



RepoMMan Project

Deliverable R-D3

Report on research user requirements on-line survey

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The RepoMMan Project

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Introduction

The RepoMMan Project Plan requires the development of a front-end interface to the Fedora repository software for use by researchers working on their own behalf or collaboratively. Clearly, before work on such an interface can progress very far it was necessary that the development team understand what it is to "do research" in the academic sense.

Methodology

The work is being informed by a two-pronged investigation of research methods. The first approach was to interview a small number of University of Hull researchers at length about their working practices, the second approach was to ask similar questions of a wider (inter)national audience using an on-line survey. From the data thus collected generalised scenarios and use cases can be developed. This document focuses on the on-line survey. The data from the interviews is to be found in another project document and findings from both methodologies will be brought together in a further document at a later date.

The survey

The on-line survey was conducted during October and early November 2005. For the first two weeks of that time the survey was advertised only to staff at the University of Hull; following this period an announcement was made of the survey through a number of JISC mailing lists, on the project website and at a relevant conference at the National Library of Wales. In total 229 valid responses were received, 59 from the University of Hull and 170 from elsewhere. A very small number of facetious responses were removed from the data before processing.

The questions used in the on-line survey, and the approach used, are discussed in project report R-D1 "Criteria and toolkit for on-line user survey". Only the main text of each question will be repeated here.

Responses

Prior to the first question proper, respondents were asked to identify their general location and subject area.

	All	Hull	Other
England	78.6%	100.0%	71.2%
Scotland	13.5%	0.0%	18.2%
Wales	4.8%	0.0%	6.5%
N Ireland	0.0%	0.0%	0.0%
European Union	0.9%	0.0%	1.2%
USA/Can	0.9%	0.0%	1.2%
Australasia	0.9%	0.0%	1.2%
Other	0.0%	0.0%	0.0%

96.9% of all responses were from the United Kingdom (though with a response from Northern Ireland notably absent). If the numbers from Hull are removed then 95.9% of all other respondents are from the UK.

	All	Hull	Other
Arts	12.7%	11.9%	12.9%
Maths and Computing	11.4%	18.6%	8.8%
Sciences	17.0%	23.7%	14.7%
Health and Medicine	17.5%	8.5%	20.6%
Social Sciences and Law	22.3%	27.1%	20.6%
Education	15.3%	5.1%	18.8%
Business and Management	3.9%	5.1%	3.5%

Overall there was a good spread of respondents across the subject groupings that we offered with only the Business and Management category having a much weaker response than the others. In the Hull analysis neither Health and Medicine nor Education have a particularly high response; whilst the University is involved in both these areas staff perhaps see themselves as practitioners rather than researchers. Hull's mathematics department were strong contributors in contrast to mathematicians elsewhere.

Whilst not of direct relevance to the project data it is interesting to note that, although they were invited to respond anonymously, 88.2% of respondents supplied an e-mail address so that their replies could be followed up if we chose. It is not unlikely that their decisions were also influenced by the possibility of winning the prize draw!

Question 1

When you are developing a piece of research, do you ever share your 'work-in-progress' for comment and/or collaboration?

	All	Hull	Other
Yes	88.6%	86.4%	89.4%
No	11.4%	13.6%	10.6%

As might, perhaps, have been expected the vast majority of researchers share their works-in-progress and researchers at Hull follow the general pattern.

Those who answered 'yes' were asked three follow-up questions:

Who do you share your work-in-progress with?

	All	Hull	Other
Departmental colleagues	90.6%	86.3%	92.1%
Wider University colleagues	35.0%	41.2%	32.9%
Contacts in other UK education centres	54.7%	58.8%	53.3%
Contacts in other UK organisations (non-education)	20.2%	17.6%	21.1%
A UK research funding agency	9.9%	13.7%	8.6%
Contacts in education centres overseas	30.5%	31.4%	30.3%
Contacts in other overseas organisations (non-education)	6.9%	7.8%	6.6%
A non-UK research funding agency	3.0%	3.9%	2.6%
Other	2.0%	3.9%	1.3%

As with many of the questions in this survey the responses were not exclusive so that it was possible to choose one or more of them. Thus the total response in any of the three columns can exceed 100%.

The figures are generally consistent between Hull and other universities. Almost all the researchers surveyed share their works-in-progress with departmental colleagues and somewhat over half of them share with colleagues in other UK universities. Almost one third of respondents share works-in-progress with colleagues in universities overseas. As suggested by one of our research interviewees, funding agencies do not seem to figure largely in the development of a piece of work but it is interesting that Hull's researchers seem to have rather more contact with them than elsewhere.

The few respondents who invoked the 'other' category generally made mention of commercial clients.

What methods do you use to share your 'work-in-progress'?

	All	Hull	Other
E-mail	94.6%	100.0%	92.8%
Website	13.8%	13.7%	13.8%
By post	22.2%	35.3%	17.8%
By hand	37.9%	43.1%	36.2%
Other	4.4%	2.0%	5.3%

Almost all those who shared works-in-progress did so by e-mail with the traditional postal system coming well behind. Sharing documents by hand was also relatively popular - a fact probably accounted for by those who still prefer to annotate on a piece of paper rather than on a computer screen. Some 13% of respondents publish works-in-progress, clearly distinct from finished research, on a website.

Those who responded in the 'other' category mentioned 'talking' - either face-to-face or by telephone, meetings of one sort or another (including seminars and conferences), and internet tools such as MSN Messenger.

The University of Hull's researchers fit into the general pattern but make significantly more use of the post and sharing 'by hand' than those elsewhere.

How do your colleagues comment or collaborate on the work?

	All	Hull	Other
In a separate document	49.3%	54.9%	47.4%
In the same document, simply by inserting text	56.7%	64.7%	53.9%
In the same document using some sort of automated collaboration feature (eg Word 'track changes')	69.5%	72.5%	68.4%
Other	0.0%	0.0%	0.0%

All methods offered were used by a significant number of people. Over two-thirds of respondents had colleagues and/or contacts who used some form of automated collaboration feature.

Question 2

Keeping track of the latest version of your research document must be important whether or not you share it with others. How do you manage version control?

	All	Hull	Other
I don't	7.0%	3.4%	8.2%
I rely entirely on the computer's file system date	10.5%	8.5%	11.2%
I put the date of each version in the filename	37.1%	35.6%	37.6%
I put the number of each version in the filename	43.2%	49.2%	41.2%
I put some other 'tag' in the filename	23.6%	20.3%	24.7%
Other	10.9%	15.3%	9.4%

"I don't" was an exclusive response, the rest were not although the response 'I rely entirely on the computer's file system date' effectively excludes the rest. The importance of these responses lies not so much in the individual percentages but in the fact that the large majority of researchers, over 80%, do operate some sort of conscious version control. Many of those who answered 'other' described valid version control mechanisms with version control software being mentioned several times. The responses from the University of Hull fit the general pattern described.

Question 3

Your research 'works-in-progress' will be stored in one or more places during the period that you are developing them. Which of the following are places that you might normally store working versions (as distinct from backups)?

	All	Hull	Other
My home desktop computer	48.9%	44.1%	50.6%
My office computer's hard drive	58.1%	61.0%	57.1%
My laptop computer	48.0%	57.6%	44.7%
A university network drive	54.1%	40.7%	58.8%
On CD or DVD	28.4%	30.5%	27.6%
On floppy disk	11.4%	15.3%	10.0%
On a solid-state USB storage device*	28.4%	28.8%	28.2%
On an external disk drive*	4.4%	3.4%	4.7%
Other	10.0%	8.5%	10.6%

The results of this question demonstrate quite clearly that researchers expect to be able to access their work from more than one place; given the figures, there has to be overlap between the first four categories and this is analysed further below.

The categories marked '*' were not given in the survey options but appeared frequently as part of a comment under 'other' places. Accordingly they were removed from the 'other' count and dealt with separately. The popularity of USB solid-state devices for storage is notable. Of the remaining 'other' answers 'paper' was mentioned a number of times as were e-mail attachments, web storage and storage within virtual learning or research environments.

Respondents were offered the choice of four more-or-less conventional computer storage systems in the survey: a home computer, a laptop computer, their office computer hard-drive and some form of university network storage - presumably accessed from their office computer. As noted above there turned out to be considerable duplication of the storage methods used and so further analysis was undertaken, the better to understand this.

	All	Hull	Other
Home & laptop	3.5%	5.1%	2.9%
Office & laptop	6.6%	8.5%	5.9%
Home & office	7.9%	6.8%	8.2%
Office & network	7.9%	5.1%	8.8%
Home & network	5.7%	1.7%	7.1%
Laptop & network	9.6%	10.2%	9.4%
Home & office & laptop	7.4%	8.5%	7.1%
Home & office & network	7.4%	5.1%	8.2%
Office & laptop & network	4.4%	5.1%	4.1%
Home & office & laptop & network	7.9%	10.2%	7.1%
<i>Total</i>	<i>68.1%</i>	<i>66.1%</i>	<i>68.8%</i>

All possible combinations of multiple computer storage system were counted in an exclusive way. As can be seen from the totals at the bottom of the columns, approximately two-thirds of our respondents choose to keep their work on more than one computer system, of which number almost half used three or four. The implication would seem to be that researchers like great flexibility in where they can work; the wording of the question attempted specifically to exclude storage for backup purposes.

It might be tempting to try and read something into the variations between the figures for Hull and for other universities in this table. This would actually be unwise because at this level of analysis a single researcher response in the Hull column accounts for some 1.7% in which case the variations are not as great as they might seem.

Question 4

To help us understand the type(s) of file that you store as parts of your 'works-in-progress' please drag each of these cards to the appropriate category heading.

Each of the cards identified a category of file, for instance 'document files', and gave examples of the file types that the heading might cover, Thus for document files the examples were '.doc .rtf/rtfd .pdf .xsd .ps'. Dragging the card assigned it to one of the exclusive categories 'frequently', 'sometimes', 'rarely' or 'never'.

Document files (for example .doc .rtf/rtfd .pdf .xsd .ps)

	All	Hull	Other
Frequently	93.0%	94.9%	92.4%
Sometimes	4.8%	3.4%	5.3%
Rarely	0.4%	0.0%	0.6%
Never	1.7%	1.7%	1.8%

The frequency with which document files are stored will come as no surprise. What is a little curious is that there were apparently serious responses in the 'rarely' and 'never' categories.

Image files (for example .jpg/jpeg .gif .png .psd .tif/tiff .eps)

	All	Hull	Other
Frequently	20.1%	23.7%	18.8%
Sometimes	35.4%	35.6%	35.3%
Rarely	30.1%	25.4%	31.8%
Never	14.4%	15.3%	14.1%

Audio files (for example .wav .mp3 .aac)

	All	Hull	Other
Frequently	4.8%	5.1%	4.7%
Sometimes	10.5%	10.2%	10.6%
Rarely	24.5%	27.1%	23.5%
Never	60.3%	57.6%	61.2%

Video files (for example .wmv .avi .rm .mpg (and its variants))

	All	Hull	Other
Frequently	0.0%	0.0%	0.0%
Sometimes	7.4%	16.9%	4.1%
Rarely	30.6%	25.4%	32.4%
Never	62.0%	57.6%	63.5%

The storage of video files seems significantly more common at the University of Hull than elsewhere.

Spreadsheet files (for example .xls .xsc)

	All	Hull	Other
Frequently	38.4%	35.6%	39.4%
Sometimes	34.1%	35.6%	33.5%
Rarely	12.7%	13.6%	12.4%
Never	14.8%	15.3%	14.7%

Statistics files (for example from a package like SPSS)

	All	Hull	Other
Frequently	25.3%	23.7%	25.9%
Sometimes	22.3%	22.0%	22.4%
Rarely	18.3%	27.1%	15.3%
Never	34.1%	27.1%	36.5%

Diagrams or CAD (for example from packages such as Visio or AutoCAD)

	All	Hull	Other
Frequently	5.2%	8.5%	4.1%
Sometimes	15.3%	13.6%	15.9%
Rarely	18.3%	16.9%	18.8%
Never	61.1%	61.0%	61.2%

Database files (for example SQL, MySQL, Oracle or Access files)

	All	Hull	Other
Frequently	10.9%	6.8%	12.4%
Sometimes	24.9%	27.1%	24.1%
Rarely	21.8%	15.3%	24.1%
Never	42.4%	50.8%	39.4%

Presentation files (for example PowerPoint files)

	All	Hull	Other
Frequently	41.5%	28.8%	45.9%
Sometimes	44.1%	61.0%	38.2%
Rarely	10.5%	6.8%	11.8%
Never	3.9%	3.4%	4.1%

It seems curious that researchers at the University of Hull should not store presentation files nearly as 'frequently' as researchers elsewhere. However the pattern seems less anomalous if the total of 'frequently' and 'sometimes' is conflated in each column:

	All	Hull	Other
Frequently or sometimes	85.6%	89.8%	84.1%
Rarely	10.5%	6.8%	11.8%
Never	3.9%	3.4%	4.1%

Web pages

	All	Hull	Other
Frequently	27.5%	23.7%	28.8%
Sometimes	32.8%	28.8%	34.1%
Rarely	18.8%	13.6%	20.6%
Never	21.0%	33.9%	16.5%

Simple text files (this would include .txt and .XML files, for example)

	All	Hull	Other
Frequently	27.9%	27.1%	28.2%
Sometimes	24.9%	27.1%	24.1%
Rarely	23.6%	15.3%	26.5%
Never	23.6%	30.5%	21.2%

Archive formats (for example Zip or Stuffit files)

	All	Hull	Other
Frequently	8.7%	10.2%	8.2%
Sometimes	24.5%	27.1%	23.5%
Rarely	29.3%	28.8%	29.4%
Never	37.6%	33.9%	38.8%

Specialist text formats (for example from LaTeX)

	All	Hull	Other
Frequently	6.1%	10.2%	4.7%
Sometimes	3.1%	1.7%	3.5%
Rarely	4.4%	3.4%	4.7%
Never	86.5%	84.7%	87.1%

Other

	All	Hull	Other
Frequently	3.5%	5.1%	2.9%
Sometimes	1.7%	0.0%	2.4%
Rarely	9.6%	13.6%	8.2%
Never	84.7%	81.4%	85.9%

Respondents who replied anything other than 'never' with this last card were asked to explain. Amongst the responses were 'source code files (.cpp, .m)' and other less specific references to source code, 'ArcMAP - GIS data', 'bioinformatics files such as sequence files', and '.ical and e-mail (.mbox)'.

The responses give an idea of the wide range of file types that a repository might be asked to deal with if it is to be part of a researcher's working practice as opposed to providing for them a static repository of completed research outputs. Many of the files mentioned are proprietary formats and this could pose serious problems for a long-term preservation strategy. Except where noted above, the use of files at Hull is not significantly different from that elsewhere and in responses where this, at first sight, seems to be the case conflating two adjacent rows of the table removes the apparent anomaly.

Question 5***Do you keep your own backups of 'work-in-progress' files and, if so, where?***

	All	Hull	Other
I don't	6.1%	5.1%	6.5%
On the same computer and drive as the original	29.7%	35.6%	27.6%
On a different drive (internal or external) on the same computer as the original	28.4%	40.7%	24.1%
On another computer	36.7%	50.8%	31.8%
On a network drive	34.9%	27.1%	37.6%
CD/DVD	34.9%	37.3%	34.1%
USB stick or other memory card	51.5%	64.4%	47.1%
Floppy disk	12.2%	13.6%	11.8%
Other	5.7%	3.4%	6.5%

"I don't" was an exclusive response, the rest were not. The fact that well over 90% of our respondents clearly take backup seriously is encouraging. The number of respondents keeping backup on the same drive as the original may at first seem alarming but further analysis of the figures reveals that only two respondents in total use this as their only backup.

Responses in the 'other' category uncovered the use of e-mail servers for backup (as mail attachments), saving in Virtual Research Environments, departmental backup systems and, of course, paper.

Question 6

Where do you make your completed research works available to others?

	All	Hull	Other
Books	39.7%	33.9%	39.4%
Scholarly journals	82.2%	83.1%	77.1%
Open-access journals	23.7%	18.6%	24.1%
A subject-based website at national or international level	14.6%	6.8%	16.5%
My Institution's main website	12.3%	5.1%	14.1%
My Institution's digital repository	7.3%	1.7%	8.8%
My Department's website	29.2%	22.0%	30.0%
My personal, non-institutional, website	15.5%	15.3%	14.7%
My project website*	2.7%	5.1%	1.8%
Other	7.8%	13.6%	5.3%

The response marked '*' - 'My project website' was not on the list given in the survey but appeared so often in the 'other' category that this data has been separated out.

Perhaps the most remarkable response here is from the researcher at Hull who has apparently discovered a Digital Repository that the RepoMMan team know nothing about! Slightly surprising, too, the three respondents from Hull who claim to publish on the University's main website. This may well be explained by the fact that the University's departmental sites are available *through* the main website and now appear in an identical format to it.

The number of researchers with access to a digital repository at their institution is apparently as yet small.

Responses in the 'other' category included presentations at conferences and/or seminars, publication on national but non-subject-specific websites and publication on CD-ROM.

Question 7

Where do you keep your personal copies of completed research works?

	All	Hull	Other
I don't keep a copy once the research is published	1.3%	1.7%	1.2%
I keep a paper copy	23.2%	35.6%	18.2%
My home computer	42.9%	47.5%	40.0%
My laptop computer	33.0%	39.0%	30.0%
My office computer	53.1%	59.3%	49.4%
The university network	35.3%	28.8%	36.5%
CD or DVD	36.6%	44.1%	32.9%
USB or other solid-state memory	26.8%	30.5%	24.7%
Floppy disk	9.4%	11.9%	8.2%
External drive*	2.7%	3.4%	2.4%
Other	1.8%	1.7%	1.8%

The response marked '*' - 'External drive' was not on the list given in the survey but appeared so often in the 'other' category that this data has been separated out.

Of some note are the large number of Hull staff who keep paper copies of their finished research as compared with staff elsewhere and perhaps the fact that Hull staff are more likely to have digital copies 'off-computer' than researchers elsewhere.

Responses in the 'other' category included storage on the web, as a mail attachment and in a VLE team space.

Question 8

Do you keep backups of your completed research works in addition to the completed versions that we dealt with in the last question?

	All	Hull	Other
Yes	56.1%	61.0%	54.1%
No	43.9%	39.0%	45.3%

The number of respondents who do not apparently keep backups of their completed work may seem high. However, consideration of the responses to question 7 reveals that most researchers must keep multiple copies of the work and perhaps feel that they do not need a 'formal' backup as well.

Question 9

Who, from the following, owns the copyright to one or more of your research outputs over the last few years?

	All	Hull	Other
I don't know	26.4%	25.4%	26.5%
My publisher(s)	49.3%	57.6%	45.9%
My grant provider	16.7%	11.9%	18.2%
My institution*	11.9%	5.1%	14.1%
I do	37.4%	37.3%	37.1%
Other	4.0%	3.4%	4.1%

The answer "I don't know" was exclusive of all the other responses.

*Due to an error at the proof-reading stage, the response 'My institution' was missed from the list available to respondents in the survey. The figures given here have been extracted from the 'other' category. It is unclear how much this omission accounts for the low figure here.

Given the somewhat confused responses from the University of Hull researchers that were interviewed as part of this project, it is refreshing to see the honesty expressed by the "don't know". Our understanding of the IPR and copyright position in UK universities suggests that the majority of the 37% of respondents who thought that they owned the copyright in their research outputs are probably wrong. Further analysis of the figures reveals that 9.7% of all respondents answered "I do" only, the remaining 27.7% combined "I do" with another response suggesting, perhaps, that a number of respondents felt that there was some form of joint ownership. Hull researchers seem rather more likely to acknowledge the probable copyright position of their publishers.

Question 10

In general, either because of explicit contractual agreements or because of 'understandings', do you believe that you would be free to publish versions of your research outputs through an institutional website or repository?

	All	Hull	Other
Yes	55.9%	60.3%	54.4%
No	23.8%	22.4%	24.3%
Sometimes	20.3%	17.2%	21.3%

It is impossible to determine whether these figures reflect reality. It is our feeling that many of the 'yes' responses should probably be in one of the two other categories and that the figures, as given, demonstrate the confused understanding of copyright and IPR in UK further and higher education.

Question 11

During a research project, do you have your own collection of digital research material gathered from people and sources elsewhere?

	All	Hull	Other
Yes	70.3%	71.2%	70.0%
No	29.7%	28.8%	30.0%

The number of 'no' responses is higher than we would have anticipated. Those who answered 'yes' were asked three follow up questions. On this occasion, researchers were not given check boxes, rather space for free-form answers so that they could explain their responses in as much detail as they wished. The following tables have been extracted from these open answers; the percentages are of those who answered 'yes' and not of the whole sample.

What sort of digital research material do you gather?

	All	Hull	Other
Documents	73.2%	76.3%	72.1%
Images	16.2%	15.8%	16.3%
Datasets	22.5%	23.7%	22.1%
Audiovisual material	11.3%	10.5%	11.5%
Software	5.6%	7.9%	4.8%

Whilst we expected a significant response in the first three categories, the response under 'audiovisual material' is higher than we might have predicted. Analysis of the actual free-form responses reveals that this material is generally audio or video recordings of interviews that have taken place during the research.

Where do you store this research material?

In designing the survey we could have offered here the same list of check-box responses that was used in question 3. We chose not to do this in order that respondents had the opportunity to reply in a more flexible and unconstrained manner. In the event, the same list of responses emerged but with the addition of 'paper':

All	Hull	Other
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My home computer	25.9%	26.3%	25.7%
My office computer	53.8%	57.9%	52.4%
My laptop computer	22.4%	23.7%	21.9%
A university network drive	24.5%	15.8%	27.6%
On CD or DVD	8.4%	13.2%	6.7%
On floppy disk	1.4%	5.3%	0.0%
On a solid-state USB storage device	9.8%	7.9%	10.5%
On an external disk drive	3.5%	5.3%	2.9%
On paper	4.2%	10.5%	1.9%
Other	7.7%	0.0%	10.5%

What is perhaps most interesting about these figures is shown by contrasting this data for research materials against the figures obtained in question 3 for the research work itself.

	Research material			Research paper		
	All	Hull	Other	All	Hull	Other
My home computer	25.9%	26.3%	25.7%	48.9%	44.1%	50.6%
My office computer	53.8%	57.9%	52.4%	58.1%	61.0%	57.1%
My laptop computer	22.4%	23.7%	21.9%	48.0%	57.6%	44.7%
A university network drive	24.5%	15.8%	27.6%	54.1%	40.7%	58.8%
On CD or DVD	8.4%	13.2%	6.7%	28.4%	30.5%	27.6%
On floppy disk	1.4%	5.3%	0.0%	11.4%	15.3%	10.0%
On a solid-state USB storage device	9.8%	7.9%	10.5%	28.4%	28.8%	28.2%
On an external disk drive	3.5%	5.3%	2.9%	4.4%	3.4%	4.7%
On paper	4.2%	10.5%	1.9%			
Other	7.7%	0.0%	10.5%	10.0%	8.5%	10.6%

Whilst the research paper, the 'work-in-progress', may be found in one of a number of locations, the contributory research material is considerably less likely to leave the respondent's office.

Would you say that it is stored in a structured way, or is it saved in an ad-hoc manner?

	All	Hull	Other
Structured	68.5%	68.4%	69.5%
<i>ad-hoc</i>	34.3%	34.2%	34.3%

Most of our respondents make some attempt to structure the research materials that they gather.

Question 12

Do you keep on computer all or some of the research material mentioned in the last question once the particular project for which it was gathered has been completed?

	All	Hull	Other
Yes	71.9%	70.2%	72.6%
No	28.1%	29.8%	27.4%

Perhaps not surprisingly, most researchers keep copies of the material that they have gathered together.

Questions 13 and 14

Questions 13 and 14 were displayed both on the same page with space for free-form answers. They were included in an attempt to give respondents a final chance to offer us any useful insights into how they use IT for research and how, then, we might configure a digital repository to support them. Being free-form answers there was no compulsion to answer the questions at all. The answers provided were analysed for recurring items.

Question 13

What, if any, developments in IT over the last two or three years have helped in your research - and how?

Approximately two-thirds of each group (Hull and Other) provided an answer to this question.

	All	Hull	Other
Search tools	28.2%	25.6%	29.1%
On-line publishing	20.5%	33.3%	16.2%
USB memory devices	19.9%	30.8%	16.2%
Internet	12.8%	15.4%	12.0%
Specific software titles	11.5%	2.6%	15.4%
E-mail	9.6%	10.3%	9.4%
Easy/cheap storage	9.6%	12.8%	9.4%
Broadband	7.1%	0.0%	10.3%
Advances in audio/video	5.8%	2.6%	6.8%
Increased computer power	3.2%	2.6%	3.4%
Wireless/Bluetooth	1.9%	0.0%	2.6%
Blogs	1.9%	0.0%	2.6%
Open source software	1.3%	0.0%	1.7%
Conferencing software	1.3%	2.6%	0.9%
Mobility	0.6%	2.6%	0.0%
VREs/collaborative environments	0.6%	0.0%	0.9%
Wikis	0.6%	0.0%	0.9%

The list has been sorted by figures in the 'all' column. Given the responses analysed elsewhere in this survey it is not surprising that USB memory devices should figure in the top three of this list; it is clear that many researchers find them a valuable way of moving files around. Nor were we surprised to find 'search tools' in the top three; Google, in particular, has clearly had a considerable impact on the ease of locating research material and the presence of 'on-line publishing' as the third member of the 'top three' is a corollary to this.

Question 14

What frustrations, if any, do you have in your research work that you feel IT ought to be able to help with now, or in the near future?

Approximately one half of each group (Hull and Other) provided an answer to this question.

	All	Hull	Other
I need easier access to material	34.8%	24.0%	40.0%
Outdated facilities	8.7%	16.0%	7.8%
Systems reliability	7.0%	12.0%	5.6%
Transcription software	4.3%	0.0%	5.6%
On-line training	3.5%	4.0%	3.3%
Bandwidth/speed	2.6%	12.0%	0.0%
Hardware reliability	0.9%	4.0%	0.0%
Memory/processing limitations	0.9%	4.0%	0.0%

It is interesting that "I need easier access to material" leads this list by such a wide margin. Search tools have improved greatly over the last few years and this has perhaps raised expectations of what ought to be available on-line. It seems that our respondents may perhaps feel that there is still some way to go in making full texts available on the web.

It is notable that researchers at Hull score significantly more highly 'outdated facilities', 'systems reliability' and 'bandwidth'. Whilst the University cannot do anything about the facilities that researchers have (or have not) off-campus, these issues are being tackled on-campus by an extensive IT investment plan including the provision of significantly increased storage with the deployment of a storage area network (SAN), and upgrades to network infrastructure.

A number of non-Hull researchers bemoaned the lack of good transcription software, the implication of their comments being that they would like not to have to transcribe "by hand" interviews undertaken as part of their research work.

Question 15

Thinking about other possible areas of your job, in what way(s) would your answers to these questions have been different if the focus had been on

- (a) materials for teaching and learning, or
(b) administrative documents***

rather than on research?

	All	Hull	Other
Very	14.0%	7.9%	16.0%
Somewhat	18.5%	10.5%	26.9%
Not at all	63.1%	71.1%	63.0%

The majority of respondents felt that their responses to the survey would not have changed had the focus been on 'teaching and learning' or on administration. Where researchers suggested that their answers would have been different in some way a significant number mentioned that audiovisual materials would have played a more significant role had the focus been on 'teaching and learning'.

Closure

The final screen of the on-line survey provided a place for contributors to make any other comments that they wished. Few did this and there was no particular theme to those that were provided.

Comparisons

A number of comparisons have been made between the responses from researchers at the University of Hull and from those elsewhere. In general there is a broad similarity between the two sets of data, both of which tend to support the tentative conclusions that we reached having analysed the face-to-face interviews that we carried out with a small group of Hull researchers. Where there are differences, researchers at Hull seem to be mistrustful of the hardware: they take more copies of their work and have more backups. This should not be taken to imply that they do not embrace new developments. In view of the last comment it is perhaps not surprising that they are greatly enamoured of solid-state USB memory devices; more encouraging is that they list 'on-line publishing' as the major IT development of the last few years. Clearly this is potentially good news for the team developing a digital repository for them.

Requirements

In document R-D4 "Report on research user requirements interview data" (which actually precedes this one in date), we elicited a number of basic requirements which would support current research practice at Hull as a starting point before considering what 'value-added' might be provided in the context of a digital repository.

- we take in as a *sine qua non* that a repository interface should not make it difficult to do something that is currently achieved easily
- the repository interface must allow structuring of a user's personal storage space and have the capacity to hold potentially large numbers of objects, possibly of a range of differing types, for each user
- the repository should provide an easily usable versioning facility (it must be easy to version a file *and* to revert to an earlier version)
- the repository should allow sharing of a private document with a closed group of collaborators and should provide some sort of locking facility so that conflicting revisions cannot occur
- the repository must make public exposure of content easy and controllable, taking account of digital rights issues as part of that process

Nothing that we have found in this survey materially changes these needs; however these findings do serve to reinforce a number of them.

The on-line survey has emphasised the range of file types that researchers use as part of their work. If we are to provide a workflow tool as part of a digital repository system then the repository itself is going to have to be capable of ingesting this wide variety of formats. This begs a longer-term question: if some of the more esoteric files are to be made publicly available through the repository there are a number of preservation issues to consider - not least that many of these files represent proprietary formats.

The majority of researchers seem to be quite careful about the way that they control their versions of works-in-progress, and we know from interviews that the act of collaboration potentially complicates the versioning process. Our system needs to have a well-defined and easy-to-use versioning facility which takes account of the restrictions that may need to be imposed when a file is shared for collaboration or comment.

Many respondents to the on-line survey, from Hull especially, recognise the potential benefits of on-line publishing, within which we can include the use of digital repositories. It follows that we must do everything possible to make it straightforward to place an object in public view within the repository, consistent with the appropriate control of IPR and copyright.

References

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