

# digital Cultural Content Forum

## Evaluation of Digital Cultural Content

## Analysis of evaluation material

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## Analysis of evaluation material

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## **Analysis of evaluation material**

### **Executive summary**

In 2002 the Cultural Content Forum agreed to undertake research to identify and analyse material relating to the evaluation of digital cultural resources. The project was planned in two stages, the aims of which were:

- To research and publish a catalogue of evaluation undertaken relating to digital cultural information resources.
- To undertake and publish an analysis of available evaluation material. The aims of this analysis would be to:
  - identify common indicators and trends relating to the development and use of cultural information resources;
  - identify common issues relating to the provision of digital cultural resources;
  - identify gaps in available research and propose an evaluation research agenda for the future.

In January 2003 a call was issued across the international library, digital library, museum and archive domains using professional email lists. Significant interest in the project was stimulated with many of the contributors of the 86 documents received during the initial stage, requesting access to the results.

A dataset documenting the material received was prepared using the Dublin Core Metadata Element Set as a basis for the record structure. Headings were adapted for use to reflect the particular nature of the research, in particular to enable the recording of aspects of the evaluation methodologies used by different projects.

As a result of this process the CCF agreed in their meeting in Pistoia in March 2003 to pursue the analysis of the material submitted. Following the production of an initial report outlining the scope and nature of the submissions received, a second general call for evaluation material was made and key organisations were approached individually. This resulted in a limited amount of additional material for inclusion in an analysis of the documents submitted in July and September 2003. The CCF commissioned this analysis to address two particular aspects of the evaluation material as follows:

- an assessment of the extent to which common user profiles were used in different evaluation projects and whether these could form the basis of a standardised approach;
- an assessment of any metrics used in evaluation projects which could form the basis for a benchmark for assessing digital resources.

The subsequent review has found strong evidence that there is an emerging consensus for the use of common user profiles across the sector, but that the development of any standard profiles should reflect the need for multiple attributes to be assigned to groups of users.

The analysis of evaluation material also found however that there is little if any evidence of a common approach to metrics in place at the present time, and that this is unlikely to become a possibility until the sector has agreed a consensus on the methodologies to be used in evaluation projects, and the integration of evaluation results into the project development cycle.

A number of measures are proposed for furthering these aims, including work to achieve a consensus on user profiles and the agreement of sector-specific guidelines for good practice in undertaking evaluation projects.

# 1. Introduction

## 1.1 Project Background

The Cultural Content Forum is a recently-formed international grouping which exists to harness expertise and forge consensus amongst agencies worldwide engaged in setting policy for the digitisation and online delivery of our global cultural heritage.

Towards the end of 2002 the Cultural Content Forum agreed to undertake a research project, the purpose of which was to collocate information about evaluation work and thereby aiming to inform the wider cultural community about existing user research and evaluation. It was planned that subsequent analysis of available research should inform the development of evaluation and user research strategies in the future. In January 2003 the Forum therefore invited all cultural organisations to contribute the results of user studies undertaken in relation to their digital resources.

Partly in response to the phased funding, it was proposed that the review should be undertaken in two stages as follows:

### *Stage 1*

To research and publish a catalogue of evaluation undertaken relating to digital cultural information resources.

### *Stage 2*

To undertake and publish an analysis of available evaluation material. The aims of this analysis would be to:

- identify common indicators and trends relating to the development and use of cultural information resources;
- identify common issues relating to the provision of digital cultural resources;
- identify gaps in available research and propose an evaluation research agenda for the future.

In December 2002 funding was identified to undertake Stage 1 of the proposed project, consequently in January 2003 a call for evaluation material was issued to cultural organisations worldwide. A report has been published<sup>1</sup> which describes the process of gathering and recording the evaluation material received as a result of that call. This also set out some initial findings which were presented to the Cultural Content Forum at its meeting in Pistoia, Italy, in March 2003, together with a description of issues identified for further investigation.

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<sup>1</sup> The Initial Survey Results and Research Agenda is available online at [http://www.culturalcontentforum.org/publications/audience/initial\\_audience.pdf](http://www.culturalcontentforum.org/publications/audience/initial_audience.pdf)

## 1.2 Aims of Stage 2

The current document contains the results of Stage 2 of the proposed project. There are two areas of concern which the Cultural Content Forum have prioritised; these are to:

- propose a series of user profiles which could be adopted by the cultural sector in developing and evaluating digital resources;
- identify methodologies and associated metrics which could also be deployed in the evaluation of cultural digital material.

The user profiles and metrics described in this report are intended to form a starting point for the development of a consensus within the cultural sector. The analysis is therefore primarily an exploratory process which aims to:

- set out the issues involved;
- assess the potential for addressing and resolving these issues with the data to hand;
- map out appropriate consultation, analysis and research work which would be required to reach a wider consensus.

## 1.3 Evaluating information sources – how and why

The overriding purpose of evaluating an information resource is to gain a greater understanding of the needs of its users in order that the information resource is better able to meet those needs in the future.

In order to develop an effective information resource it is therefore necessary to establish who will be using it, and for what purpose. An information resource which is established without taking this into account will be unlikely to satisfy its users.

Evaluation can take many forms and is a highly specialised area, extending into other areas such as marketing, audience research, heuristics and interface design. For the purposes of evaluating information resources however there are two distinct phases of the evaluation process, each with its own tools. These are:

*Formative evaluation* which helps to shape ideas for information resources and can be based on the analysis of use of other information resources, discussion of ideas and proposals for information resources with potential users, research of the market for an information resource ('gap analysis') and the use of questionnaires to identify the potential needs and preferences of users.

*Summative evaluation* helps organisations understand the extent of the success of a given information resource and can be based on interviews, user surveys, observation of use and statistical analysis of usage patterns.

Both evaluation stages can make use of quantitative information (e.g. user statistics, survey results) and qualitative information (e.g. interpretation of focus group results, user observation and interviews).

However, the success of any evaluation project will depend on a number of factors, including:

- the successful identification of appropriate users (i.e. whether the evaluation participants match the target user group);
- the quality and the appropriateness of the evaluation tools used (i.e. are the right users being asked the right questions in the right way?);
- particularly for quantitative data, the period of time for which data exists and the intervals at which it was captured.

It is for these reasons that any given evaluation project will, by necessity, be unique. It will need to reflect the aims of a specific information resource and reflect the questions which the owners of that resource wish to have answered.

These questions will be different for a given resource over time, as it develops and is refined; they will certainly differ between information resources which aim to serve different user communities in different ways, however similar their content may appear to be.

For the purposes of this analysis however, it is assumed that at a broad level there may be commonalities in the methodologies and types of tools used to undertake evaluation projects. It is these elements of the evaluation process that the current review aims to investigate in order to assess the extent to which any common approaches already exist, or may do so in the future.

#### **1.4 Scope of the analysis**

The current analysis is not intended to be an exhaustive assessment of all aspects of the evaluation documents received, although a number of general observations will be made as appropriate. The analysis is restricted to two specific areas, as requested by the Cultural Content Forum. These are an assessment of the use of user profiles, and the potential for the development of standard metrics for use in evaluation projects, as described in 1.2 above.

#### **1.5 Methodology used**

The methodology used to analyse the documents received within the scope set out by the CCF was as follows:

1. A review of each document was undertaken, updating the documentation of each item as required on the evaluation database created in the Stage 1 Review.
2. Terminology describing the evaluation methodologies used in Stage 1 Review was updated as required.
3. An initial spreadsheet was created for the recording of User profiles based on the Audience entries in the evaluation database.
4. These categories were refined as more reports were reviewed and areas of commonality began to be identified.
5. This additional spreadsheet was then used to document research strengths of different projects where appropriate. However the decision was taken not to submit this spreadsheet for publication as the value judgements documented were simply for local assessment and were not intended for wider dissemination.

6. User profile categories were then able to be grouped together into common areas and an analysis was undertaken of the interaction between user profiles and ways in which users can fit multiple attributes of profiles
7. For methodologies and metrics, strengths and weaknesses were identified according to the categories of Type used in the Stage 1 Review of material.
8. Based on the eventual outcome of the analysis of methodologies and the absence of any clear commonality in measuring projects, an assessment was made of how the sector might move towards a common understanding of evaluation methodologies, and the issues which would need to be addressed.
9. Recommendations were then drawn up on how common methodologies could be developed further and implemented across the sector, and how areas of weakness in this area might also be addressed.

## 2. User profiles

### 2.1 What is a user profile?

For the purposes of this report, a user profile is *a means of categorising and defining a user (or potential user) of a digital resource, using one or more different attributes to do so*. The term 'user profile' is frequently used to describe the process by which individuals' access and use of specific applications is configured, managed and monitored, particularly in technical terms. This use of the expression does not fall within the remit of this analysis however.

An effective user profile is the first step in enabling the creator of a digital resource to establish the information and access requirements of a user. It may also provide an insight into the user's motivation or purpose in using a resource, and may tell the provider about what they are likely to do with the information accessed. By defining one or more user profiles within a resource's target audience, a provider is able to consult with representative users within given categories both during the development of resources and on completion of projects in order to ensure that the resource meets the needs of users. Establishing user profiles is therefore vital in assuring the quality of digital resources, and in ensuring that they are fit for the purpose intended.

A key issue raised by this analysis however, is whether a user profile can be defined as an individual characteristic of a user, or whether a more detailed, multi-faceted description of a user is required in order to determine the full profile of a user.

### 2.2 Use of user profiles within the evaluation reports

Of the 94 documents analysed, 27 (22%) either did not use user profiles, or had no discernible intention to target a specific, named audience group. Many (but not all) of this number were theoretical papers or quantitative analyses of statistics. The remaining 78% of the sample either used a profile or, more often, stated the audience by which their resource was intended to be used.

None of the sample used profiles which had been pre-determined by another publication or by previous research. However it was clear that many projects used a common approach to defining users. This seems to have evolved through a more general professional consensus of how to describe and define users, albeit with no formal source and without any published descriptions being widely available. This evidence suggests that organisations and projects are inclined to take a common view and that the publication of a common understanding of user profiles would therefore be helpful.

User profiles were used at different stages of the projects described in the material. The following were stages in the process where user profiles were defined prior to the use or evaluation of a resource, and where users were sought to fit the specified profiles:

- definition of the scope of a project or resource during the project development process;
- describing and grouping users involved in the formative evaluation process;

- describing and grouping users evaluating a resource after development.

User profiles were also used to categorise users *reactively*, in the following ways:

- grouping users and non-users consulted in market research;
- categorising users who used or provided feedback on resources.

### 2.3 Coverage and scope of user profiles used in evaluations

As detailed below, a user profile may be defined from a number of different perspectives. The most long-standing approach is perhaps that which is traditionally used by market research companies, who have tended to use age-related and socio-economic breakdowns in attempts to ensure that their consultation exercises encompass a representative selection of the general population. This approach is in general use where museums, for example, wish to analyse visitor patterns to 'real' museum sites. This approach was also present in some of the evaluation material received relating to virtual museum sites, however the evaluation material received indicated that the cultural sector generally seeks to categorise its users in ways which better reflect the differences between the types of services which might be offered, for example whether the user is a student or teacher, has specific professional needs or restrictions in their ability to access material online.

The use of user profiles therefore appears to have emerged from providers' increased awareness of the importance of determining the target audience for a specific resource, prior to investing resources in developing that resource.

The user profiles identified can be divided into three general types as follows:

- **General descriptions of users**

These are definitions which do not have any special meaning within the digital and/or cultural sector, and which have a very broad application. included categorisation by:

- Socio-economic status
- Age
- Gender

None of the projects used these as the sole means of defining users; they were often used as additional criteria in analysing quantitative datasets, e.g. enquiry numbers; user statistics etc. Even in the case of categories such as 'Age', a user's profile would be primarily defined in terms of their purpose in using the site or their educational status (for example, 'Key Stage 3 student' or 'Lifelong Learner'.

- **Descriptions of users within the digital and/or cultural sector**

**Figure 1** below lists the user profiles which projects used to define target audiences and actual users of resources and **Figures 2-10** illustrate their frequency of use. The terms used to define users within evaluation reports tended to vary greatly but it became clear as a result of the analysis that certain categories either duplicated each other or should be categorised together. It also became evident that it was possible to create larger groupings of users, effectively creating a two-layered approach to the description of users where user profiles which take different points of view of the users are grouped together.

**Figure 1**

*Two-layered approach to categorising user profiles relevant to the digital and/or cultural sector.*

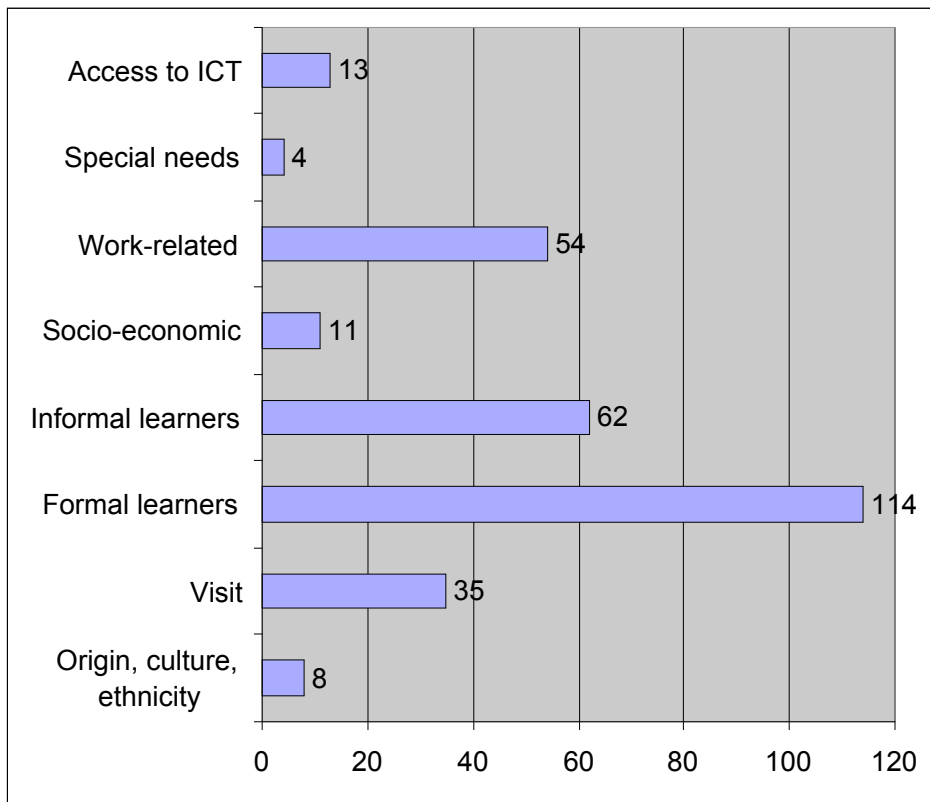
<b>User profile types</b>	<b>User profiles</b>	<b>Notes</b>
<b>Origin, ethnic or cultural categories</b>	International Local Ethnicity	
<b>Visit categories</b>	Family visit planner Adult visit planner Adult post-visit Individuals Groups (including families) Family post-visit During-visit reference Existing users & visitors Non-users / Potential visitors	
<b>Formal learners</b>	Education Higher/Further education student Academic / professional research (Variously categorised as 'faculty', post-graduate & FE/HE teachers) School homework user School teachers (Primary, Secondary, Tertiary) Schoolchildren (i.e. US K-12; UK Key Stage 1-4, tertiary)	
<b>Informal learners</b>	Local resident Local / amateur historians Enthusiasts Unenthused Tourists Retired (Variously categorised as OAPs/Age Concern/U3A) "Friends" of cultural organisations Adults Lifelong learners Parents General public	<i>A number of these profiles are very general and overlap (e.g. 'General public'; 'Tourists'; 'Adults'), but all those listed were used specifically by multiple projects, therefore no attempt has been made to reconcile them.</i>

<b>Socio-economic categories</b>	Skilled worker (includes specific occupations where listed) Office worker General worker (includes specific occupations where listed) Managerial & professional Intermediate occupations Small employers & own-account workers Lower supervisory & technical Semi-routine and routine Non-cultural professional Working	<i>Although this type of profile was regarded as a 'General' description of user it is included here since the specific profiles used varied between projects. Although some of these profiles might appear to be occupation related, they were clearly used in projects as social indicators, rather than as occupations with specific information requirements.</i>
<b>Work-related categories</b>	Cultural sector professionals (archivists, librarians, museum staff) Creative Art professionals (trade / researchers / specialists) Online & print publishers Government / Local authority / policy-makers Management information (e.g. audit, performance indicators etc.)	
<b>Users with special needs</b>	Users with disabilities Users with learning disabilities Users with physical disabilities Users with visual impairment	<i>Although material relating specifically to users with visual impairment was not submitted, the W3C guidelines make specific reference to the needs of these users, which are reflected in the development of many resources.</i>
<b>Access to ICT</b>	Home computer users School / workplace computer users Non-computer users Type of connection Internet users	

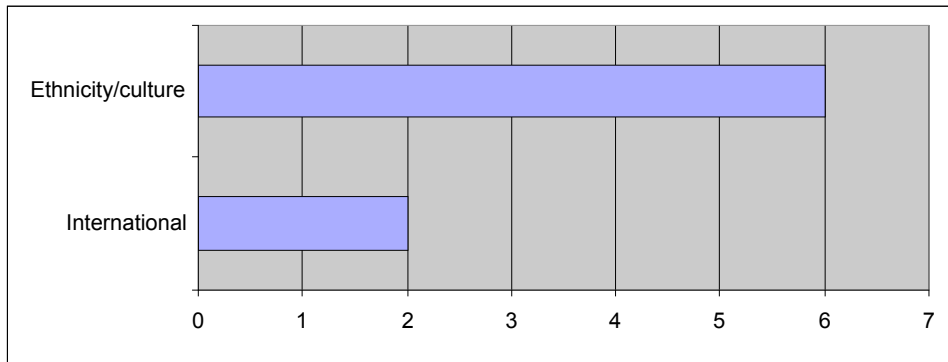
**General note:** No attempt has been made to unify the terms used in describing different types of user other than minor adjustments in expression in order to group similar descriptions together. Terminology will need to be addressed as a part of developing a consensus for describing users; see Section 2.8.2.



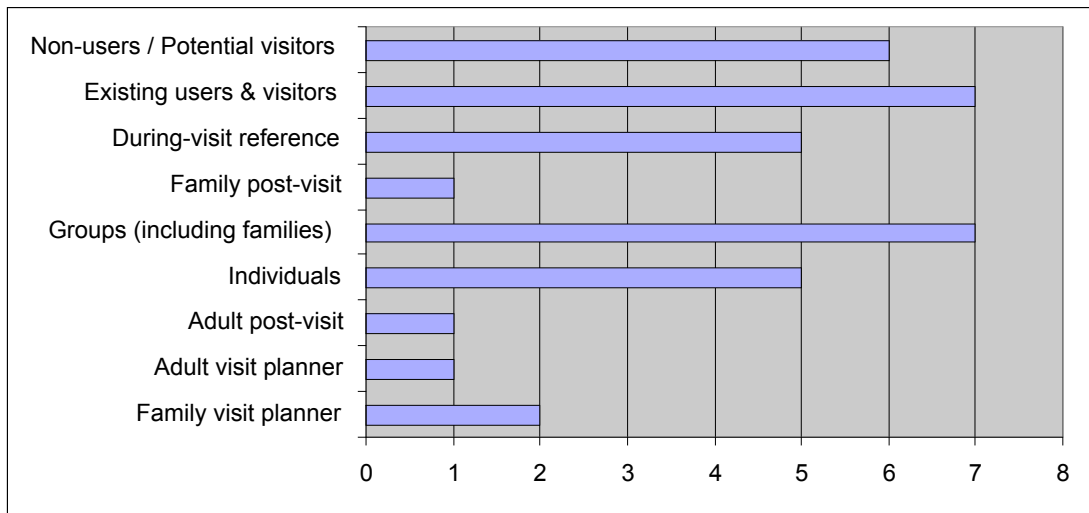
**Figure 2**  
*Distribution of User Profile Types across evaluation reports*



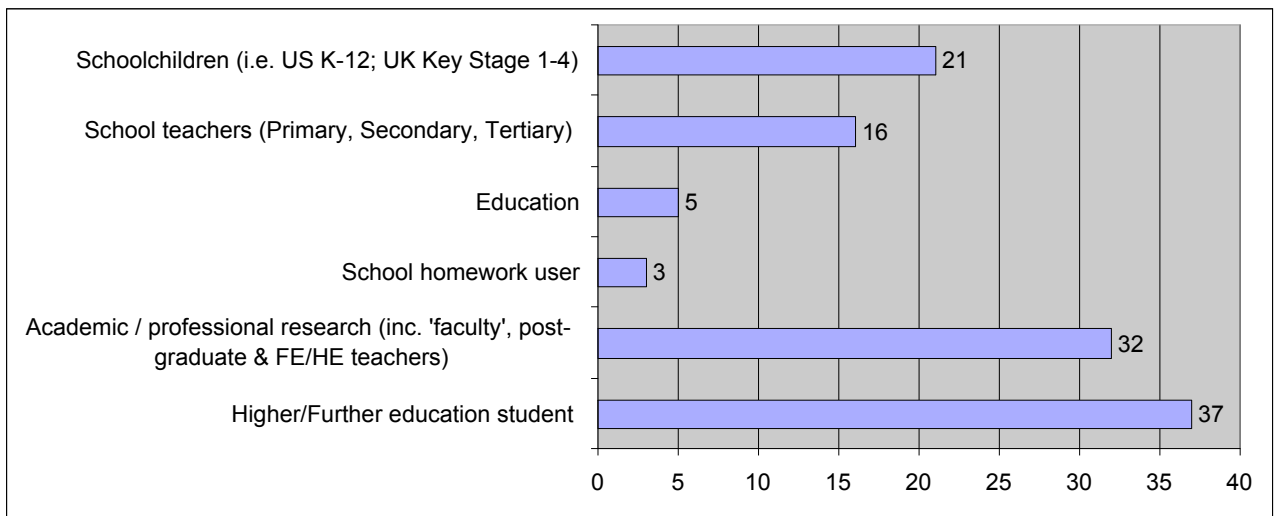
**Figure 3**  
*Origin, ethnic and cultural categories*



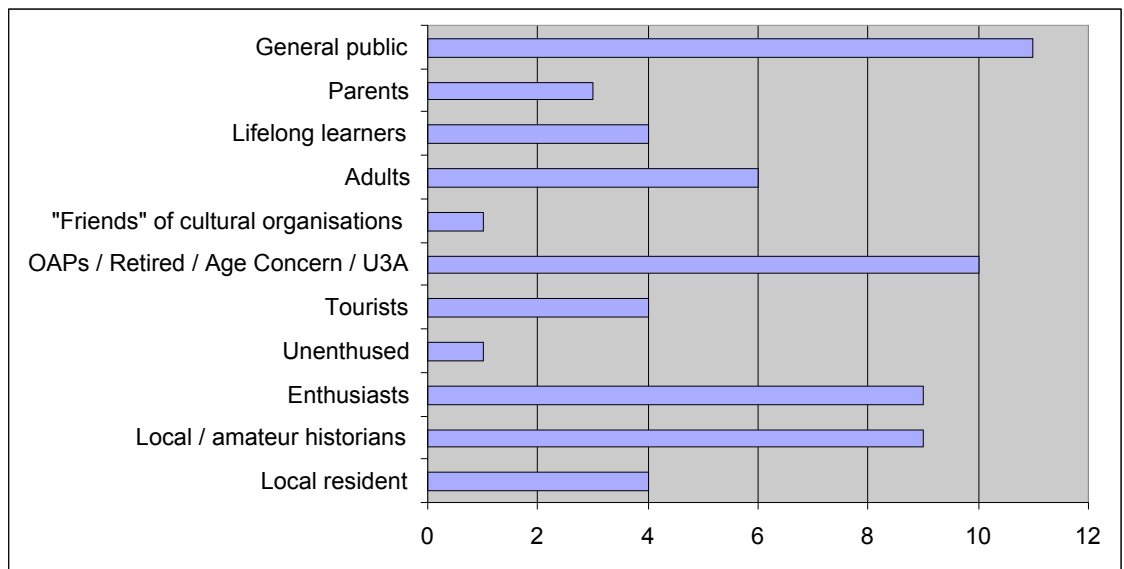
**Figure 4**  
*Visit categories*



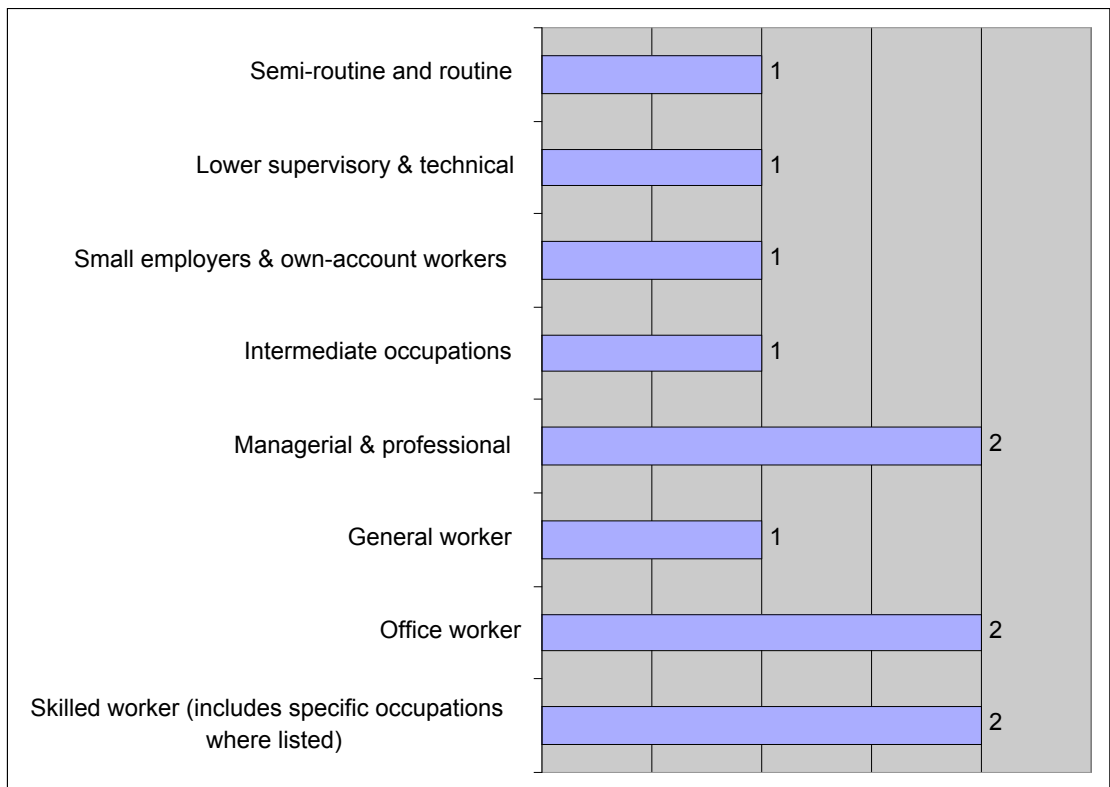
**Figure 5**  
*Formal learners*



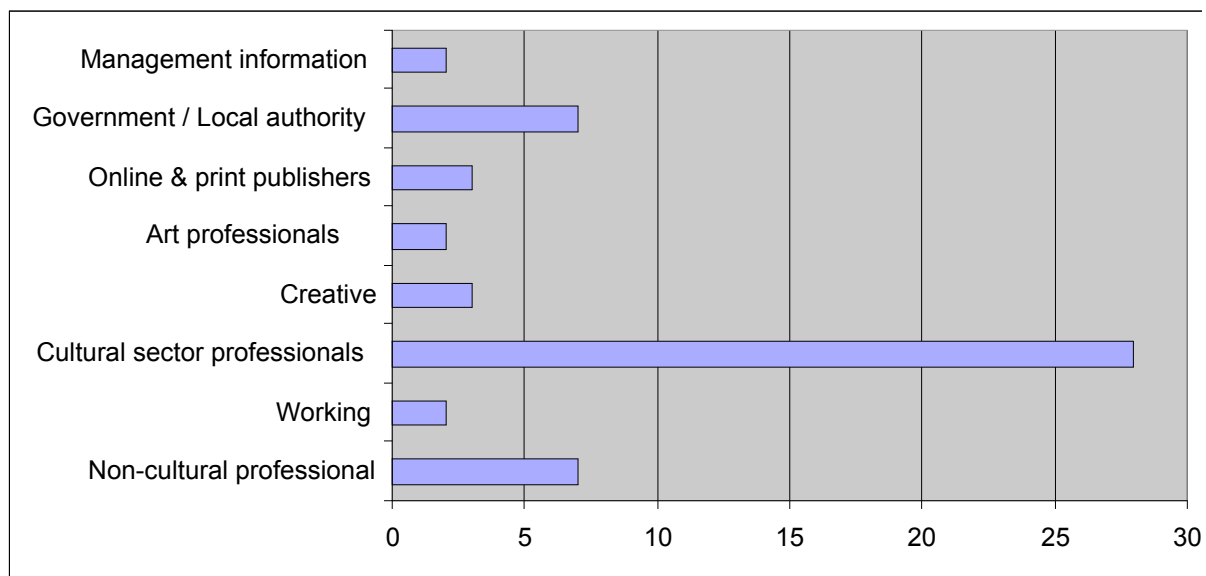
**Figure 6**  
*Informal learners*



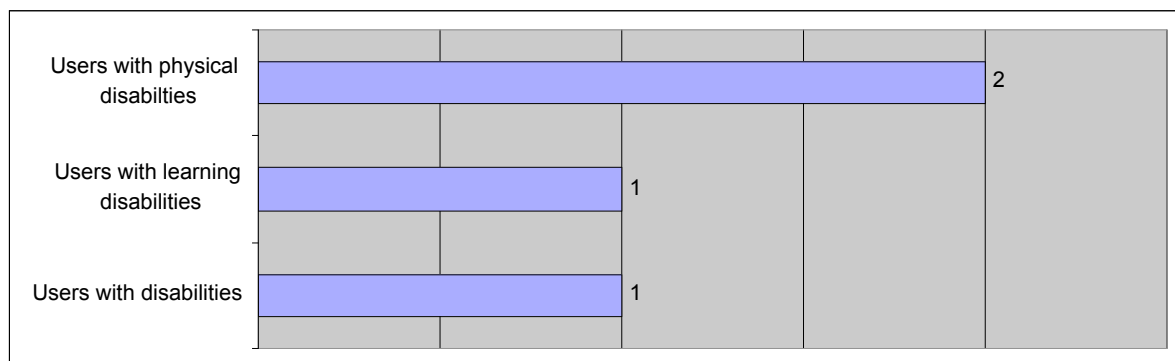
**Figure 7**  
*Socio-economic categories*



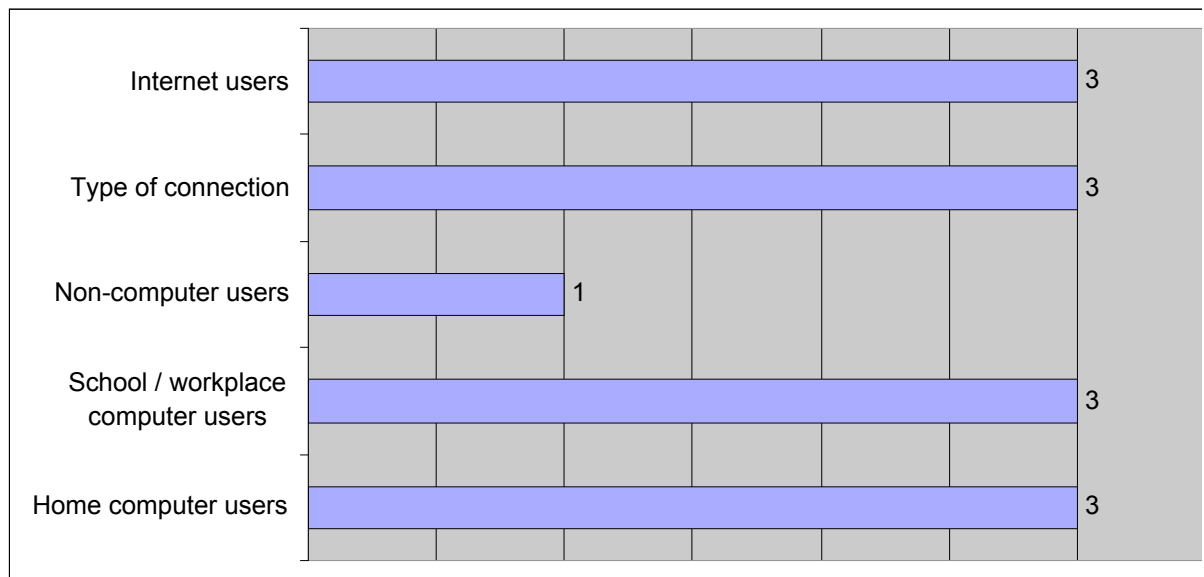
**Figure 8**  
*Work-related categories*



**Figure 9**  
*Special needs categories*



**Figure 10**  
Access to ICT



- **Descriptions of users within individual organisations**  
 These were descriptions of users which were regarded as near-unique, and which did not have a broad relevance to other projects. This type of user description fell into two categories as follows:
  - descriptions which were highly specific, relating to a particular organisation, specialised profession or local user group (e.g. 'Local government planning officers'; 'Chief executive's staff');
  - descriptions which took the form of specific user scenarios (e.g. art historian researching for an exhibition or publication')

Both these types of user descriptions were clearly very relevant to the projects which used them, but they were not included within the analysis since there was relatively little commonality across the dataset.

## 2.4 Descriptions of users within the digital and/or cultural sector

The following are working definitions of the User type categories as used in the analysis of this report. It is envisaged that these may be used as the starting point for wider discussion with the aim of agreeing standard user profiles for the cultural-digital community.

### 2.4.1 Origin, ethnic or cultural categories

This category contains descriptions of users relating either to their cultural background, ethnicity or country of origin. The latter was applicable where users were tourists or prospective visitors from another country, for example tourists using a resource in order to plan a visit. Individual countries, cultures or ethnicities were not listed since these were likely to be local or specific to an individual project.

#### **2.4.2 Visit categories**

Description of whether the user intends to visit or has visited a museum, library or archive and their use of the resource in relation to that visit (or non-visit). Archives, museums and libraries have traditionally been places which people visit in person. Although digital resources have opened up their collections and resources to users unable or unwilling to make a physical visit, the 'real' visit remains an important component of most cultural organisations. Users' information needs may differ depending on the use they make of an online resource in relation to a visit; it is also useful to know if a user is using the resource as a surrogate and does not intend or is unable to make an actual visit. A substantial number of resources felt this to be important information to record about a user, in particular the following were clearly areas of key interest:

- Was the resource used prior to a visit, either to provide general information or to plan a visit in more detail?
- Was the resource used during a visit, either for reference, navigation or to provide a greater depth of access to the collections?
- Was the resource used after a visit in order to complement and extend the experience of the visit and the knowledge gained?
- Was the resource used instead of a visit (e.g. in instances of geographic distance, economic barriers or special physical needs)?
- Was any visit to be made alone by an individual, or as a group? This information was unexpectedly prevalent in the analysis and seemed to be important in that information sources (in particular those in a gallery, display or reading room) might be presented differently for individuals than to visiting groups.

#### **2.4.3 Formal learners**

Users in some kind of formal education, either schools, tertiary education (16-18), further education and higher education. The category includes students and teachers/lecturers, although these types of users were separated in the individual profiles. School students clearly would have an age range (4-16) implicit within their definition; it is assumed that further or higher education users would not.

#### **2.4.4 Informal learners**

Users wishing to develop their personal knowledge either for reasons of leisure or to pursue self-directed learning outside the scope of any formal education organisation.

As noted above, this category included slightly unsatisfactory and extremely broad user profiles such as 'Adult' and 'General public', both used repeatedly by projects. It is possible that if an agreed user profile standard were to emerge, these categories would either be refined or replaced by more specific descriptions.

#### **2.4.5 Work-related categories**

Users whose occupation reflected specific information requirements and modes of use. Clearly not all occupations are listed here. Those included are simply those who had figured within existing evaluation. Although it is not suggested that it would be necessary to compile an exhaustive list, it is possible that other key professional users of cultural resources should be included. It is envisaged that this might be another outcome of further discussion within the cultural sector as a next step on from these findings.

#### **2.4.6 Users with special needs**

Users with sensory, physical or learning difficulties which may affect the way in which they are able to use a resource. Although the W3C has taken account of the special needs of some users of online resources, only three of the documents reviewed made explicit mention of these needs in evaluating or developing resources. This is despite anecdotal project evidence that a number of projects have taken special measures to ensure that their resources can be accessed by as many members of the user community as possible.

#### **2.4.7 Access to ICT**

The way in which users access online resources, including technical considerations, availability of hardware and connectivity. Although online access in the home continues to increase (for example, currently 52% of homes in the UK), the availability to broadband is still a limiting factor, particularly for those in rural areas, who may also be those least likely to make 'real' visits to cultural sites on a regular basis. Ensuring that resources are accessible over low connection speeds for instance, is essential in promoting the use of online resources, while at the same time, the cultural sector is well-placed to respond innovatively to the existence of broadband connectivity.

### **2.5 General descriptions of user**

As noted, the following categories were not used as the primary means of profiling users, but were sometimes used to complement those categories of special interest to the cultural sector.

#### **2.5.1 Socio-economic categories**

These categories were chiefly used within more traditional market research surveys. There was no evidence to suggest that these categories have been adopted by the broader cultural sector in evaluating online resources, despite their potential for discovering the extent to which cultural services are able to access groups of users often excluded from their audiences.

#### **2.5.2 Age**

The age of users was most used in determining users who were retired, and who were therefore likely to be using resources either through personal interest, formal, or non-formal education rather than in a professional role.

#### **2.5.3 Gender**

Gender was noted by a very few projects, seemingly to distinguish between responses by non-users of existing services and as part of market research.

## 2.6 Issues in the description and definition of user profiles

A number of issues were identified which will need to be addressed in proposing any common approach to agreeing user profiles within the cultural sector. These included the following significant issues:

- **Granularity of user profiles**

A common factor in any type of categorisation exercise, the issue of granularity of user descriptions arose within the analysis at an early stage and has not been fully resolved since it is felt to be in part at least, an issue which should be resolved with input from the professional community. An example of this multi-layered problem exists within the 'Users within formal education' category of users. In this instance 'Education' was used as a user profile in at least five projects, with no attempt to refine it further. However as can be seen in Figure 1 and in Appendix 2, there were a number of additional, more detailed user profiles in this category, and these detailed descriptions were used in a wide range of projects. However in the context of a project where perhaps a user survey is being undertaken and users in formal education form only a small proportion of the overall user constituency, the broader 'Education' profile would be appropriate, although not helpful to those projects for whom specific subgroups of the education market are a priority.

Within the Users in formal education category however, there were a number of still more detailed user profiles which could be specified. For instance the English 'Key Stage' system for identifying primary and secondary school levels of study, (i.e. Key Stages 1- 4) could have been enumerated separately since most resources aimed specifically at students and teachers will target one or two at most, of these Key Stages. However the decision was made to group these together since the education market is only one of a number of target audiences for the cultural sector and it was felt more appropriate to see this group in context, as well as to achieve a sense of unity across the educational systems in different countries. Clearly, local projects would be able to define their audiences more specifically, but to do this they will use the prevailing definitions in their country, especially since curriculum material is likely to vary from country to country.

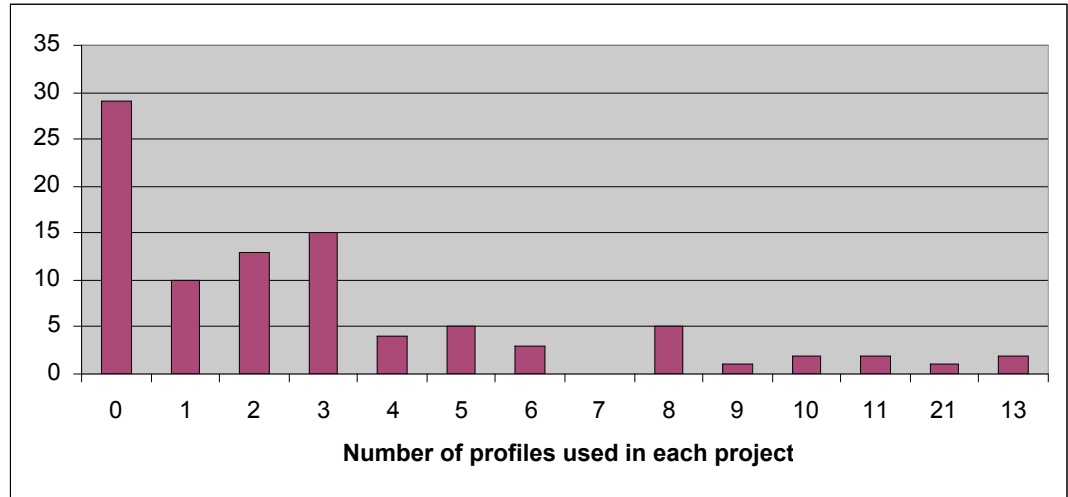
- **Identifying and handling multiple profiles**

Of all the issues identified in the analysis of user profiles, this is the most significant, in that it challenges any assumption that it is possible to assign a single user profile to any individual or project.

As can be seen in **Figure 11** below, where projects defined their target or actual user groups, the majority used multiple user profiles. In some cases this was because the provider felt that the resource met the needs of more than one type of user (e.g. school students and school teachers) however more often, it was because resources regarded their individual users as multi-faceted; i.e. able to be categorised in more than one way. For example, a tourist might also be categorised in terms of his/her country of origin, they may be a parent planning a visit, and may have limited access to the internet. It is the multiple use of profiles which builds up a more detailed picture of a user and enables a provider to target resources which will be better able to meet users' requirements. As the

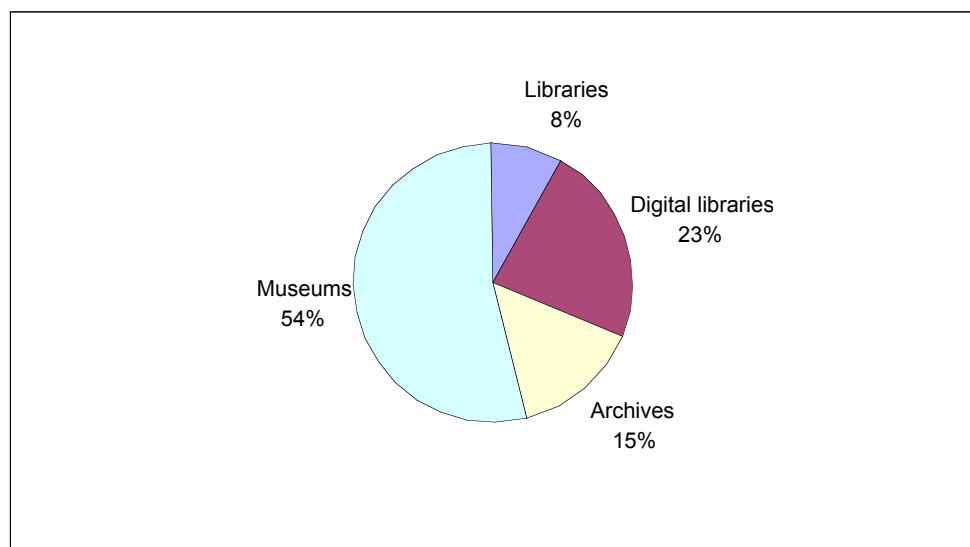
chart below shows, most resources used between two and five separate user profiles either in planning or evaluating their resources, or in describing the users of their resources as a result of evaluation and user consultation.

**Figure 11**  
*Numbers of user profiles per resource*



- Uneven coverage**  
 A relatively large number of contributions originated in the higher education, built-heritage and museum sectors, with relatively few from libraries. (see **Figure 12** below) Given that public (as opposed to specialist or academic) libraries interact with a wide cross-section of the public it is possible that additional profiles may be identified, in particular within the category of Users categorised by leisure and non-formal education.

**Figure 12**  
*Breakdown of domain of origin of material (coverage)*



As indicated in Figures 2 and 9 above, although a number of projects are known to address in detail the needs of users with visual impairment or disabilities, little material from these projects was submitted to the review despite targeted requests. However the categories were included since there is known to be an increasing level of awareness of these user needs within the profession.

## 2.7 Proposing a user profile matrix

The analysis of the use of user profiles clearly demonstrates the need to record multiple attributes in order to build a full user profile. In order to accommodate this need, it is proposed that a matrix approach should be adopted, whereby a provider might build a detailed user profile by selecting characteristics from more than one of the User profile types identified in Figure 1 above.

The benefit of this approach is that it would prompt providers to take account of the different ways in which users' identities, characteristics or motivations, might affect their information needs and also have an effect on the way in which they might use a resource.

There would however be a number of issues to resolve in the practical implementation of such an approach. These would include:

- **Determining how the different elements of the matrix interact**  
For example, providers will need to consider the impact of limited access to ICT on use by school students and parents accessing resources from home. Such complexities will not be *created* by the matrix, but will be brought into sharp relief and will present providers with explicit issues to address in creating resources online.
- **Comparison of use across resources**  
Any proposal to formalise the assigning of multiple descriptors within a user profile may make it difficult to obtain reliable comparative evaluation data across different services which have used differing user profiles. However provided that the full profile is cited when making comparisons, it may still be possible to improve upon the current situation where there is no mapping between the categories used by organisations.

## **2.8 Developing standard user profiles**

The extent of commonality across the material reviewed suggests that it would be worthwhile to pursue a consensus on the development and implementation of standard user profiles in the cultural digital sector. Any such standard would need to be agreed in discussion with the wider community, and would also need to reassure providers of their ability to define profiles at a more specific level within local projects.

Overall however the existence of standard profiles would appear to offer the opportunity not to have to reinvent the wheel at the outset of each project. A range of more specific definitions could also be offered (for example in order to specify particular educational user groups), in order to guide projects in refining profiles to suit their specific needs, whilst working within a framework which would allow them to benefit from others' evaluation, and able to share meaningful results across the wider community.

### **2.8.1 Consultation**

Consultation with the aim of achieving consensus on user profiles should be undertaken at a broad level in order to come to an agreement which the community is willing to implement. However given the manageable scope of the profiles and the extent of commonality which already exists, the process should not need to be a protracted one. Key contributors to any discussion should include:

- Contributors of evaluation material to the current CCF review project.
- CCF members
- Digital service providers in the cultural sector who provide resources at a national, regional or subject-specific level
- A small number of key organisations who may not have contributed material but who are known to have undertaken work in this area. These could be nominated by the relevant CCF member within each participating country.

The contributors would be asked to comment on the user profiles drawn from the current analysis, within a restricted timescale. The resulting comments would be assimilated and the updated profiles published as a prototype standard for implementation and review within the community for a set period. The scope of the profiles and the fact that they are unlikely to be subject to frequent or radical change means that their maintenance should not be particularly burdensome. The responsibility for updating them as required might therefore be assigned to an existing CCF member willing to take the responsibility for this role.

### **2.8.2 Further research**

A number of issues may need to be addressed in agreeing a standard which the wider cultural community feels able to implement. They include the following issues which contributors should be invited to discuss during the consultation outlined above:

- terminology used to describe user profiles, including the definition of a user profile (as opposed to the different user attributes which might comprise a full profile). The terms used in this analysis have been drawn from the documents reviewed and aside from attempts to introduce a degree of clarity to distinguish between different descriptions, the terms used have not been updated;
- the definitions of the more general descriptions, as well as those which appear to be overlapping, will need to be addressed;
- the scope and evenness of coverage of the existing material remains an issue, with little input from some areas of the cultural sector (e.g. libraries). There are some subsets of the data (e.g. built heritage and environmental information projects which shared the need for specific user types (e.g. planning officers) and there may be a need to identify additional, more specific user profiles for these and other specific domains within the cultural sector in the future.

### 3. Metrics

#### 3.1 What are metrics?

In the context of the current analysis, 'metrics' refers to ways in which standard measurements can be applied within the methodologies and results of digital resource evaluation. The aim of this stage of the analysis was to identify common approaches to the use of metrics within evaluation exercises and to explore ways in which these approaches could be implemented across the digital cultural sector. The potential end result of this process would be one or more indices which could be applied to evaluations in order to gain an understanding of their comparative performance in relation to other services.

#### 3.2 Methodologies and metrics used within the evaluation reports

A wide range of methodologies were used within the evaluation reports. These are described in **Figure 13** below; **Figure 14** indicates the frequency of use of the specific methodologies:

**Figure 13**

*Types of evaluation undertaken and methodologies used*

Type of evaluation	Description
audit	Desk-based assessment of a resource against established standards.
evaluation methodology	Paper concerned with exploring or developing evaluation methodology rather than evaluating a specific resource.
formative evaluation	Evaluation in the conceptual and development stages of a project aimed at identifying user needs and ensuring that the planned resource will meet these needs.
impact evaluation	Evaluation investigating the extent to which a resource has affected a user community, its activities or the way it behaves.
market analysis	Exploration of the potential audience for a resource which aims to scope the structure of the market and identify the primary user groups.
market research	Consultation with user groups to assess their responses to a potential new resource or service.
organisation survey	Consultation of organisations using or providing digital resources.
query analysis	Analysis of retrieval queries submitted to a database.
review	Assessment of projects undertaken as a research exercise as opposed to with users.
summative evaluation	Evaluation undertaken to assess the use of a completed resource in order to determine the extent of its success, to establish how it is being used and what lessons might be carried forward to future projects.

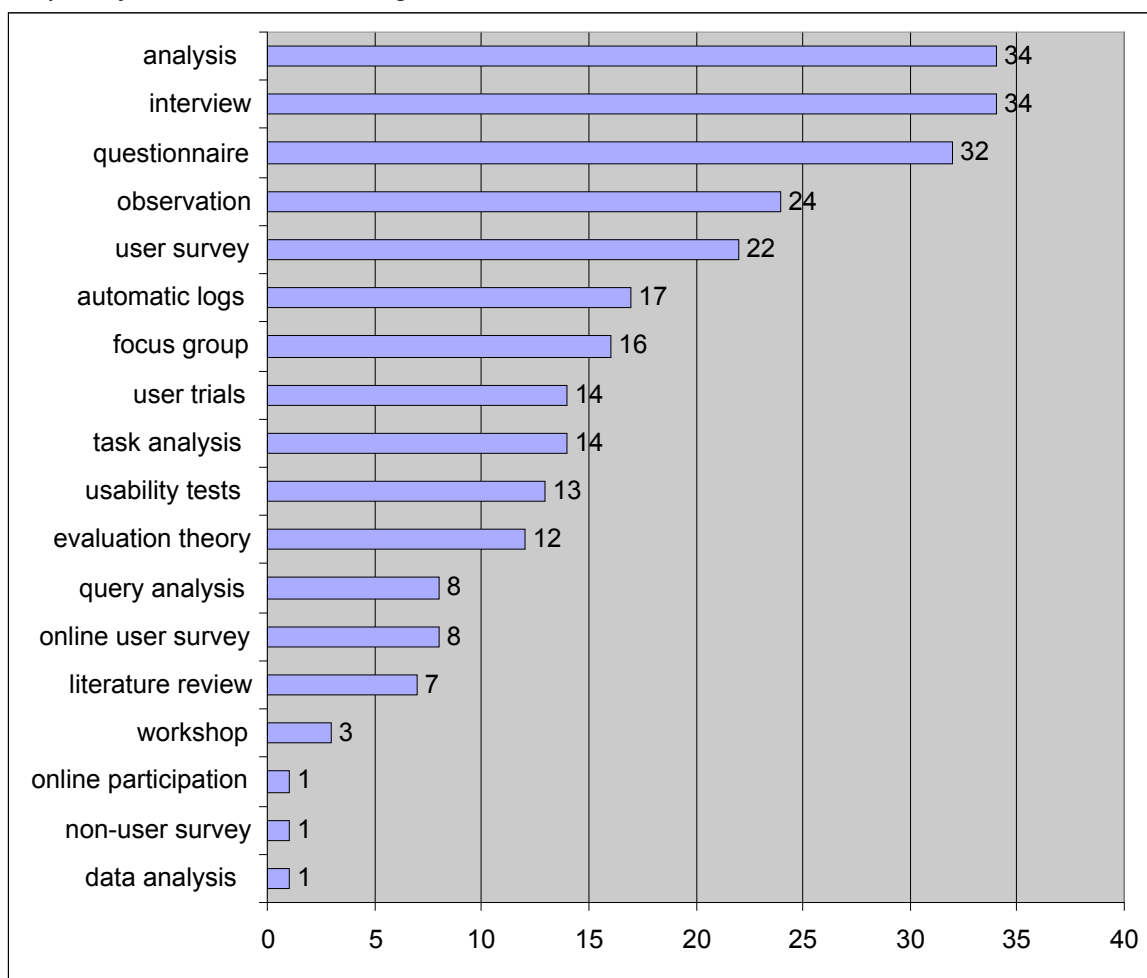
usability testing	Evaluation of a prototype or initial completed version of a resource to identify development errors and/or the extent to which users are able to use the resource effectively and accurately. May cover programming and design/navigation issues.
user behaviour	Evaluation to study the ways in which users use a particular resource, aimed at developing a greater understanding of users rather than evaluating a specific resource, although the results may inform the way in which a resource is developed.
user requirements	Consultation to establish user needs at the outset of the development of a project.
website analysis	Assessment of existing websites and their use for comparative, research and survey purposes.
website usage statistics	Automatically-generated statistics showing numbers, domains etc. of website users.
<b>Methodology used</b>	<b>Description</b>
analysis	Desk-based analysis of existing information.
automatic logs	Statistics produced automatically by website and/or database software.
data analysis	Analysis of information content delivered by services.
evaluation theory	Proposition and/or investigation of theories relating to evaluation and user behaviour.
interview	Face-to-face or telephone discussion with individual users relating to their use of a resource. May use a script or prompt-sheet.
focus group	Face-to-face discussion with groups of users, relating either to their (potential or actual) use of online resources.
literature review	Survey and analysis of literature relating to a particular aspect of evaluation
non-user survey	Feedback from non-users of a resource; may take the form of questionnaires, interviews or survey.
observation	Direct observation of an individual using a resource. Observer will usually take notes; usually undertaken in conjunction with an interview.
online participation	Participation in an online activity (chat, real-time feedback) relating to a resource
online user survey	A user survey made available for users to complete online.
query analysis	Analysis of retrieval queries submitted to a database.
questionnaire	Questions completed by user in relation to their use of a resource. May invite multiple choice and/or narrative responses and may either be completed by a facilitator or independently by a user.
task analysis	User undertakes a proscribed activity using the resource, under observation by the evaluator.

usability tests	Use of specific aspects of the resource by users who report back issues and problems with the resource. May be undertaken in conjunction with observation, interview and/or questionnaire
user survey	Obtaining feedback from users on a large scale, inviting responses to specific questions. May use interview, questionnaire or online questionnaire.
user trials	General use of a resource by users, usually at a later stage to usability tests, in order to gain an understanding of whether or how users respond prior to formal release.
workshop	Facilitated focus group but involving hands-on activity using the resource.

**Note:** Descriptions above are drawn from evidence presented in the material received and are not intended to be exhaustive in scope.

**Figure 14**

*Frequency of use of methodologies*



### **3.3 Issues in the definition and implementation of metrics within evaluation studies**

Overall the submissions to the project did not enable firm recommendations to be made on how metrics might be developed which could be implemented across the sector. The reasons for this are as follows:

- many submissions did not cite any methodological information at all;
- of those submissions which contained methodological information, few provided a sufficiently detailed account of the methodologies used in evaluation, which could be used as the basis for a proposal;
- those which did provide detailed accounts of methodologies, or which proposed methodologies in detail, did so in a highly specific and/or theoretical manner which was inappropriate for consideration as a scheme able to be implemented in other organisations.

The initial aim was to cite examples of issues based on a subset of the dataset. However given the variable standard of reports received in terms of methodology, it was felt that it would be inappropriate to identify this subset. Instead, examples of good methodology have been identified where appropriate below. The selection of examples is not exhaustive, but it is anticipated that these and other documents reviewed might serve as exemplars for providers undertaking evaluation projects in the future.

The lack of methodological information does not necessarily mean that providers have necessarily embarked upon the evaluation process without due consideration. In some instances it is clear that this has been the case, however the methodologies and, more specifically, the tools used, have rarely been documented in detail as part of the material submitted.

#### **3.3.1 Areas of strength**

The following were felt to be aspects of the evaluation process which were well-represented in the material received. Generally they reflected the extent of the face-to-face evaluation which has taken place in a majority of projects and demonstrate that, despite the absence of widely agreed standards, there is a relatively high level of professional awareness in this area. (Where references are provided, the numbers in bracket refer to the number assigned to the document in the CCF database)

- **Market research**

The market research material submitted was largely focused specifically addressed users' responses to digital resources; this was not simply one aspect of broader research exercises. Organisations carrying out market research clearly had specific issues which they wished to explore in relation to planned services. Although market research questionnaires often began with more general questions about internet access and use and some personal details, this information was used to provide a context for the results of the rest of the questionnaire. Given the specificity of questionnaires in relation to planned services there appears to be little opportunity to develop a shared approach to questionnaires. However it may be worthwhile to consider:

- regular market research across the cultural sector to provide organisations with updated information on general user behaviour in relation to the uptake of, and use of, cultural digital services. This could be undertaken on a subscription basis and would provide benchmark and trend information on user behaviour. This would be similar to services such as MORI's *Omnibus* service;
- provision of guidelines to assist organisations in creating effective questionnaires and market research programmes.

Particularly successful examples of market research received in the survey included:

- Great Expectations - Virtual collections in the information age Manchester Museums Consortium (2)
- Perceptions of wireless computing in museums [http://www.cimi.org/public\\_docs/ps1\\_write\\_up4.html](http://www.cimi.org/public_docs/ps1_write_up4.html) (40)
- Herefordshire SMR Survey (78)
- Images of England: User Evaluation and Market Research (80)

- **Task analysis**

A number of projects included task analysis as elements within evaluation projects. These projects were potentially informative in terms of the specification of the activities users were asked to carry out on applications being evaluated. In one instance highly detailed information was provided about the observation process. However there were issues with much of the information provided in these documents in terms of their ability to provide a model for other projects. These issues included:

- the specificity of the tasks specified within the evaluation for users to undertake. These were inevitably applicable to specific applications, whereas the most useful most useful information for other projects would be guidance on how to use task analysis and how to devise activities which would best test the application in question;
- the process information which was included (e.g. details on observation which were provided in (62) below), was rarely at a level useful for those projects who may not be undertaking evaluation as a sophisticated research exercise and would not necessarily have access either to specialist equipment or dedicated spaces.

Evaluation information obtained from task analysis can be gathered automatically, but is likely to be more useful if obtained using observation. The need for briefing, observation and interview (with or without a questionnaire) is therefore an important context for task analysis. Although some projects had clearly used these tools, again, the methodology was not set out in a way which might enable other projects to emulate the process, not because the evaluation was being managed badly, rather, because it was being undertaken in the context of a specific project with the end, rather than the means, being understandably the priority.

Task analysis projects which were documented in more detail included:

ADS User Focus Group (unpublished) (81)

Evaluating the usability of a museum web site

Harms, I.; Schweibenz, W. (Museums on the Web 2001)

<http://www.archimuse.com/mw2001/papers/schweibenz/schweibenz.html>

(62)

- **Observation and/or interview**

It was the number of projects (over 40 projects used one or both of these techniques) which demonstrated the extent to which face-to-face and/or one-to-one contact is regarded as a key element in successful evaluation. The sector has moved away from regarding a questionnaire or comments book as adequate evidence of the extent of the success of a resource, and is soliciting more detailed and focused feedback. The quality and relevance of the feedback also evidenced the benefits of using a personal and pro-active approach in evaluation projects. However as in the other evaluation processes, the results of the process were clearly the focus of the projects concerned. None of the projects used a systematic means of measuring the feedback they received; all regarded as their priority the need to obtain information directly relating to the resource being evaluated. Some mentioned the use of questionnaires and structured interview 'prompt sheets' but these were not submitted for analysis.

Evaluation material which demonstrates the quality of feedback obtained using observation and interview included:

Boyd, Nicky

Emuse: Public Access Evaluation and Development Proposal

City of York Museums (23)

Economou, Maria

Interactive Multimedia for the Public Presentation of Archaeology: The

Euesperides Project (30)

Lewis, Laura

At Home in the Heartland: Forming a Museum/School

Resource Via the World Wide Web

(Museums on the Web 1997)

<http://www.archimuse.com/mw97/speak/lewis.htm> (47)

Are they watching? Visitors and videos in exhibitions.  
Serrell, B. (Curator [journal])  
[www.psi-com.org.uk](http://www.psi-com.org.uk) (90)

### 3.3.2 Areas of weakness

The following aspects of the evaluation process which were under-represented in the evaluation material submitted:

- **Non-user surveys**  
Very few evaluation projects explored non-users of digital cultural resources. For some providers (e.g. higher education) it could be argued that their core user base is a strong one which is highly motivated to use digital resources. However for most domains within the cultural sector there would be clear benefits to be gained from developing a greater understanding of the motivations, priorities and interests of its non-users. For example, there are a large number of special-interest groups many of which do not use online digital resources which might be highly relevant to their work. Where audience development work has been undertaken (e.g. as documented by the Cheshire Sites and Monuments Record in the HEIRNET *Users and Uses of HEIRs* report (75)), this has resulted in an increase in the use of digital resources. Most reports which consulted non-users of resources either did so from a very general perspective (e.g. the *Attitudes towards the Heritage* survey conducted by MORI for English Heritage (79)) or with a view to developing a specific digital resource (e.g. the *Culture Online: Second Stage Qualitative Study Report* (77)).
- **Impact evaluations**  
Only one report (*Impact evaluation of Museums, Archives and Libraries: Available Evidence Report* (8)) dealt with the issue of how cultural organisations affected the subsequent actions and activities of users. No report explored the impact specifically of cultural digital resources. The significance of this type of research is that it provides insights into user behaviour and behaviour changes brought about by resources, which should inform future development.
- **Understanding the use of resources within users' activities**  
Developing a greater understanding of the use of resources within user activities is a specific aspect of impact evaluation which deserves greater attention in evaluation, and which was not explored in any of the reports submitted. There is evidently a paucity of understanding of how users might, for example, incorporate the use of digital resources into a research project, a school homework project or a plan for a 'real' visit to a museum, archive or library. Knowledge about *how* users use information from digital resources may affect the modes of access to, and presentation of, digital resources.

### **3.4 Establishing best practice in the use of evaluation methodologies**

The primary aim of undertaking this section of the analysis was to identify common measurements which could be applied to the results of evaluation projects. The review of the available material suggests that this is not yet possible and that, even if the additional material which had been sought from organisations had been submitted, this would still have been the outcome.

A common approach to measurement of results assumes that there are commonalities in the methodologies being followed by providers. Although there is an increasing awareness of professional good practice for evaluation projects within the digital cultural community, this has emerged through a process of 'professional osmosis' rather than in any formal manner. It is clear that many projects spent some time working out how to evaluate their resources prior to undertaking the evaluation itself; there is a sense that organisations are frequently re-inventing the wheel and that there is a need for formal guidance on the evaluation process.

At the present time, any development of universal metrics which might be applied to evaluation projects would be dependent upon either specialist research or, more feasibly, upon the development and promotion of a formal consensus on standard evaluation processes across the sector. A demonstrable need for, and potential for, a common approach to measurement might then emerge. Where methodologies were proposed within the papers submitted, they tended to be of a highly academic nature and in a format which the wider cultural community would find difficult to translate into a practical process.

The analysis demonstrated that there exists an opportunity to fill a gap by developing guidelines for best practice, since the amount and quality of evaluation, both formative and summative, applied to most projects, is inadequate as follows:

- given the investment in digital resources, insufficient investment is made in the evaluation of individual projects;
- where evaluation is undertaken, the scope and nature of the evaluation methods deployed often results in less information being gleaned from the process than should be possible.

The issues addressed below are therefore proposed in relation to the development and implementation of standard methodologies, rather than of determining a common system of metrics.

### 3.4.1 Consultation

Initially the CCF will need to address the issue of whether it wishes to accept that promoting standard evaluation methodologies within the digital cultural sector is a desirable course of action. If it should decide to focus its attention in this area then the process of consultation should be broadly the same as that set out for reaching agreement on the issue of standardised user profiles, as set out in 2.8.1 above. However as a precursor to this it may be necessary to propose outlines for standard processes for evaluating digital applications by consulting organisations within the sector. This could be achieved by means similar to those adopted by the sector in agreeing metadata standards for describing education material<sup>2</sup>, i.e.:

1. Invite individuals and representatives or organisations to meet and identify priority issues
2. Facilitate the development of a consensus on evaluation best practice in the priority areas
3. Disseminate the proposals to the wider community for discussion and evaluation
4. Incorporate feedback and promote the adoption of the agreed best practice.

### 3.4.2 Further research

In addition to the steps outlined in 3.4 and 3.4.1 above, the analysis of material submitted to the review suggested that the following short-term research activities would complement the development of standard evaluation methodologies:

- a literature review of existing evaluation methodologies across the broader digital sector as a whole might be undertaken; key elements could then be mapped to the emerging professional practice within the cultural digital sector. A wider literature trawl would also provide insight as to whether the proposed use of standardised metrics has been deployed elsewhere, how, and with what degree of success;
- questionnaires and interview prompt sheets could be requested from selected contributors and then analysed on the basis that the results may highlight areas where it might be possible to establish benchmarks or standard measuring devices;
- detailed tools such as these could also be provided as models for sharing across the cultural digital community (cf. The Texas Museums Association's *Museum Forms Book*).

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<sup>2</sup> Information about the Metadata for Education Group (MEG) and the MEG Concord is available online at <http://www.ukoln.ac.uk/metadata/education/documents/concord.html>

### 3.4.3 Recommendations

The following are recommendations for addressing evaluation issues which will need to be considered by the digital-cultural community as it prepares to improve and extend the way in which it evaluates its online resources.

#### **Recommendation 1: Promote skills and training**

Cultural organisations should promote the development of appropriate skills within existing staff, providing training where necessary.

*The process of evaluation is essentially a highly social and interactive one, which can involve a wide range of staff, particularly those already skilled at dealing with users of cultural services. As there are no formal guidelines for undertaking evaluation work as yet, a key factor in ensuring the success of evaluation projects is to learn by doing. Those organisations who have emerged as leaders in the sector have done so simply by prioritising evaluation activities and building expertise in-house. This local expertise has become recognised and has spread across the sector to build the current level of awareness. Until evaluation is formalised in any way therefore, it is important to maintain and increase the existing level of activity in order to build a general skills base able to participate in the development of guidelines, to test them and to implement them as consensus is achieved.*

#### **Recommendation 2: Promote organisational change**

Cultural organisations should take formal account of the need for evaluation when planning and funding digital projects

*Feedback from some of the organisations from whom evaluation material was solicited, suggests that investment in evaluation has tended to take a back seat during the development process. The quantity and scope of some formative evaluation suggests that there remains some way to go in the task of persuading organisations to set aside project budgets for evaluation and that in some cases evaluation is not being used to shape and provide direction for, digital projects. Project plans and budgets appear not always to accommodate necessary evaluation. The promotion therefore, not only of the evaluation process itself, but also of the effective use of evaluation results in projects, is an essential job which needs to be done in order to ensure the ongoing quality of digital projects in the cultural sector.*

#### **Recommendation 3: Raise awareness of evaluation**

The CCF should work to raise awareness of the need for evaluation and promote good evaluation practice

*In order to help promote organisational change, the CCF is in a prime position to mobilise key national and umbrella organisations, funders, cultural directors and senior managers of the need to protect investment in digital projects. Any 'bottom-up' activity such as the introduction of guidelines and encouraging robust professional practice should also be accompanied by a 'top-down' effort to raise awareness of the essential nature of evaluation in the development of digital resources.*

**Recommendation 4: Increase openness and sharing of evaluation results**

Cultural organisations should be more willing to share their approaches to, and results of, evaluation projects.

*Despite the quantity of material received from contributors to the current research and repeated approaches made to solicit additional material, some organisations known to have encouraged and led a professional approach to evaluation, were unable or unwilling to contribute to this research. This may have been due to the perceived effort required to assimilate material or may have been due to a reluctance to share. However the current research demonstrates the value of sharing evaluation research to the sector as a whole and the extent to which a collective approach can spare organisations the effort of re-inventing the wheel within individual projects. Sector leaders within CCF should therefore consider promoting the benefits of a more open approach to sharing evaluation results.*

# Appendix 1

## Breakdown of user profiles within the CCF dataset

An Excel spreadsheet detailing the breakdown of user profiles within the dataset is available for download from

[http://www.culturalcontentforum.org/publications/audience/user\\_profiles.xls](http://www.culturalcontentforum.org/publications/audience/user_profiles.xls)