

# RePAH:

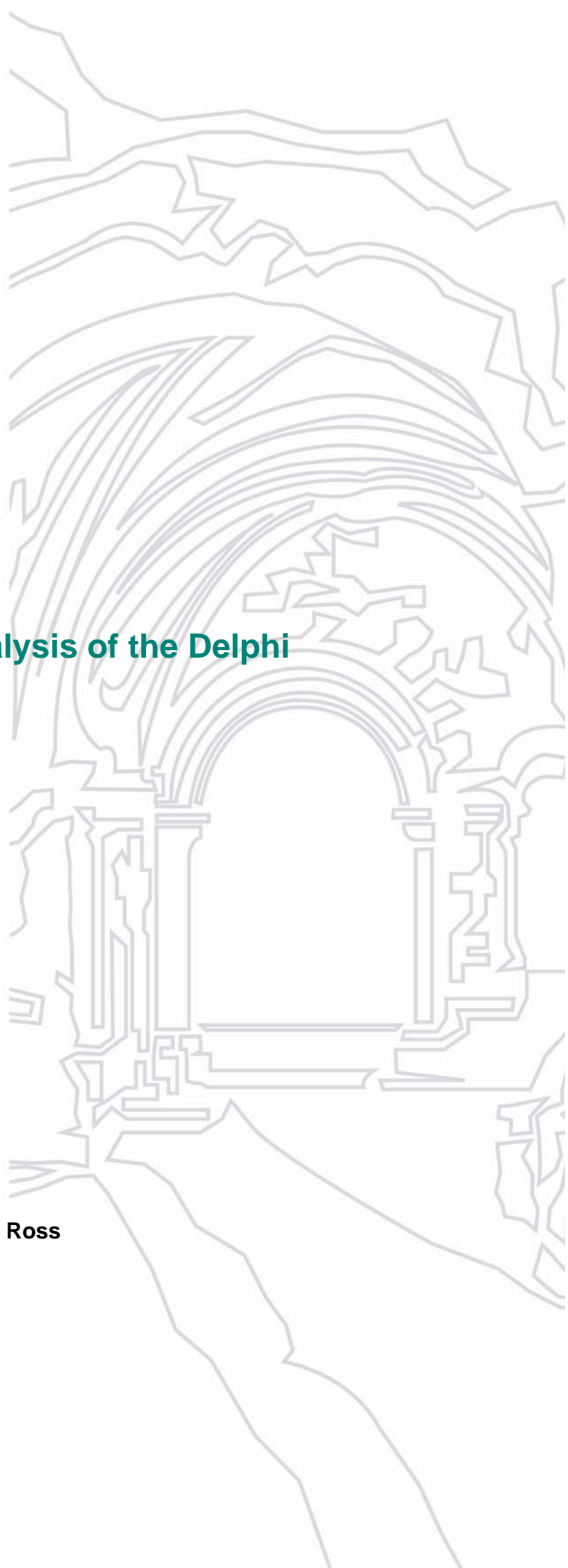
## Research Portals in the Arts and Humanities

A user analysis project

### Appendix A7: Work-Package 4: Analysis of the Delphi Exercise

WP4 Report prepared by Robert Ross

<http://repah.dmu.ac.uk/report>





Arts & Humanities  
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September 2006



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## **The RePAH Project**

In July 2005, the RePAH Project was commissioned to carry out a survey of user-needs for information portals in the Arts and Humanities by the AHRC ICT in Arts and Humanities Programme. It sought to understand how the arts and humanities research community finds and exploits the internet resources it needs.

In order to do this the RePAH project:

- Examined the existing literature on user needs with regard to web gateways and portals,
- Analysed the web-logs from the Arts and Humanities Data Service (AHDS) subject centres and the Resource Discovery Network's (RDN) humanities and arts web hubs (prior to July 2006 these were known as Humbul and Artifact, but now have been harmonised into Intute-Arts and Humanities)
- Conducted focus groups, interviews and a Delphi exercise with members of the arts and humanities community
- Developed and tested a paper-based demonstrator for a managed research environment to explore possible ways forward with regard to web-based research resources.

The project was carried out in 7 work packages:

- WP1 RePAH Online Questionnaire--this report examines an online survey of the Arts and Humanities Community's use of web resources.
- WP2 Web-Log Analysis--this report analyses web-logs from several of the Arts and Humanities Data Service subject centres as well as Humbul and Artifact of the Resource Discovery Network (now Intute).
- WP3 First Focus Group--this report studies the responses from a series of five focus groups conducted at the University of Sheffield and three interviews from DeMontfort University. Respondents discussed their use of web resources in general and portals in particular.
- WP4 Delphi Exercise--this report considers the results of a Delphi exercise conducted around the feasibility of various web-based tools.
- WP5 Demonstrator of a Managed Research Environment--this report is an exploration of a paper-based demonstrator of a variety of features that might be applied as portlets and used by the Arts and Humanities research community.
- WP6 Phase II User Trials of Portal Demonstrator--this report brought the paper-based demonstrator to scholars in eight subjects within the Arts and Humanities community and asked them to evaluate the features and functionality of possible portlet tools.
- WP7 Intute in Light of this Report--this report explores Intute-Arts and Humanities with reference to the features and functionality explored in the paper-based managed research environment demonstrator.

Additional appendices within the RePAH Project report include an overview of the Arts and Humanities research community [Appendix A2], and a review of the literature relevant to user requirements for digital resources and web-based research facilities [Appendix A3].

This appendix reports on Work Package 7 which examines Intute-Arts and Humanities with reference to the features and functionality explored in the paper-based managed research environment demonstrator, as well as some the data harvesting of the AHDS by Intute.

To see the full report and the other appendices see <http://repah.dmu.ac.uk/report>.

## A7.1 Introduction to the Delphi exercise

The Delphi technique is a systematic, iterative predictive research method based on independent inputs from a panel of experts. It measures the degree of consensus among the panel regarding future events where the decisive factors are subjective, and not knowledge-based. Delphi was developed by the RAND Corporation in the late 1960's. The technique reaps the benefits of group decision making while insulating the process from the limitations of group or peer pressure and overly dominant individuals.

The technique involves iterative rounds of questionnaires where responses are re-circulated so individuals can reconsider their opinions in the light of the responses of the panel as a whole. In face-to-face discussions or focus groups a dominant personality may exert much greater influence than their expertise should allow, this technique avoids that risk. Within RePAH the exercise entailed asking arts and humanities research practitioners what ICT tools or services they considered should be available in the future to support their research. For the purposes of this exercise practising researchers were regarded as experts in that they are highly knowledgeable about their own research processes, those in their particular domain and about research methods generally.

The original timescale for the Delphi exercise extended over the period from mid September 2005 to mid January 2006 and was to be conducted via the website. Timescales were revised to take account of delays at the start of the project. The revised timescale was as follows:

	Task Name	Duration	Start	Finish
1	Preparation	5 days	Mon 13/02/06	Fri 17/02/06
2	Circulate questionnaire 1	5 days	Mon 20/02/06	Fri 24/02/06
3	Analyse results	5 days	Mon 27/02/06	Fri 03/03/06
4	Circulate questionnaire 2	5 days	Mon 06/03/06	Fri 10/03/06
5	Analyse results	5 days	Mon 13/03/06	Fri 17/03/06
6	Circulate questionnaire 3	5 days	Mon 20/03/06	Fri 24/03/06
7	Analyse results	5 days	Mon 27/03/06	Fri 31/03/06

Figure 1 Timescale

## A7.2 Sample

The sample comprised all members of the focus groups plus those respondents to the online survey questionnaire that had agreed to being contacted for further information and known experts from researchers similarly identified through the Aria project (n=109).

An 'RSVP' email was sent to this combined list generated in late February explaining the aims, objectives and what would be expected of participants. An opportunity to withdraw from the exercise was provided on contacting the project manager directly by email. Three of the participants decided not become involved with the exercise leaving a total of 106 within the sample.

## A7.3 Functions

The list of functions used in the exercise was identified via the focus group interviews that took place in **WP1 (A4, above)**. These were: aggregation of data for searching and analysis, quality control and ranking system, online collaboration tools, grid connection / services,

personalisation and bookmarking, desktop video conferencing, peer review facility, pushed alerts for conferences / papers / funding, access to all journals and finally copyright management. An explanation was provided to ensure all participants understood what was meant by each term. The functions were to be scored as being invaluable, quite important, not very important or irrelevant to the participant’s future work.

### A7.4 First round

In the first round there were 21 respondents to the exercise, a response rate of 21%, and the ranking scores of the functions was as follows:

	Invaluable	Q. important	Not v. imp	Irrelevant
Aggregation of data	8	7	4	2
Quality control	8	8	3	2
Online collaboration	1	10	5	5
Grid connection	2	7	8	4
Personalisation/bookmarks	4	13	4	0
Desktop video conf	0	7	12	2
Peer review	3	12	6	0
Pushed alerts	12	4	5	0
Access to all journals	20	1	0	0
Copyright management	6	11	3	1

Figure 2 Delphi First Round

Using the data produced the following graph

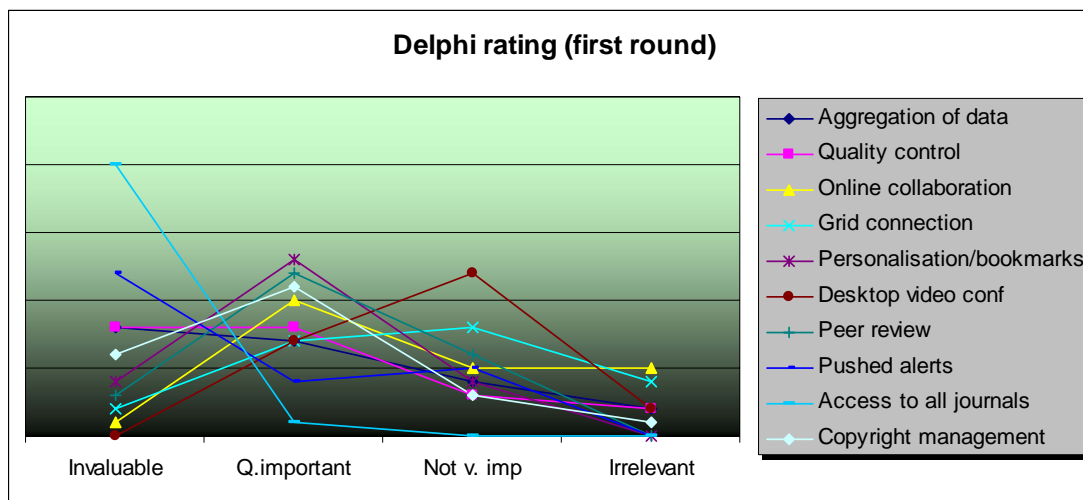


Figure 3 Delphi Rating (First Round)

Using the initial scoring of ‘Invaluable’ it can be seen that Access to all journals was voted the most important feature, followed by Pushed alerts. The next features to score the most ‘Invaluable’ votes are (jointly) Aggregation of data and Quality control. In order to differentiate joint ‘Invaluable’ scores a weighting system was used. Each score for ‘Invaluable’ was given a weighting value of 4, and that of ‘Q. important’ a weight of 3. The data obtained from using this method of calculation enabled a more granular ranking and placed the function Quality control above that of Aggregation of data. No further joint scores were present, so ranking reverted back to the most numbers of votes within the ‘Invaluable’

category. This method of calculation was used for all following joint scoring to enable a ranked listing to be produced.

A number of emails were received pertaining to this initial stage of the exercise. They fell into three groups:

1. those wishing to be removed from the list (3)
2. those stating they would be happy to be involved in the future rounds (7)
3. those wishing to receive details of the outcome from the exercise (2)

Using the data a new list was drawn up ranking the features according to their score, producing the following newly ranked list:

1. Access to all journals
2. Pushed alerts
3. Quality control
4. Aggregation of data
5. Copyright management
6. Personalisation/bookmarks
7. Peer review
8. Grid connection
9. Online collaboration
10. Desktop video conferencing

## **A7.5 Second round**

A second round was initiated and the respondents informed of the newly ranked list. They were requested to re-score the list based on their response to the 'community' perception of what was deemed more or less important.

Initially there were only 3 responses to this stage of the exercise, but a follow-up email prompted more involvement from the list. At closure of the round there were 18 respondents in total, a 19% response rate, and the following data was obtained:

	Invaluable	Q. important	Not v. imp	Irrelevant
Access to all journals	8	4	0	0
Pushed alerts	3	4	4	1
Quality control	2	5	4	1
Aggregation of data	1	7	3	1
Copyright management	0	4	6	2
Personalisation/bookmarks	2	5	3	2
Peer review	2	3	5	2
Grid connection	0	2	8	2
Online collaboration	0	2	7	3
Desktop video conferencing	0	1	3	8

Figure 4 Second Round

From this data the following graph was obtained:

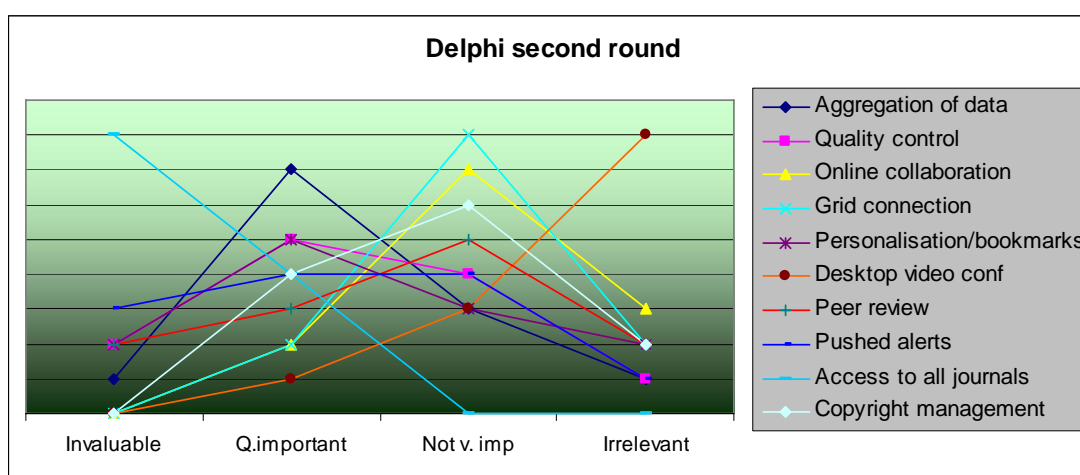


Figure 5 Delphi Rating (Second Round)

The profile of the graph is much less smooth than the first round, but this may be partially explained by the lesser numbers of respondents participating in this round. The lesser number means that each vote carries more weight overall and can cause a higher degree of variance across the data.

It can be seen from the data that Access to all journals and Pushed alerts are again the most highly rated features. The next three features are jointly scored and so the weighting calculation was used to differentiate them. The last four features also all scored jointly in the 'Invaluable' category. However, when the weighting calculation was used another joint score was produced. In order to calculate further granularity a second level of weighting was introduced which consisted of allocating all scores from the 'Not v. imp' category a 2. This enabled the features to be ranked and produced the following list shown here with the list from round 1 for comparison:



List from round 2	List from round 1
1. Access to all journals	1. Access to all journals
2. Pushed alerts	2. Pushed alerts
3. Quality control	3. Quality control
4. Personalisation/bookmarks	4. Aggregation of data
5. Peer review	5. Copyright management
6. Aggregation of data	6. Personalisation/bookmarks
7. Copyright management	7. Peer review
8. Grid connection	8. Grid connection
9. Online collaboration	9. Online collaboration
10. Desktop video conferencing	10. Desktop video conferencing

Figure 6 List from Rounds 1 and 2

It can be seen from these results that the features ranked mostly 'Invaluable' and mostly 'Irrelevant' have not changed. It is only the middle ranked features that have changed position relative to each other.

In this round the facility to comment on the choice of features was provided, and produced a number of qualitative data, some concerning the feature's relevance to the respondent and their research:

*"I hope your research will bear in mind that there is a penumbra of researchers who are NOT in full time (or even part time) education, like myself, and have to make do with whatever they can acquire access to?"*

*"I'm sure you've thought of this, but circumstances and the changing needs of different research projects, will mean changes in the importance of these features."*

Others related directly to the exercise itself:

*"I remember that I had assessed no. 1 and 10 in the same way last time. No. 2 is not useful for me, so I'm sticking to my low ranking."*

*"I probably changed my mind a little to reach an agreement within a perceived "group"."*

The last two comments highlight the process inherent within the Delphi exercise concerning group consensus, and that the respondents are aware of this and have reacted accordingly.

## A7.6 Third round

The third and final round was initiated and the list informed of the newly ranked list based on data from the previous round. They were again requested to re-score the list based on their response to the new 'community' perception.

At closure of this final round there were 27 responses, a response rate of 28%. It was noted that there were far more respondents in this round and this may have a bearing upon the outcome as obviously not all respondents took part in every round. This can be attributed to the large list of contacts and the anonymity allowed to the respondents; identification of those who took part in any single round was not possible and therefore filtering of responses to those who had previously taken part was not feasible. However, if the premise of the Delphi exercise is that community consensus will produce the best results, then the higher numbers within this final round can only serve to identify the most relevant features.

The following ranking scores were obtained from the final round:

	Invaluable	Q. important	Not v. imp	Irrelevant
Access to all journals	10	1	1	0
Pushed alerts	2	8	2	0
Quality control	5	3	1	3
Personalisation/bookmarks	1	9	1	1
Peer review	3	4	5	0
Aggregation of data	2	8	0	2
Copyright management	1	8	2	1
Grid connection	2	3	6	1
Online collaboration	1	4	6	1
Desktop video conferencing	0	2	4	6

Figure 7 Final Round

From this data the following graph was obtained:

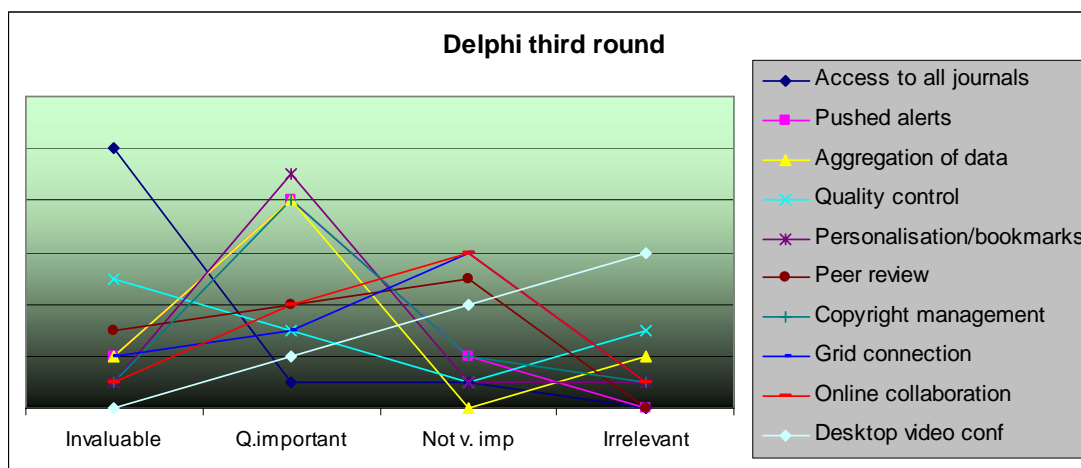


Figure 8 Delphi Rating (Final Round)

The profile of the graph is not as complex as the second graph, but is also still not as smooth as the first. This cannot be attributed to the lack of numbers as there were more respondents participating in this round than any other. However, looking at the scoring there were more joint ranking in this round than any other, which is not immediately apparent from the graph. Weighting had to be used twice and secondary weighting once to determine the features ranking.

The following is a list showing all ranking from each round.

List from round 3	List from round 2	List from round 1
1. Access to all journals	1. Access to all journals	1. Access to all journals
2. Quality control	2. Pushed alerts	2. Pushed alerts
3. Peer review	3. Quality control	3. Quality control
4. Pushed alerts	4. Personalisation/ bookmarks	4. Aggregation of data
5. Aggregation of data	5. Peer review	5. Copyright management
6. Grid connection	6. Aggregation of data	6. Personalisation/ bookmarks
7. Personalisation/ bookmarks	7. Copyright management	7. Peer review
8. Copyright management	8. Grid connection	8. Grid connection
9. Online collaboration	9. Online collaboration	9. Online collaboration
10. Desktop video conferencing	10. Desktop video conferencing	10. Desktop video conferencing

Figure 9 List from Rounds 1, 2 and 3

Access to all journals is again the most highly rated feature. Peer review appears to have taken on more significance as the rounds progressed whilst Pushed alerts has been relegated to a lower level of importance.

Although there was the functionality available to comment on the scoring or ranking of the features in the exercise, no respondents used it to express any further opinions.

## A7.7 Conclusions

This Delphi exercise was aimed at creating group consensus on a list of possible functions available in a portal. This was achieved by using anonymous data to create an iterative

ranking list of these functions so that personal standing would have no bearing on the outcome. Free text responses confirmed that this aspect of the exercise was clearly understood by the participants. However, allowing anonymous responses meant that there was no way of checking whom had or had not taken part in each round, and therefore it is not certain that the same people responded each time. In fact, this can be seen to be the case as the number of responses in the final round was more than in any previous. This does not mean there was no consistency within the sample replies, as the free text responses confirm that some of the respondents took part in at least two rounds. A classic Delphi exercise uses an identified small sample of experts (6 – 10) thereby ensuring that this discrepancy does not occur. The methodology used by the project in this exercise did not follow this procedure, as responses from a wide diversity of user were required to help identify those functions that are most useful to the community at large. It was seen that a fluctuation in participant numbers was an acceptable risk to ensure wide community engagement.

After three rounds of the Delphi exercise only three features remained in their original positions: Access to all journals was always rated the most important, whilst Online collaboration and Desktop video conferencing were rated the least important. Although there appears to be significant movement within the middle ranking functions, it is not as simple as it appears. In the first round there were only two functions ranked equally. These had to be weighted to obtain a rank result. In the second and third rounds there were two sets of functions equally weighted consisting of at least three individual functions in each set, some of which had to go to a second level of weighting to obtain a rank position. Taking this into consideration, the rank position of each function cannot be given too much importance and only a general inference as to their meaning can be made. What does seem to appear as an overall pattern, is those functions relating to individual activities attracted higher ratings as the rounds progressed. This can be seen with the movement of collaborative functions such as Peer review and Grid connection to the bottom end of the ranking. while functions based on individual effort such as Aggregation of data and Copyright management, moved up the rankings.

Similarities between these findings the online questionnaire responses and statements made by the focus groups suggest that the exercise provided a valuable insight into the needs and wants of a wide selection of the current arts and humanities community, that is confirmed by these other sources.

## **A7.8 Covering letter to sample population**

Dear xxx

You have already helped the RePAH project to understand how ICT tools and services are being used currently by arts and humanities researchers and to identify other kinds of features that the research community might find useful. This valuable information has enabled us to begin to develop a picture of the kinds of services that could be made available in future and we would like to invite you to help us to shape that future by helping us to prioritise these ideas and to make sure we haven't overlooked any important functions. Would you be willing to take part in a short online exercise with a small number of other participants? The exercise entails considering a list of x functions and rank ordering them in terms of their importance to your research. Your responses will be pooled with those of other respondents and re-circulated in two further rounds to allow you to reconsider your opinions in the light of the responses of the panel as a whole.

## A7.9 Text within the first exercise

### RePAH Delphi Exercise

You have already been helpful in enabling the RePAH project to understand how ICT tools and services are currently being used by arts and humanities researchers. We now need to develop a picture of the kinds of services that could be provided in future and would like you to prioritise the functions listed in order of importance to research in your domain.

Please rate the following features:

	Invaluable	Q. important	Not v. imp	Irrelevant
Aggregation of data				
Quality control				
Online collaboration				
Grid connection				
Personalisation/bookmarks				
Desktop video conf				
Peer review				
Pushed alerts				
Access to all journals				
Copyright management				

**Aggregation of data for searching and analysis:** Accessing databases from multiple locations simultaneously, then bringing useful data together into one place for analysis and presentation. Data in this instance can be composed of digitised text, images, audio or video.

**Quality control and ranking system:** Searches would yield web sites and journal articles with grades of reliability based on a universal standard of validation, setting the search against a list of all potential hits with reasons for not including them in the validated list.

**Online collaboration tools:** Enabling work to be done on the same set of data (or even multiple sets of data) by more than one researcher, even if they are in different locations.

**Grid connection/services:** Internet - enabled collaboration between researchers, from different institutions, that typically involves secure access to distributed data, computing power and software.

**Personalisation & Bookmarking:** Automatic notification of any copyright information and use restrictions associated with a file when you access or download it and offering payment options at the point of use.

**Desktop video conferencing:** Using one's personal computer to conduct high-speed, high quality conversations over the WWW, rather than needing to access specialised facilities.

**Peer review facility:** The feature enables the data user to participate in the peer review process with anonymity and within the administrative criteria established for each particular subject specialty.

**Pushed alerts for funding/conferences/papers:** This feature picks up funding alerts from various sources, including research councils, government agencies, private foundations and international organisations. The same alerting service provides regular notification of conferences, calls for papers and new publications in the researcher's field of interest.

**Access to all journals:** Access to an array of primary and secondary literature, some of which may not be taken by a university library, but are nevertheless necessary and specific to a researcher's subject specialty. The portal provides access to journals including those discovered serendipitously and held by commercial, subscription services.

**Copyright management:** Automatic notification of copyright access and use of specific images, texts, audio and video downloads, offering permissions or royalty information.

Thank you for taking our survey. Your responses will be pooled with other respondents and re-circulated in two further rounds to allow you to reconsider your opinions in the light of the responses from the panel as a whole.