.1 Enhancement

- *Investigate the applicability and sustainability of a set of value added services (retained from the service model originally proposed)*

- Value of Request Copy

The refinements to Request Copy functionality described in Appendix 2 will be of interest to repository managers as well as to authors who are looking for ways of increasing the visibility and impact of their research.

- SOM ‘podstracts’ – changes in thinking relating to length/quality etc.

An outcome has been a shift in the way that multimedia may be viewed as a supporting product for research outputs. Initially efforts focused on producing longer, high-quality podcasts of interviews with authors. Through the work done on the project there is general agreement amongst the project partners that a more useful product is the 5 minute ‘podstract’ which captures a useful summary of a research paper which makes it more accessible to a wider audience. The methodology is capable of being scaled up and is being implemented on some 60 papers which formed part of the RAE submission in one of the partner institutions. A new initiative to further disseminate research output from Cranfield School of Management is being launched, called the SoM Talking Papers Series. This comprises:

- a short audio summary of each paper (given by the author) highlighting key findings
- a post-print copy that can be uploaded to Cranfield’s repository, CERES, thus making the piece of research publicly accessible.

Four new papers are already on the system and can be accessed via the following URL.
http://www.cranfieldknowledgeinterchange.com/ResearchBytes.aspx

The School’s new Director, Frank Horwitz has commented:

*This is an exciting and effective way of making our scholarly work more visible and accessible to practitioners.*

## 7.2 Increase content

- *Understand the publication processes and the associated workflows which affects willingness to submit*

### 7.21 Submission at CU

As shown in Figure 4 below submission rates for journal articles / postprints have increased over the lifetime of the project.

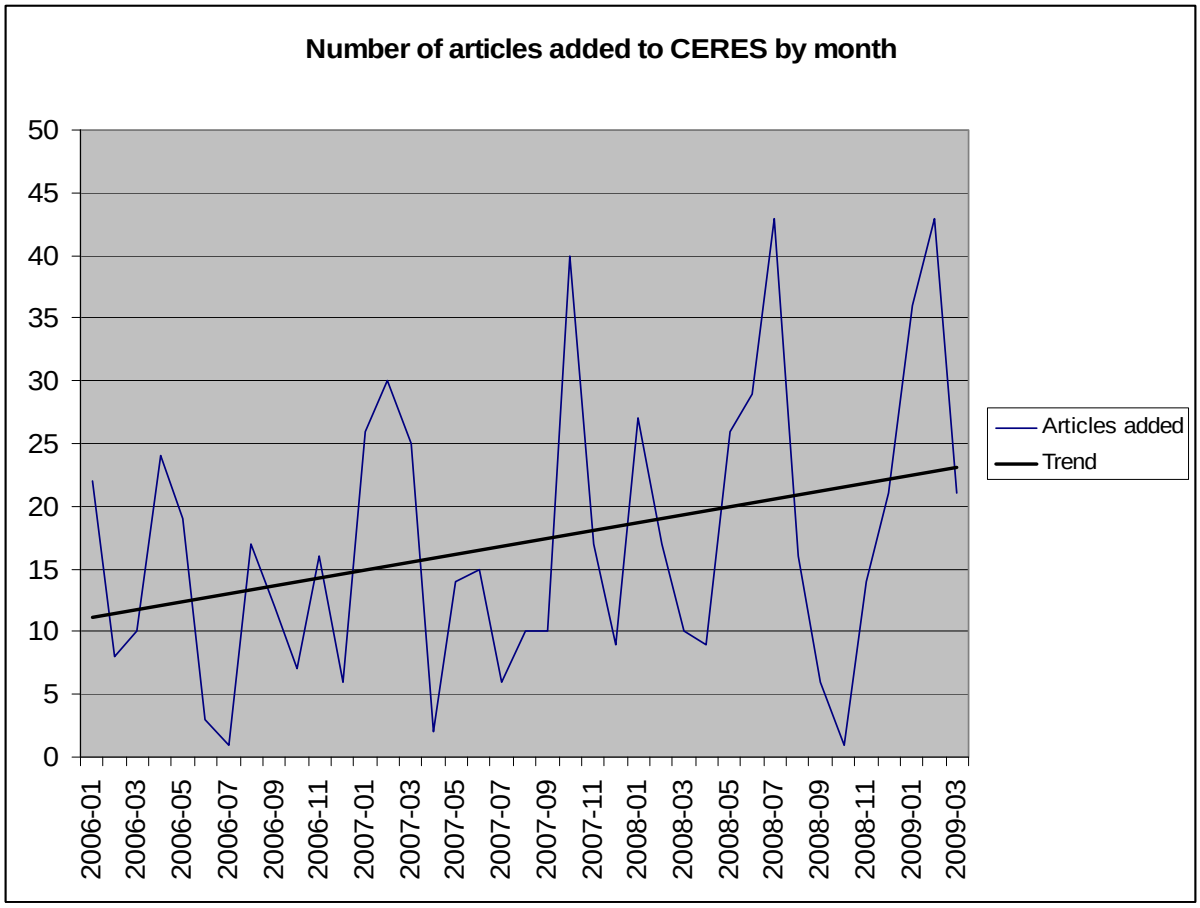



**Figure 4 Journal article submission rates**

The increase in the number of full-text journal article submissions, which was the main focus of our advocacy campaign, is encouraging:

- pre-Embed an average of 130 articles/postprints per year were added
- in 2007/2008, since the project has been running, an average of 210 articles/postprints per year has been added – an increase of over 60%
- in the first quarter of 2009, 100 articles/postprints have already been added– the projection is, therefore, that we will add 400 this year – a 300% increase over pre-project deposits

These figures might have been even more impressive had it not been for a number of factors which impacted on the rate at which they could be uploaded:

- we had to retrospectively add citation information to articles loaded previously;
- there was a tendency for academics, once engaged with IR to send in publication lists which then had to be checked and cleared, whereas previously individual papers were being sent through in response to requests generated by the alerts
- the capacity of the repository team to absorb this additional workload which is discussed further below. The troughs in submission rates shown in Figure 2 above coincide exactly with peaks in other work, most notably in Inter-Library Loan (ILL) request demand and the uploading of e-theses for which the University has mandate already in place. This clearly reveals the downside of the decision to graft the responsibility for CERES support on to the existing ILL team.

### 7.22 Increased submission at RGU

As stated in the Final User Study report, 'the quantity of content in OpenAIR has increased markedly during the course of the EMBED project' as shown in Figure 5 below. As with Cranfield, the imposition of a mandate for the submission of e-theses prior to the start of the project ensured the continued growth of this collection. The number of journal articles and representations of artworks which are now included in the repository is encouraging

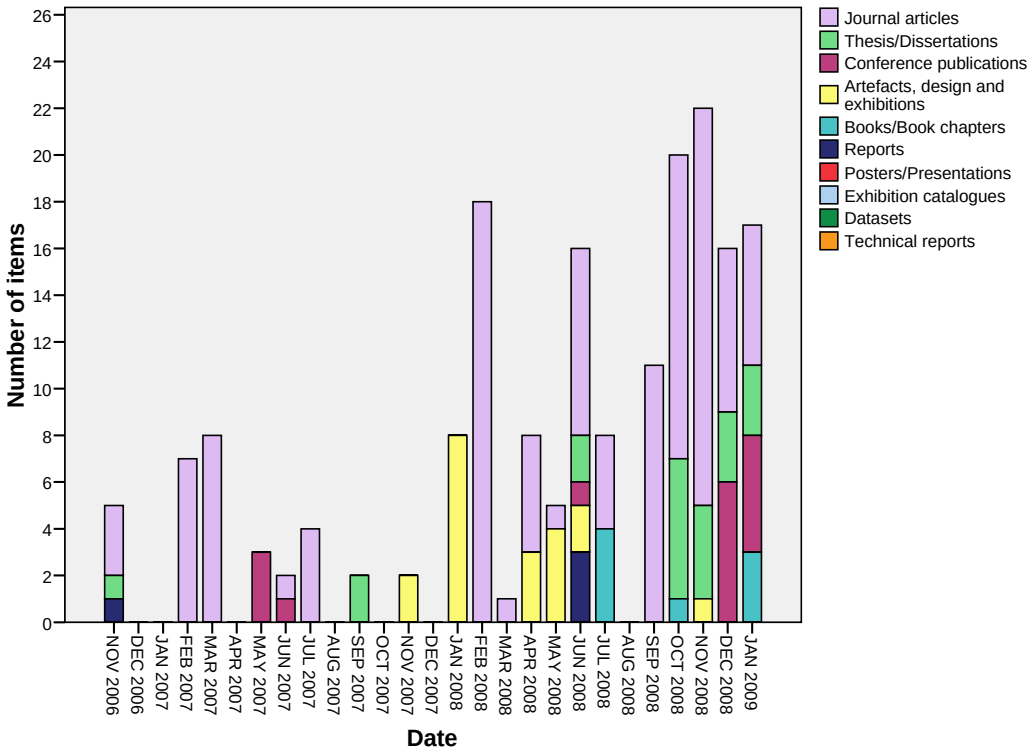



**Figure 5 Number of items archived in OpenAIR between November 2006 – January 2009**

### 7.23 Production of enhanced statistics at Cranfield

As part of the project, a dashboard for accessing detailed usage statistics has been developed. A full description of this work and the outcomes is contained in (appendix 3)

## 7.3 Sustainability

- *Investigate and test sustainable advocacy strategies appropriate to the cultures and stage of development of the IRs at the two institutions*

The final user evaluation has shown that awareness of the repositories has increased as a result of advocacy at both the partner institutions. Along with this raised awareness there has also been evidence of a long term change in attitude at Cranfield and structural changes at RGU have already been made to aid this process. Specific findings include:

### 7.31 Increased levels of awareness at Cranfield

A clear majority of researchers in both the test and control groups are more aware of the institution's repository than they were twelve months ago. The most effective factor – for both participant and control groups – has been advocacy by library staff (including activities such as seminars and one-to-one discussions). Perhaps the most encouraging finding in terms of increasing researchers' awareness of the repository is the high proportion of respondents in both groups who report "discussion with colleagues" as being effective. This gives substance to the belief that the combination of advocacy and general promotional campaigns seed the notion of the repository in researchers' minds, and that subsequently discussions between researchers themselves have an important impact

in promoting the repository. This "viral marketing" is far more powerful than promotion from afar. Advocacy produced in house which addresses key institutional drivers and takes account of prevailing cultures is likely to be more effective than merely quoting studies from outside.

**7.32 Increased levels of awareness at RGU**

In contrast to the broad-based approach adopted at Cranfield, RGU used a highly targeted strategy based on identifying would-be repository champions. The researchers who have been targeted either directly by Faculty Liaison Advisors or through their membership of the Research and Knowledge Transfer Committee and the Faculty Research Sub-Committees, are very familiar with the repository and with its current and potential benefits. Although the number of individuals involved is fairly small the final evaluation has identified a possible "silo effect". Those personally touched by the efforts that have been made by repository-related staff are well-informed and persuaded of its merits, while those researchers unconnected with the repository development process remain largely unaware of its role and how it might be relevant to them.

**7.33 Evidence of cultural change at Cranfield**

Some of the more notable changes in attitude and behaviour include:

- At the start of the project the repository was seen very much as a library activity but as a result particularly of the rebranding, the re-launch and the advocacy the repository has been successfully repositioned so that it is now genuinely viewed as a strategically important resource for the University and research communities. This is highlighted in a statement by the Vice-Chancellor, Professor John O'Reilly, in a recent article, *The RAE and beyond*, Perspectives, March/April 2009

  *Whatever the REF is like, it is important that we work now towards ensuring the best outcome for the future. For example, we could be thinking about where our research is published and work towards increasing its visibility and availability.*

  *The University is keen to support this and is strengthening its ability to manage research information, including through our outward-facing collection of research publications on CERES*

- In the final evaluation one head of department commented:

  "*I have asked all my faculty members to deposit. A major motivation is the prospect of enhancing citations as it is likely to affect our performance in the REF in 2013".*

  In the case of this particular department head this change in attitude followed one of the presentations conducted as part of the process of community building. Interestingly this was one of the first occasions during which the focus moved from a presentation on the benefits of submitting to the IR to a discussion on developing a joint strategy to increase their contribution to the IR. It also signalled the advent of a mandate imposed at departmental level.

- More members of Faculty are now linking to CERES from their personal web and departmental pages e.g. http://www.richardwilding.info/, we believe that this is a strong indicator of the beginnings of behavioural change
- Repository staff are now regularly invited to research committees, group and departmental meetings to discuss how the repository can benefit the work of the research communities and in particular how the repository can help to demonstrate the impact of outputs from their research.
- Repository staff are now working in partnership with research champions within the Schools to promote and develop the repository in support of the research agenda. An example of a joint briefing document can be found in (Appendix 5).

- In the final evaluation researchers were asked if they were now more likely to deposit their work. Most of the participants said they were more likely to do so and all of the control group.

The results indicate that most researchers involved in this study have, in fact, deposited their research outputs in CERES in the past 12 months.

- Along with the raised awareness and changing attitudes there has been an increase in expectations among researchers who are already beginning to make more demands particularly for more detailed statistics and are making unsolicited suggestions on how the design of the repository should be improved.

**7.34 Evidence of cultural change at RGU**

- RGU's repository has received senior management support. The "Institutional Repository" has become a standing item on the agenda of the Research and Knowledge Transfer Committee and the Faculty Research Sub-Committees, and has been discussed at the Research Degrees Committee. Continuing top-down support is essential.

- Continuing top-down support is essential. The final evaluation concluded that researchers at RGU have not yet detected a cultural shift within their institution with respect to the institution's repository. Even amongst those who have benefited from one-to-one advocacy and practical help, the process and benefits relating to the repository have not yet been internalised to any significant degree. There is still a strong dependency on assistance from Library staff who add cover sheets, etc. and upload material into the IR. This is not especially surprising; cultural change in any organisation is difficult to achieve, and it is perhaps more so in multi-faceted organisations like universities. It does, though, highlight the scale of the challenge ahead. The EMBED project has proved to be a valuable catalyst in effecting change with respect to the conceptual and practical aspects of making the repository an effective tool for individual researchers and their institution.

## 7.4 Submission system requirements

*Investigate system requirements for an effective submission process*

- One of the key findings of the EMBED project was that researchers dislike being asked and having to enter details of their research outputs into multiple systems – such as the repository, the department's database or website, the university's research assessment system.

- Perhaps the key outcome of the project has been the identification of the need to re-design Cranfield's information systems so that research outputs should only need to be entered once into a Current Research Information System (CRIS), after which it can be used for different purposes as required. Re-confirming the validity and importance of this approach to researchers was an important task of this final consultation process.

- Collection/publishing submission timescale requirements. The single submission system must be capable of collecting deposits at an early stage in the publication process, the optimum time appears to be when an item is accepted for publication. In terms of when this version is uploaded to the repository the project suggests there has been something of a shift in attitude. Initially the key driver appeared to be the ability to include an accurate citation and a link to the published paper. There seems to be growing recognition that early exposure in the repository especially when linked to an active dissemination strategy can provide valuable opportunities to demonstrate research impact. The system concept tested within the project addressed the need to acquire accepted copies and to store these until items may be uploaded.

## 7.5 System development and testing

*Develop and test a system concept amongst research communities at both institutions*

- The final evaluation confirmed support for the concept of re-positioning the repository within a CRIS, which is itself fully embedded within the working practices of the research communities. This strategy is advocated in preference to trying to develop the repository to perform functions for which it is not suitable given the current state of repository software

development. The underlying argument is that if the functions and processes relating to recording research information are correct, then the full-text content will naturally follow. The majority of respondents in the evaluation responded positively but it should be noted that researchers have not yet been able to see or try the proposed system, so the positive vote is for the concept of the CRIS rather than for the system itself.

- The system has to be capable of providing a reporting suite of bespoke statistics relating to both submission and usage. The project notes that as expectations grow there is demand for more information about who is downloading papers from the repository.

### 7.6 Impact on job roles

*Assess the impact of both the advocacy and proposed system concepts on existing job roles*

The work carried out under Embed and the proposals to enhance repositories, to stimulate an increase in submissions and to achieve sustainability required has had significant impact on the repository teams at both institutions.

#### 7.61 Impact at Cranfield

- Enhancement of the repository required additional work both to upgrade existing items, such as retrospective inclusion of citations on PDFs, and to add new functionality including Request Copy.
- The response of some academics to the awareness raising activities was to submit whole publication lists rather than individual items. This made it difficult for staff adding records to keep pace and as a result backlogs developed. Repository staff work on both document supply and CERES. It was noted that these backlogs lengthened when other work increased. This necessitated a need to increase the size of the team from two to three members.
- The advocacy also placed new demands on both the project team and other staff. The inclusion of CERES advocacy to the job roles of Information Specialists to assist with the community building will add more pressure to their existing workload.
- The community building phase of the advocacy plan has not been completed within the lifetime of the project. Training has been provided on request to several research communities who appear to be moving towards a hybrid service model in which records are created by local administrators and final uploading is undertaken by the repository team following copyright checks. Because this is still at a fairly early stage it is impossible to estimate the impact of this training and support overhead and, therefore, to make any definite conclusions on the relative sustainability of the hybrid versus mediated service model at Cranfield.
- The outcome of all of this additional workload was the need to form a new CERES Operations Group (COG) to replace the small team that had undertaken the original work to setup and develop the repository.
- Although the project has identified a set of guidelines for producing podstracts it is unlikely that this work could be handed over to the repository team based in the library. The planned expansion in the number to be recorded will depend on staff employed within the research communities themselves.

#### 7.62 Impact at RGU

- At RGU targets were developed for the library's Faculty Liaison Advisors: achieving an increase in the number of items deposited in RGU's institutional repository became an element of the annual employee review process during the 2008-2009 session. This action seeded a cultural shift amongst library staff such that the institution's repository is increasingly being seen as a key component of the university's information infrastructure.
- The one-to-one advocacy and mediated deposit approach adopted at RGU is very labour intensive and in some areas, for example art, the discussions have to be extensive to deal with issues such as image resolution, copyright and suitable metadata

## 8.0 Conclusions

The main conclusions from the project fall into two main areas: advocacy and awareness raising; submission system requirements.

## 8.1 Advocacy and awareness raising

The increase in submission rates together with changes in attitudes and perceptions at both institutions show that significant progress can be achieved through advocacy. On the basis of the User Requirement Study it was clear that the Project Team had to tackle the issue of awareness raising as an essential pre-requisite is for repository growth and development at both institutions. Different strategies were implemented and tested. The broad based approach adopted at Cranfield seems to have initiated a "viral marketing" effect which has moved the repository from being perceived as purely a library activity to something which is of fundamental importance to the institution. At RGU the strategy of targeting would-be champions including the library's own team of Faculty Liaison Advisors also seems to have paid dividends. The imposition of targets on the Faculty Liaison Advisors has helped to create real structural changes which help to embed the repository in the culture of the institution. However, this strategy does create the risk of a "silo effect" in which those individuals who aren't touched by the advocacy may remain outside of the repository community.

It is essential that advocacy is sustainable and is aligned with key institutional drivers. This presents both an opportunity and a challenge for repositories in a research driven environment as research agendas appear to be very much in a state of flux. This uncertainty is largely due to the evolving picture concerning the REF. There are clear opportunities in demonstrating the value of the repository in raising the visibility and impact of research outputs especially in support of outreach to non-scholarly communities including practitioners and decision makers.

The work conducted within the project on active dissemination, Request Copy and the development of podstracts could be repeated, tested and refined elsewhere.

Summary of conclusions:

- Sustained, targeted advocacy is a pre-requisite for raising awareness and changing perceptions
- Involvement of faculty liaison staff as part of the repository team might require changing existing job roles, and reinforcing this by setting targets via the normal professional development review. This is likely to embed structural and cultural change.
- Alignment of advocacy with changing key institutional and cultural drivers is important
- For research repositories the IR as a facilitator of research impact should be stressed in advocacy messages
- Active dissemination, Request Copy and the use of podstracts needs to be refined and further evaluated as useful tools for research impact

## 8.2 Submission system requirements

There is a need to provide a flexible submission system for capturing research outputs at an early stage in the publication process and to feed these items through to the repository for uploading and exposure at the most appropriate time in accordance with copyright policies and author preferences. The project has shown the need for a single submission system that avoids wasteful duplication of effort and can feed a whole variety of content through to multiple repositories both institutional and subject based and other dissemination outlets e.g. personal web pages, researcher profiles, departmental web pages. In the case of artworks and artefacts RGU identified a requirement for a core set of metadata for use within such a submission system.

The submission process will need to meet the requirements of many authors that both the metadata record and the full text file should contain full bibliographic details to enable accurate citations to be made. The use of cover sheets as adopted by RGU provides an effective solution which may address the concerns of authors over the aesthetics of accepted versions. In cases where there is a requirement to link to published versions of papers the inclusion of DOIs in the record is essential.

A requirement of the submission system is a reporting suite capable of providing a more sophisticated range of statistics than is currently available. During the lifetime of the project we have witnessed an increase in demand for figures which are tailored around the specific needs of individual research communities. One aspect of this is the request to demonstrate the link between deposit and citation

counts in different disciplines. Plus there seems to be a general plea for more information about who is using content from the repository.

A key conclusion of the project, therefore, is that repository software alone is unlikely to be capable of providing all of this functionality. The project developed and tested a concept for repositioning the repository within a Current Research Information System (CRIS) which is capable of bringing together data from multiple internal and external information systems. The purpose of the CRIS would be to facilitate more effective management throughout the research lifecycle from bid submission through to the provision of access to research outputs. The imposition of funder mandates is likely to have a considerable impact on the attitudes of authors to deposit. The advantage of the CRIS is that it would not only enable the acquisition of funder metadata but could also provide a mechanism for reporting details of submission back to funders.

Summary of conclusions:

- A flexible single submission system is required
- Research outputs need to be captured at an early stage in the publication process, although this may not coincide with simultaneous uploading to the repository
- More comprehensive statistics based on a thorough understanding of user requirements are needed
- The concept of repositioning the repository within a CRIS was endorsed in the final evaluation study

## 9.0 Implications

From the above conclusions the following areas have been identified for further consideration.

### 9.1 For the JISC repository community:

- A core set of metadata needs to be developed for artworks and artefacts
- Usage statistics need to be considerably improved to meet changing user requirements and to offer consistency
- Repository software cannot currently deliver the functionality required for single submission, seamless uploading to multiple repositories and web pages
- The submission system must be capable of dealing with demands for early capture and internal disclosure of research outputs. Depending on copyright policies and author preferences the uploading of these outputs and their external exposure through the IR and other repositories might happen at a later date and, therefore, the submission system must be sufficiently flexible to manage this process.
- Effective management is required throughout the research lifecycle. Standalone repositories are not in themselves designed to deliver this. Repositioning repositories as part of an integrated system needs further investigation to confirm the CRIS concept endorsed by participants in Embed.
- Embed has shown that it is possible to increase submission rates using a combination of effective advocacy strategies but without adequate staffing there is a risk of a mismatch between raising expectations and delivering the service. Repository teams must be sufficiently resourced to cope with increasing demand especially when operating in either a mediated or hybrid service model.

### 9.2 For the research community:

- It is likely that pressure will continue to grow on authors to make their work available to publicly accessible repositories as a result of a combination of internal and external drivers. These drivers are likely to include funder mandates and the responses made by institutions to the still evolving requirements of REF
- The repository must be recognised as an important tool for increasing the visibility of research outputs and there is an opportunity to demonstrate increased research impact by engaging with repository teams. The new active dissemination strategies tested at RGU and the

planned use of “podstracts” at Cranfield, and to a lesser extent at RGU, are examples of the sort of approaches that could be considered.

## 10.0 Recommendations (optional)

The project team has identified a number of areas which it would like to have explored further if the scope and timescale of the project would have allowed. These are included below as recommendations for further investigation:

- The inclusion of funder metadata to enable better management of the entire research lifecycle including reporting back to RCUK on deposits to “complete the loop”.
- The exploration with Manuscript Central of further collaboration to provide a solution to the availability of accepted versions.
- More reliable costings for alternative service models especially covering the migration from a largely mediated service model to a hybrid model in which administrators and other staff within the research communities are trained and supported.
- The production of a core set of metadata for artworks and artefacts.
- Refinement of a number of concepts tested within the project which relate specifically to impact including: podstracts; Request Copy; and a reporting suite of statistics.

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Names Project: Pilot national name and factual authority service, http://www.jisc.ac.uk/whatwedo/programmes/reppres/sharedservices/names.aspx
PEER (Publishing and the Ecology of European Research) Project, http://www.peerproject.eu/
Picton, M. (2008), NECTAR an introduction, available at: http://nectar.northampton.ac.uk/NECTAR_An_introduction.pdf
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Swan, A. (2007) What a difference a publisher makes" available at http://optimalscholarship.blogspot.com/2007_07_01_archive.html
SWORD initiaitve, http://www.ukoln.ac.uk/repositories/digirep/index/SWORD
VALREC project, http://valrec.eprints.org/
WRAP: Warwick research Archive Project, http://wrap.warwick.ac.uk/

# Appendix 1 - Advocacy Operations Plan

## Strategic

| Task | Brief Description | Dates | Critical Success Factors | Who will Do | Comments |
|---|---|---|---|---|---|
| Presentations to Research Committees SAS, SOE, Cranfield Health, SOM<br>• Identify Research Committee contacts<br>• Prepare and deliver presentation | Where we are now and where we're going | Completion date Summer 2008 | Make sure all 4 presentations take place | John and Mary | |
| Senior Management Team | Update re IR and need for buy-in and support | Completion date Summer 2008 | Get buy-in and support | Hazel | |
| Heads of Departments | Target those missed by other presentations | Completion date Summer 2008 | Get buy-in and support | John and Mary | |
| High Profile Re-launch (CMRI)<br>• Identify time, date and confirm venue<br>• Plan programme<br>• Organise refreshments<br>• Record – Breeze?<br>• Talk to Susan re OPENAIR@RGU launch<br>• Invite speakers<br>• Identify target audience<br>• Agree budget<br>• Promotional items<br>• Pre and post publicity | Gathering of great and good external and internal. Endorsed by Andy Neely and JISC | April 12-19 2008 Goddesses Festival Day | New brand and identity established. – CERES (Cranfield E Research) | QUEprints team with support from Marketing Group and Embed PMT | |

## Face-to-Face (Community Building)

| Task | Brief Description | Dates | Critical Success Factors | Who will Do | Comments |
|---|---|---|---|---|---|
| Agree with Lynne Hewings that we can target people used for RD Hub | Talk to Lynne | 19th November, 2008 | Lynne supports | John and Mary | |
| Liaison with University IT Departments<br><br>Liaison with School IT Departments | Raise via LIB IT<br><br>Talk to web development teams about adding podcasts etc to Group and Research websites | Early 2008<br><br>Early 2008 | Obtain support for necessary development<br><br>Podcasts and linkages added to the sites and ongoing support agreed | Hazel, Simon and John<br><br>Mary/ Simon/John SOM SAS/SOE/Cranfield Health | |
| Liaison with Departmental Administrators | Bring CERES team on-board.<br><br>Train CERES team<br><br>Building network of repository support workers – awareness raising and engagement with the mediated service. (Phase 1) Identify champions and encourage to take on work, provide training, devise training materials (Phase 2) | By 21 December, 2008<br><br>End January, 2008<br><br>Earliest April 2008<br><br>From October 2008 | CERES team agree to take on the role<br><br>CERES team up to speed<br><br>Administrators give support<br><br>Administrators start to archive | John<br><br>Sharon<br><br>CERES team<br><br>CERES team | Will need workflow to support Phase 2 |
| Liaison with Researchers | Sell service associated | Ongoing | More people contributing | CERES team | Meet new authors |

| | | | | | |
|---|---|---|---|---|---|
| | with the repository to individuals – relate to individual needs and priorities. More systematic and effective | | papers voluntarily<br><br>Greater awareness of the repository | Information Specialists<br><br>John | Part of academic liaison. Agenda item for next Info Services Meeting |

## Promotional Literature (Electronic and Print)

| Task | Brief Description | Dates | Critical Success Factors | Who will Do | Comments |
|---|---|---|---|---|---|
| Posters and Postcards | Drip feed "the message" | Early 2008 | More enquiries about the repository Greater awareness of the repository | CERES team | Possibly with ILLs? May need to target more specifically |
| Perspectives / School Newsletters | Milestones and major events<br><br>Perspectives Article to coincide with 2000th item being added. Possibly School Newsletters too? | From early 2008<br><br>March 2008<br><br>March 2008 | Increased awareness<br><br>Increased awareness | PMT<br><br>Simon<br><br>Mary, John, Hazel | 2000th item when?? |
| E-mail signatures | Add in reference to supporting research | From now? | Increased awareness | CERES team Mary | |
| Annual report | Make sure message reflects current situation and promotes project | Now! | Increased awareness | Mary to talk to Heather | |
| MOTD | Milestones and major events | From early 2008 | Increased awareness | CERES team Mary and John | |
| Blog | CERES changes, Subject and National repositories. Funder mandates. RAE successor – what's happening | From early 2008 | People signing up to it | Paul to set-up<br><br>CERES team<br><br>Embed PMT contributions<br><br>Researchers and academics | |
| Library website | Constantly | From early | People | Paul to set-up | |

| | | | | | |
|---|---|---|---|---|---|
| | changing message. "Click here to see most downloaded item this week" | 2008 | accessing and clicking through | and generate | |
| Training session | Resource discovery Copyright Where to publish Dissemination strategy | Summer 2008 | Attendance and follow-up | John and Mary and Heather | |

**Promotion (Dissemination) – External**

| Task | Brief Description | Dates | Critical Success Factors | Who will Do | Comments |
|---|---|---|---|---|---|
| Building links – CERES relating to the external repository environment | Possible links to other repositories, databases (AERADE) etc | From after launch of CERES | Usage and visits | Paul | |
| Conferences/Seminars | Promote Embed/CERES | Ongoing | Attendance | Embed Partners | |
| Journal articles | Promote Embed/CERES | Ongoing | Articles accepted for publication | Embed Partners | |
| Flyers/postcards | Send out with ILL external requests | From after launch | More visits | CERES team | |
| Working with partner institutions | Linking and promoting their repositories and getting them to promote ours | Ongoing | Reciprocal links | Embed partners | |
| Links with regional development agencies e.g. EEDA | Getting them to link to CERES | After launch | Number of external organisations linking | Business Information Specialists | |
| Developing relationships with other JISC projects | Working through RSP and networking to exchange ideas, experience etc | Ongoing | Reciprocal benefits. Well represented in final JISC evaluation report. | Embed partners | |

# Appendix 2 - DSpace Request Copy facility

A Request Copy automated facility was originally developed for DSpace - following the development of one for Eprints - at the University of Minho and the code released by Eloy Rodrigues in April 2006.

The purpose of this facility is "to increase both the content deposited in Institutional Repositories (Is) and its immediate usability by providing a way to accommodate the (frequently unfounded) worries of authors and their institutions about copyright infringement during any publisher embargo periods on public self-archiving, by creating a semi-automated mechanism whereby would-be users can request and authors can email an individual copy of a full-text"[2].

The add-on was originally developed and tested for DSpace 1.3.2, with the observation from the developers that it "is not guaranteed that it will work on previous or subsequent versions of DSpace."

A version was developed later for the DSpace 1.4.x branch. However, attempts to install this at Cranfield on DSpace 1.4.2 were not successful – having followed the installation documentation, we found that DSpace simply wouldn't compile.

Investigation showed that the add-on was using earlier versions of two Java servlets that had been substantially revised between DSpace 1.4.0 and DSpace 1.4.2. This caused the team some concerns about:

- The general level of support for the add-on
- The level of usage of the add-on (we found only one email referring to this issue in the email technical lists)
- DSpace upgrade problems in the future

For these reasons, we decided to develop a 'Request Copy Lite' facility for use at Cranfield.

Embargoes/restricted items are managed in a system, within the library intranet, which uses an Excel spreadsheet to store data about embargoed items linked to the full-text documents which are held in a local filestore.

The spreadsheet employs a series of forms and macros which enable staff to enter metadata for the restricted item and to generate a Request Copy html form. The metadata can then be copied and pasted into the regular DSpace submission forms and the Request Copy html form uploaded into the repository in place of the restricted/embargoed full-text.

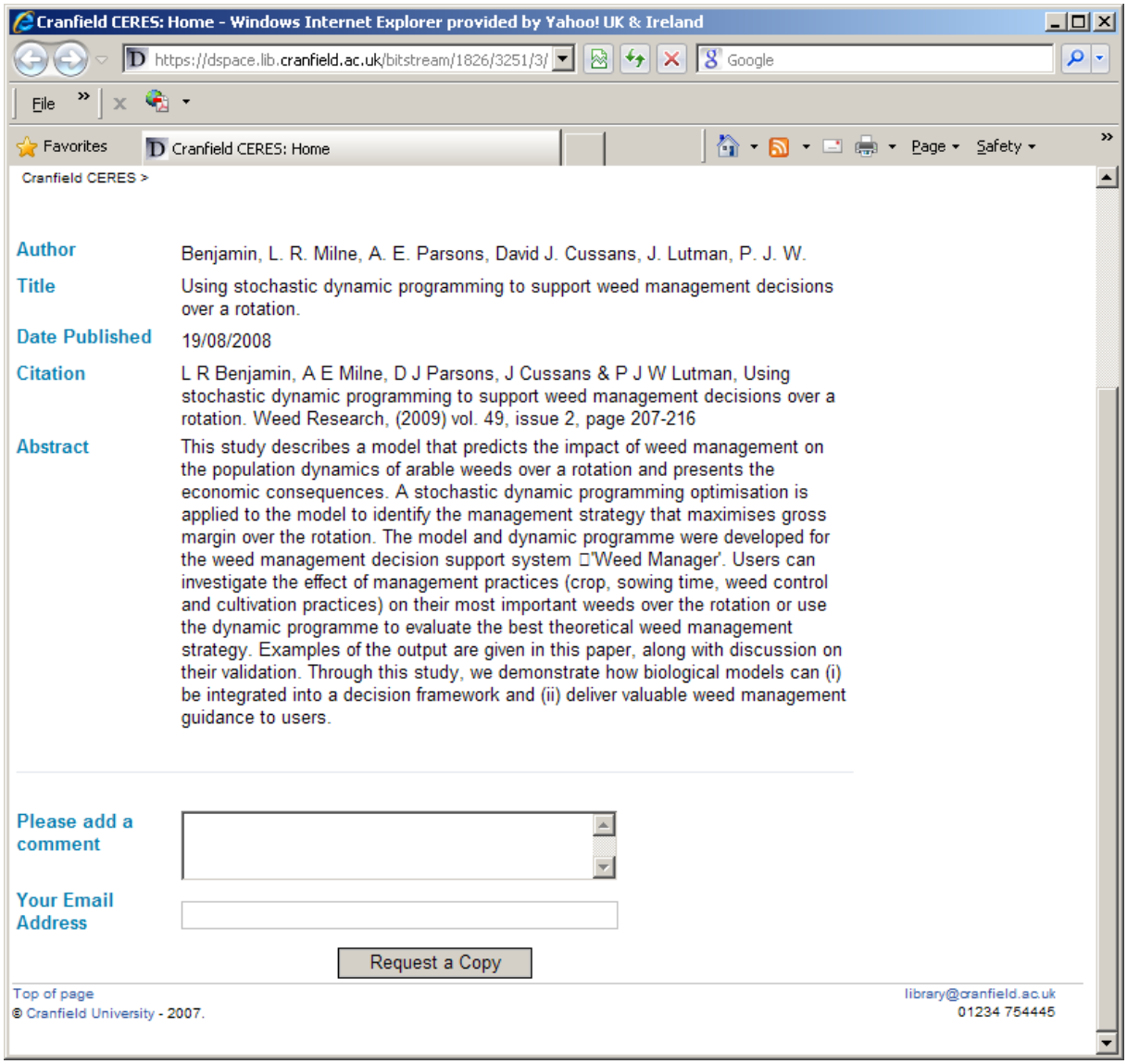
When a user discovers the item and clicks on the 'view/open' link, the Request Copy form loads into the browser enabling the user to send an email to the author (or designee) requesting a copy of the full-text. (See figure, below).

Once the embargo/restriction period for an item has ended the full-text document can be uploaded to replace the Request Copy form.

Though the system is relatively crude in implementation at the moment, going into the future, we are intending to integrate the Request Copy facility into MS Sharepoint, which the university has recently adopted for the institution-wide intranet.

As and when local resources permit, the aim is to develop a Sharepoint web-part which will manage the Request Copy facility and automatically deposit the record and Request Copy form into the repository via SWORD. Once the embargo period has ended, again SWORD will be used to automatically replace the Request Copy form with the actual full-text document(s).

[2] http://wiki.dspace.org/index.php//RequestCopy


Cranfield CERES: Home - Windows Internet Explorer provided by Yahoo! UK & Ireland
https://dspace.lib.cranfield.ac.uk/bitstream/1826/3251/3/
Google
File
Favorites
Cranfield CERES: Home
Page
Safety
Cranfield CERES >
Author
Benjamin, L. R. Milne, A. E. Parsons, David J. Cussans, J. Lutman, P. J. W.
Title
Using stochastic dynamic programming to support weed management decisions over a rotation.
Date Published
19/08/2008
Citation
L R Benjamin, A E Milne, D J Parsons, J Cussans & P J W Lutman, Using stochastic dynamic programming to support weed management decisions over a rotation. Weed Research, (2009) vol. 49, issue 2, page 207-216
Abstract
This study describes a model that predicts the impact of weed management on the population dynamics of arable weeds over a rotation and presents the economic consequences. A stochastic dynamic programming optimisation is applied to the model to identify the management strategy that maximises gross margin over the rotation. The model and dynamic programme were developed for the weed management decision support system □'Weed Manager'. Users can investigate the effect of management practices (crop, sowing time, weed control and cultivation practices) on their most important weeds over the rotation or use the dynamic programme to evaluate the best theoretical weed management strategy. Examples of the output are given in this paper, along with discussion on their validation. Through this study, we demonstrate how biological models can (i) be integrated into a decision framework and (ii) deliver valuable weed management guidance to users.
Please add a comment
Your Email Address
Request a Copy
Top of page
© Cranfield University - 2007.
library@cranfield.ac.uk
01234 754445

# Appendix 3 - Statistics developments for Cranfield CERES

Before the Embed Project began, researchers at Cranfield - those that were aware of the existence of the repository - displayed little or no interest in usage statistics from the repository. Repository administrators simply relied on the DSpace statistics available 'out-of-the-box'. On a monthly basis, these statistics offer:

- an overview of items archived
- the overall number of views of items, collections, communities, searches performed, etc.
- a summary of the number of items per content type in the repository
- a summary of the number of views by item

The information provided was of some use to repository administrators, offering confirmation that the repository was growing in terms of the number of items deposited, and that item views and file downloads were increasing over time.

As the work of the Embed team began to bear fruits, through advocacy combined with rebranding and repositioning of the repository as an institutional resource, Cranfield researchers – and their heads of department - started to show much more interest in usage of items in the repository.

The two main reporting requirements that emerged were the desire for statistics pertaining to:

- individual authors
- and collections

At that point, it was immediately apparent that the out-of-the-box statistics would not suffice, so the Embed team began to look at alternatives, including:

- Google Analytics
- IRStats
- Minho statistics add-on for DSpace

While each of these alternatives has its merits, again, none of them has the ability to provide the required author- and collection-specific statistics. Consequently, we decided to develop our own statistics sub-system.

As our in-house Java skills are rather limited, we opted to use a mixture of Perl and PHP scripts underpinned by a MySQL database.

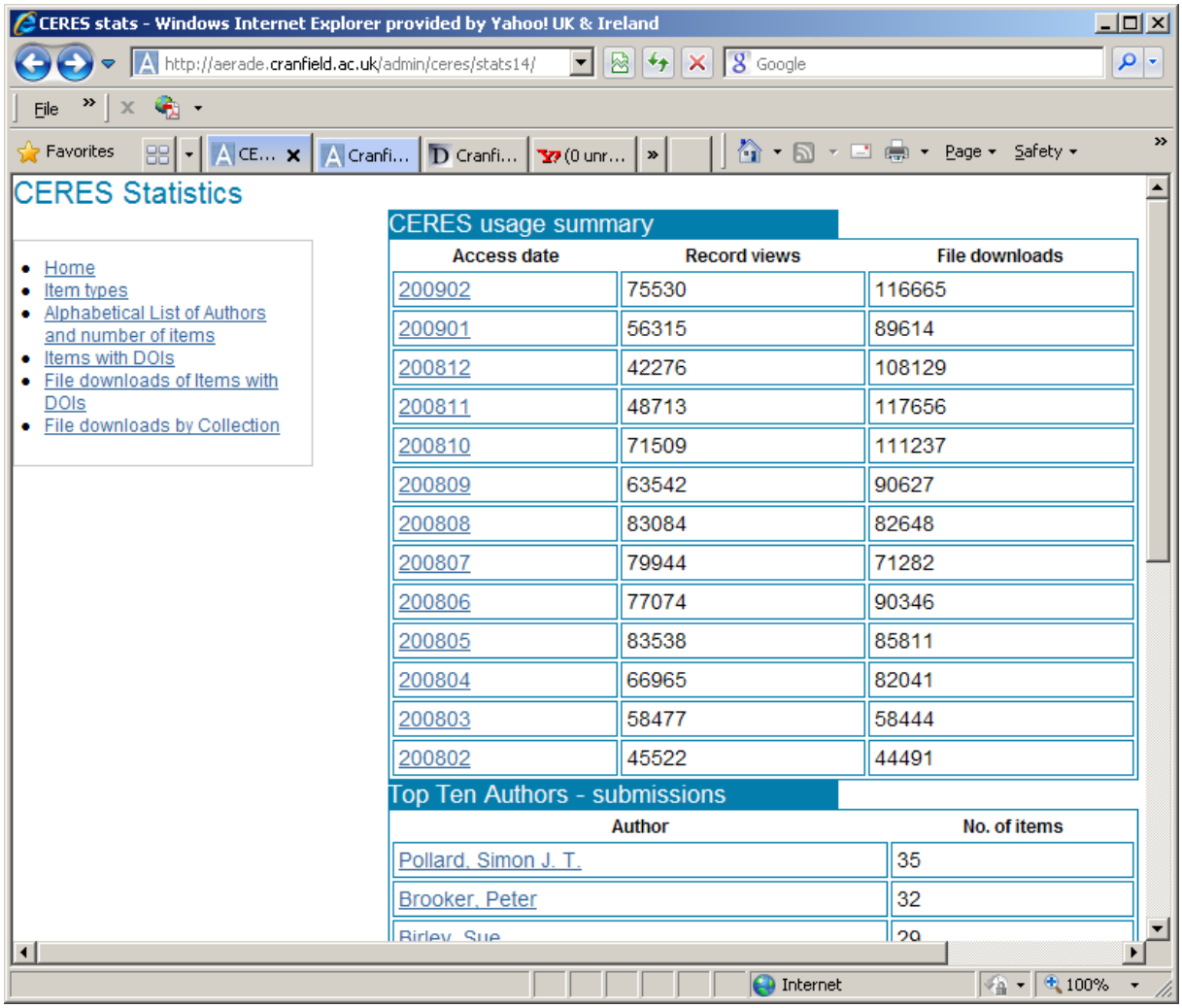
At the beginning of each month a Perl script:

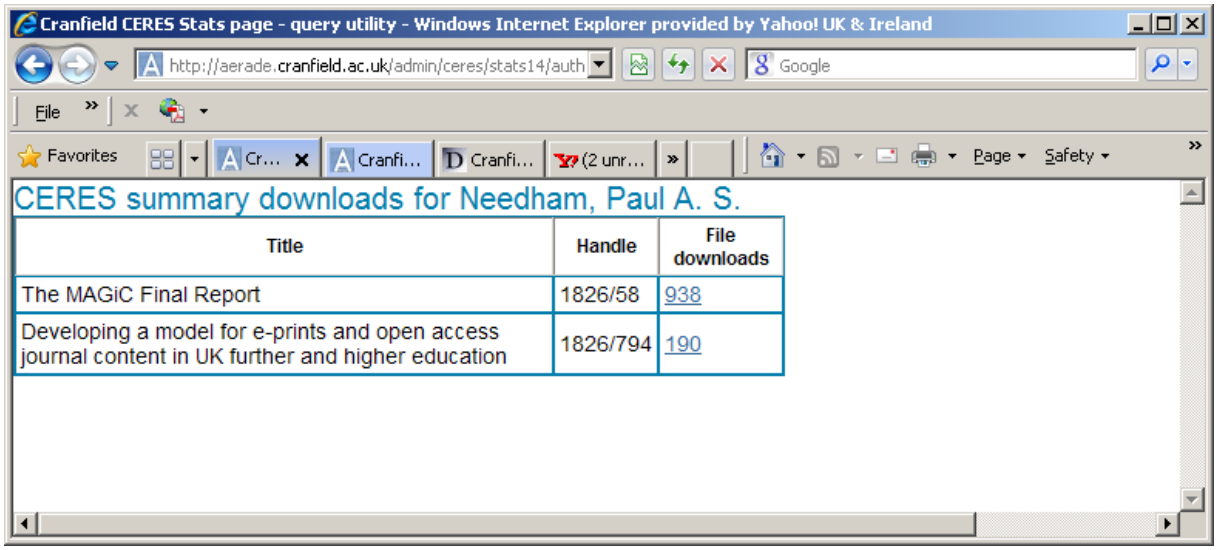
- trawls through the DSpace logs extracting entries for the preceding month pertaining to item (record) views and bitstream views (file downloads)
- Queries the DSpace database to relate bitstream ids to handles
- Writes detailed and summary entries for the month to tables in a MySQL database

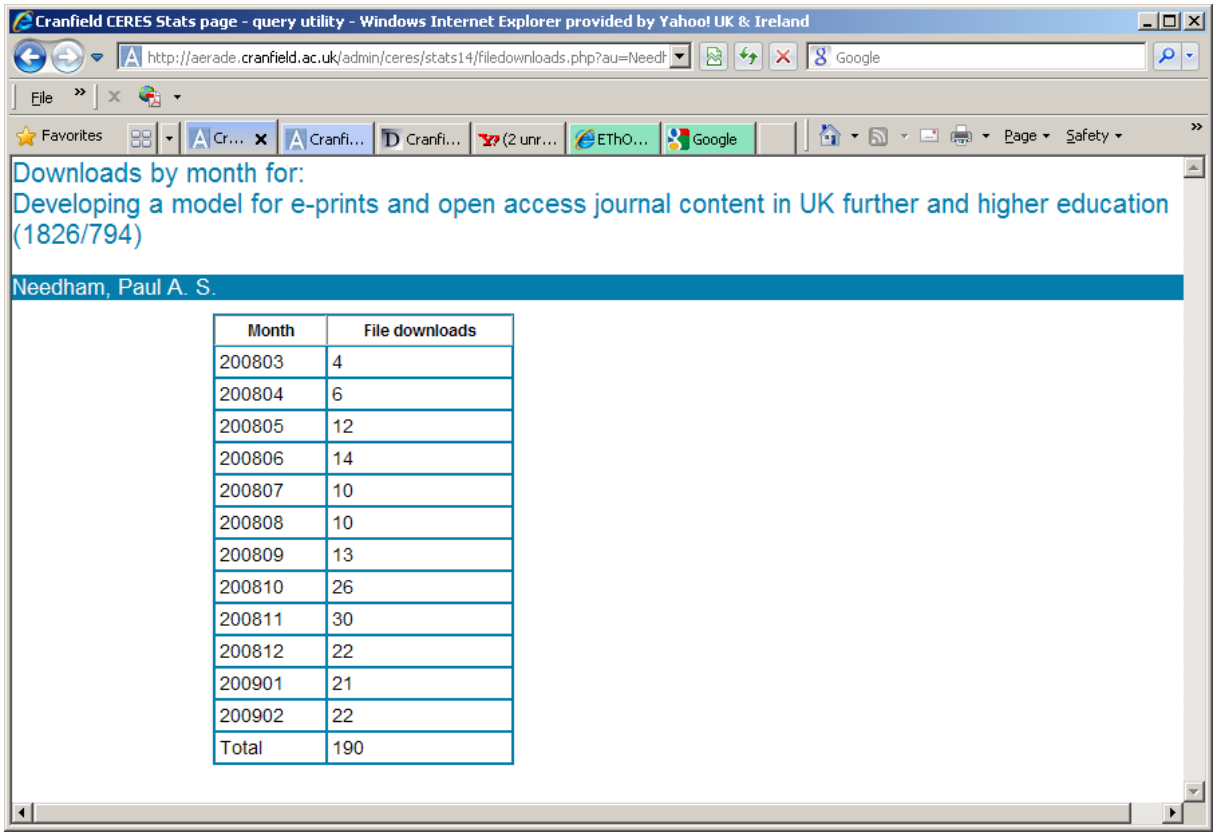
As and when required, repository administrators can view a range of statistics in a web interface powered by PHP. Each script queries both the MySQL and the DSpace databases allowing for more detailed and wider ranging statistics than the packages noted above – including, of course, the all-important author and collection level statistics! The screenshots below give a flavour of some of the outputs available. Scripts are still under development and we are gradually increasing the number of views into the data as needs are identified. Also, we have started developing scripts that output statistics as RSS feeds allowing them to be easily embedded in other websites, as appropriate.

Recently, we have begun to investigate and test a new branch of these statistics that are COUNTER-compliant - in line with the finding of the recently issued PIRUS Final Report[3] - both for Journal Articles and other item types.

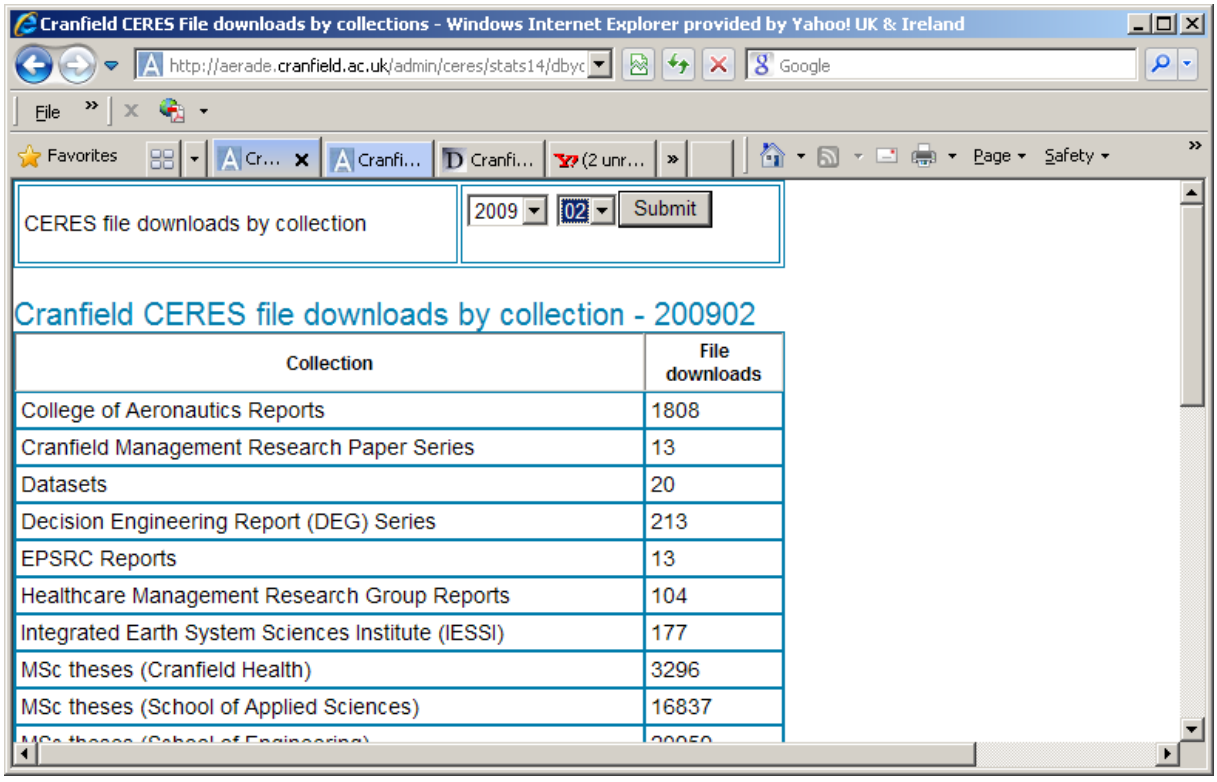
[3] The PIRUS Final Report and Appendices, as well as more information on PIRUS, are available from http://www.jisc.ac.uk/whatwedo/programmes/pals3/pirus.aspx


CERES stats - Windows Internet Explorer provided by Yahoo! UK & Ireland
http://aerade.cranfield.ac.uk/admin/ceres/stats14/
CERES Statistics
Home
Item types
Alphabetical List of Authors and number of items
Items with DOIs
File downloads of Items with DOIs
File downloads by Collection
CERES usage summary
Access date | Record views | File downloads
200902 | 75530 | 116665
200901 | 56315 | 89614
200812 | 42276 | 108129
200811 | 48713 | 117656
200810 | 71509 | 111237
200809 | 63542 | 90627
200808 | 83084 | 82648
200807 | 79944 | 71282
200806 | 77074 | 90346
200805 | 83538 | 85811
200804 | 66965 | 82041
200803 | 58477 | 58444
200802 | 45522 | 44491
Top Ten Authors - submissions
Author | No. of items
Pollard, Simon J. T. | 35
Brooker, Peter | 32
Internet
100%


Cranfield CERES Stats page - query utility - Windows Internet Explorer provided by Yahoo! UK & Ireland
http://aerade.cranfield.ac.uk/admin/ceres/stats14/auth
CERES summary downloads for Needham, Paul A. S.
Title | Handle | File downloads
The MAGiC Final Report | 1826/58 | 938
Developing a model for e-prints and open access journal content in UK further and higher education | 1826/794 | 190




| Month | File downloads |
|---|---|
| 200803 | 4 |
| 200804 | 6 |
| 200805 | 12 |
| 200806 | 14 |
| 200807 | 10 |
| 200808 | 10 |
| 200809 | 13 |
| 200810 | 26 |
| 200811 | 30 |
| 200812 | 22 |
| 200901 | 21 |
| 200902 | 22 |
| Total | 190 |




| Collection | File downloads |
|---|---|
| College of Aeronautics Reports | 1808 |
| Cranfield Management Research Paper Series | 13 |
| Datasets | 20 |
| Decision Engineering Report (DEG) Series | 213 |
| EPSRC Reports | 13 |
| Healthcare Management Research Group Reports | 104 |
| Integrated Earth System Sciences Institute (IESSI) | 177 |
| MSc theses (Cranfield Health) | 3296 |
| MSc theses (School of Applied Sciences) | 16837 |

# Appendix 4 - Reflections and Lessons from Making Audio and Video Interviews

**By Steve Macaulay, Learning Development Executive and Andrew Kirchner, Research Information Executive, Cranfield School of Management**

Over the last nine months, we have carried out some 30 podcast interviews with faculty at Cranfield. I had no prior experience in this area. Carrying these out has provided some useful lessons to pass on elsewhere.

**Setting up the interview**

It takes some time to set up the podcast interview. The first stage is to talk through with a faculty member: the purpose of the interview, how it will be conducted and any concerns they might have. I remind them that I will not ask questions to catch them out and they have control over the final output.

Preparation is needed on where the interview will be conducted. The location of the interview is normally in the individual's office or somewhere where the individual can feel relaxed. This needs to be free of unobtrusive noise, so if it is in a busy area with many interruptions and doors banging, for example, you should move to a quieter spot or a different time. Encourage the individual to turn off and divert any phones, mobiles and also the sound on their computer. The next stage is to settle on a particular article and a copy obtained. The interviewer then needs to read through the article and to formulate some questions.

**Immediately before the interview**

Make sure you are familiar with the recorder, it is switched on and is recording. Allow an hour for the recording process.

**Questions**

Based on experience so far it is possible to formulate some standardised areas which could apply to all interviews, though tailoring questions is highly desirable:

Introduction. Saying who you are, who you represent, and who you are in discussion with, plus the name of the article.

General background. Why was the article published, what is the background to the research? You may also wish to include the credentials of the individual interviewee.

Key points. The next question you could ask is what are the key points of the article?

Lessons, practical applications or implications. You may wish to ask in what context and what lessons from the ideas from article can be applied within a practical setting, with illustrations and learnings from any application.

Future research. Next, you might ask, where the future direction of the research is leading and if there are any areas for further exploration.

The interviews should last between 10 and 20 minutes, since for most purposes any longer would not hold your audience.

Go through the questions again with the interviewee before the interview and give the interviewee time to think through and make notes on what their response will be. If you choose to re-record something because of a mistake, audio editing is relatively straightforward.

**To script or not?**

My experience so far is that most interviewees do not prefer to script, and will probably not be prepared to put the time in to do so, preferring to make notes and do some thinking beforehand. This also has the benefit of spontaneity. A scripted interview may be useful if there is a highly factual or detailed content to the article.

**Capturing Sound and Video**

We have used three pieces of equipment to produce sound and video content from the faculty interviews: an Apple MacBook Pro, Zoom H4 digital voice recorder and a Canon camcorder. It should be noted that the audio route is simpler once the process is mastered, than video editing which requires much more time. Typical timescales for the various preparation/production stages are given in the table below.

The Apple MacBook Pro comes complete with sound editing software called GarageBand, which is the preferred route to make audio files suitable for iTunes. The interviews have been recorded using the Zoom H4 recorder, a neat bit of kit that fits into the palm of your hand and records direct to a 2GB SD card using the built in stereo microphone.

The sound quality even at the compressed mp3 setting is very good and the recorder can hold over 30 hours of recordings at this setting (more than enough for our purposes!). During the interviews we have found that it is very important to find a very quiet room as even the slightest sound is picked up on the recorder (even a slightly wobbly table and the recorder will amplify the vibration and make the recording not very useable!)

Its then a simple case of transferring the file onto the Apple MacBook Pro and using GarageBand to produce the audio file, using mp4a/AAC compression which is the format that iTunes uses. You can embed pictures and hyperlinks in this mp4a format and when playing in iTunes this is then visible in the bottom left hand corner, just like any artwork when you download a song from iTunes. GarageBand also offers several hundred jingles that you can freely use to start your audio track. Once you have made a number of recordings and plan to produce them at regular intervals, you have in effect created a podcast channel ready to be distributed via several channels, such as iTunes

Editing audio using GarageBand is very straightforward and any person new to Macs will remark how intuitive it is to use (I definitely have). The final production can also be converted from mp4a to mp3 via iTunes itself.

So for the audio interviews we have made available the recording in mp4a and mp3 formats and also provided a full transcript of the interview as a pdf file. This is to make the material DDA compliant. We outsourced

As far a video is concerned, we have used a Canon camcorder. Again using the Apple MacBook Pro and the included iMovie software have produced a number of video interviews. Video editing is much more computer intensive, so the Mac with an Intel Core Duo processor and 2GB of RAM has really come into its own. If you were doing this on a PC and if it was reasonably up to date, a package such as Adobe Premiere Elements would suffice (the latest v4 can be had for around £50).

Filming using one camera both the interviewee and interviewee can be quite challenging and its best to employ two people and ideally two cameras. However, if you have only one camera, you can either pause and switch camera angles at the end of each question/response or better still film the interview just focused on the speaker and then interviewer can be filmed just asking the questions and this can then be slotted in as appropriate in the editing phase. Again external sounds are very likely to be picked up, so the best place would be a dedicated sound-proofed room. All mobile phones need to be switched off and even the whirl of the fan of a neighbouring computer/laptop can easily spoil the proceedings.

The video interviews that we have produced have subsequently been converted to Flash as this is now a common standard on the Web.

| **Task** | **Duration** |
|---|---|
| Familiarisation with Apple Mac | 2 days |
| Template production for audio podcasts | 1 day |
| ***per interview*** | |
| Preparation for interview | 2 hrs |
| Interview setup | 15 mins |
| Interview | 30-45 mins |
| Audio editing/production/testing | 1 hour |
| Video editing/production/testing | 3-4 hours |

**Typical timescales encountered in production of audio/video interviews**

# Appendix 5 - Guidance on Use of CERES to Increase Bibliographic Count for REF

## Guidance Note 4

### Guidance on Use of CERES to Increase Bibliographic Count for REF

### 1. Introduction

This communication is designed to give you a step-by-step guide of how to get your publications onto CERES, Cranfield's Collection of E-RESearch. The document starts with a short introduction as to why this is important to you and Cranfield. The main driver at the moment is HEFCE's new arrangements for assessing and funding University research. The new arrangements - the Research Excellence Framework (REF) – will be introduced after the 2008 Research Assessment Exercise.

### 2. Introduction to REF

You will now all be aware of the results of the 2008 RAE exercise. For the next assessment of University research RAE is to be replaced by the "Research Excellence Framework (REF)". Currently, HEFCE are committed to full implementation of the REF in 2013 and of using it to determine funding from 2014.

Although the details of this have not yet been finalized there are a number of changes that have been proposed and are likely to be implemented. These include:

1. That all staff may have to be included with details taken from the HESA database

2. That all publications over an as yet undefined timescale may be assessed

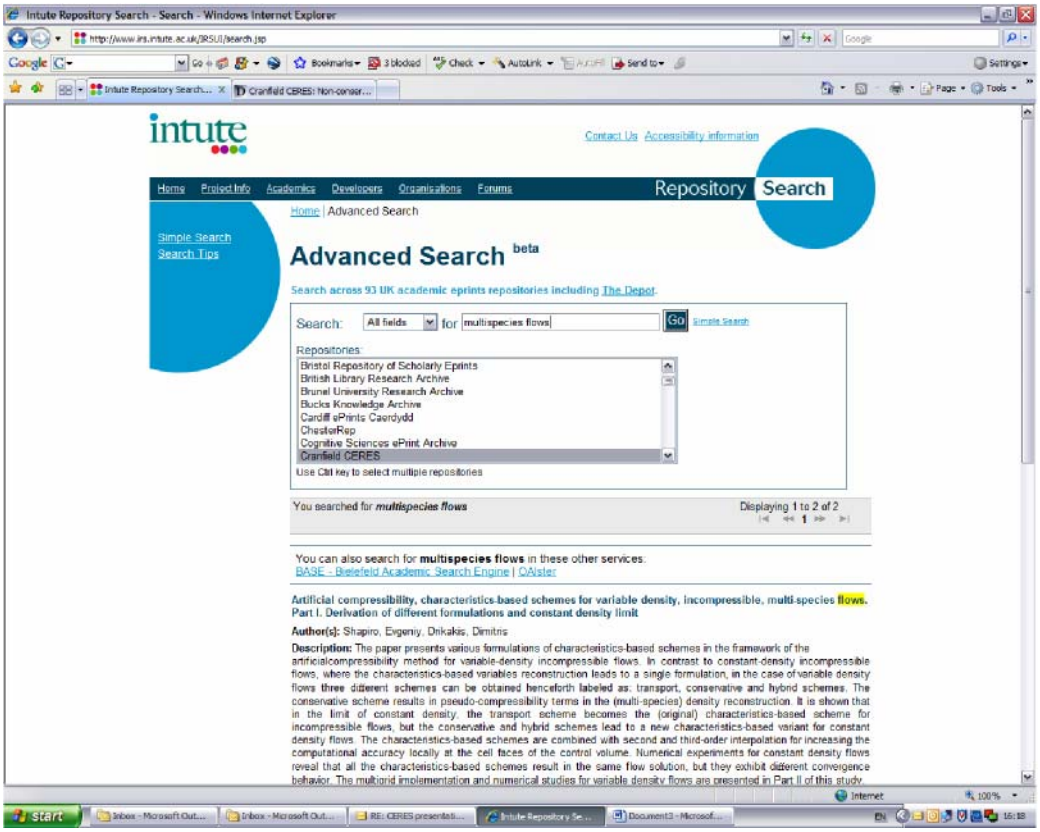
3. The introduction of bibliometric data, i.e. citation indices …how often a piece of research output is cited by other researchers…to be used in the evaluation of the research outputs. Currently HEFCE are using citations to publications since 2001 in their pilot exercise.

It is this last item that we are addressing in this communication. The databases currently being trialed by HEFCE for the bibliometric information are SCOPUS (http://www.scopus.com/scopus/home.url) and/or ISI Thompson Web of Knowledge (http://wok.mimas.ac.uk). As we work in engineering/applied science subjects we know that citations can take several years to get going and we need to use all available techniques to improve are chances of being cited.

### 3. Why CERES?

The key to increasing our citations is to get our work easily accessible and therefore easy to cite by other workers. This is where CERES can help. CERES increases the visibility of your work because it is specifically configured to assist the worldwide discovery of Cranfield authored publications by internet search engines such as Google as well as a new breed of services specifically designed to harvest scholarly collections e.g. Google Scholar, Intute cross-search, and the European wide Driver. It provides links to the published versions of

journal papers, or to the accepted version for those researchers who are unable to access these because they belong to institutions which don't subscribe to the journals - opening your work to an even wider audience.




## 4. How can I get my work into CERES?

You have all been sent our Show Your True Colours postcard size flyers advertising CERES and this communication is to explain to you how to get your papers on the repository and therefore more readily citable!

Getting your work into CERES is easy. The CERES team will:

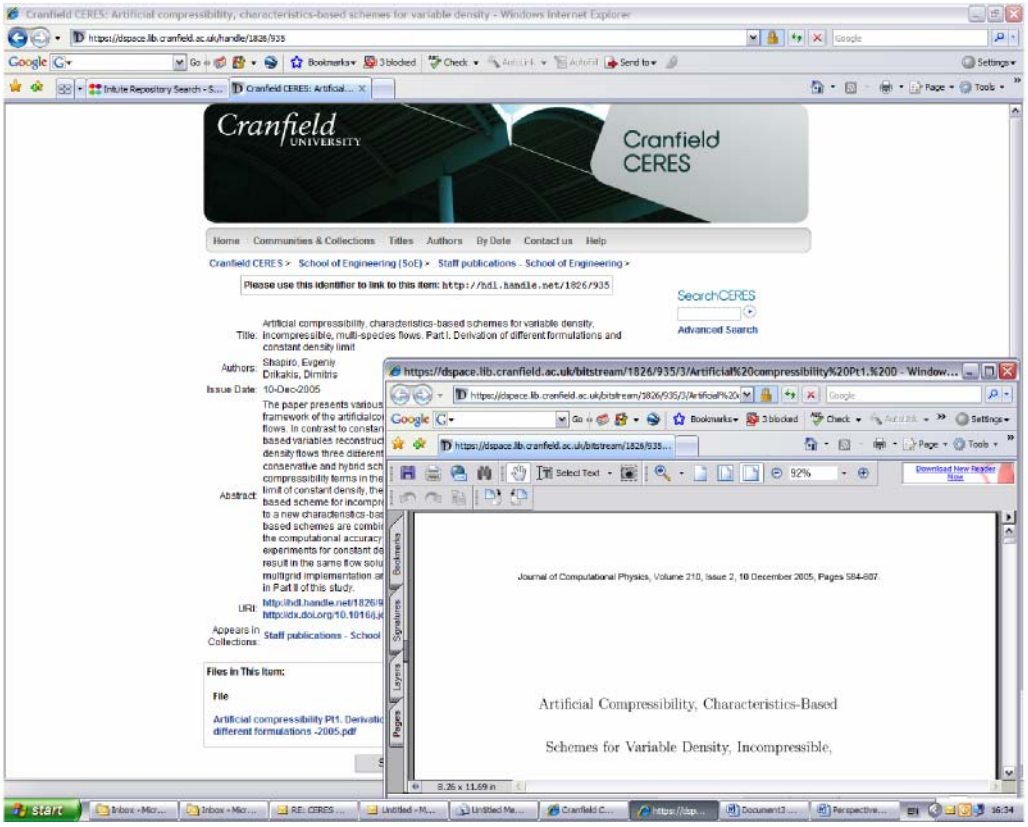
- check and clear copyright
- create a record with the full citation and link to the published version of the paper
- add an accepted/post-refereed final draft version for immediate downloading

All you need to do is send to cranfieldceres@cranfield.ac.uk:

- the full citation for each paper or your publications list
- the accepted/post-refereed draft version in a PDF or word format

Please note that in most cases owing to copyright restrictions we are unable to load the published version.

Alternatively we can train and support you or your team to add your own papers.




## 5. When Should I start?

We do not yet know what time period that REF will use to look at papers. However, we should assume at the moment that all publications since 2001 could be used for bibliometric purposes.

In essence we need to be publishing in good quality journals from NOW and putting these papers onto CERES as well as ensuring that papers already published get put into the repository.

Please contact the CERES team today - cranfieldceres@cranfield.ac.uk

Ralph Tatam &
John Harrington
18 December 2008



https://dspace.org/

# The Embed Project: Final Report

**Harrington, John; Betts-Gray, Mary**

**2009-03-31**
Cranfield University
http://hdl.handle.net/1826/3344
John Harrington and Mary Betts-Gray, The Embed Project: Final Report, March 2009

Downloaded from a DSpace repository. https://dspace.org/