Authors' Note:

Since both phase 1 and 2 of the National Collections Online Feasibility study were completed, the digital strategy for the MLA sector (called the Integrated Architecture Project at the time of writing) has evolved, the National Museums Online Learning Project has launched and data aggregation technology has moved on. As this report is being published over 12 months since its submission it is important to note that the recommendations and some of the text may have been articulated differently if the submission date had been closer to that of publication.

To assist cultural and heritage organisations make sense of the constant evolution of technology and best practice in this area Flow Associates now offers an ongoing advisory service.

National Collections Online feasibility study

Phase 1 report, June 2008

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Contents

1. Executive summary

1.1 Headlines

1. This study reflects the ambition of the V&A, the National Maritime Museum, the NMSI, in partnership with the NMDC and Culture 24, to work together to investigate the potential for developing a joint online resource that will provide the foundation for future joint educational, research, creative and other online public initiatives.

2. The three museums initiated this partnership project because

   - they have a shared commitment to address these issues.

   - they believe between them that they will need to address most of the key issues that any wider consortium would face.

   The partnership does not speak for the sector, but the process involves wide consultation and what is learnt may have value for other institutions. The role of Culture24 is to offer experience and advise from their perspective as online cultural publishers and data brokers. They can also provide a neutral test site for any new online ideas.

3. Phase I of the study (summarised here) can be broadly categorised as having two purposes:

   - 'information gathering', canvassing a large community of enquiry to understand the technological, political and institutional landscape in which any solution to interweaving collections online will operate

   - Offering a 'menu' of options or routes by which the ambitions of the partners might be realised – from which the project board in consultation with the study's authors can recommend options for more focused investigation in Phase II

4. In our consultations with the sector and beyond it was found that:

   - There was frustration that England (and the UK overall) is behind other countries in not having a highly co-ordinated national collections offering

   - The majority of contributors suggest that the challenge of aggregating or federating collections is worthwhile and they value this study for the opportunity to explore options

   - The majority of contributors made it very clear that they did not think this project should result in a new single 'portal' or 'gateway' site

   - There are tensions between two 'paradigms of use' for cultural content online: Seeking 'cultural experience' v. Seeking information or resources – although these are not mutually exclusive. This tension is reflected in the traditionally 'aggregating' nature of museums v. the web as a 'disaggregator' of content. When museums put their collections online they become disaggregators and need to deal with the implications of that

   - There is a desire for more research to establish the responses of users to digitised collections online and in particular the unprecedented forms of integration and cross-institutional examination now becoming possible

   - There is enough commonality between the project partners to move forward together beyond this study. In particular:

- An interest in the potential of achieving useful strategic developments that benefit the wider sector: To give two of many possible examples, this project could create a platform for delivering digital aspects of the notional 'Museum of British History' or support the MLA/Cultural Olympiad project 'Stories of the World'. It could also pave the way for connections with broadcasters developing content for a new era of converged media.

- An interest in how this project can develop a model for museums to respond swiftly to changing political agendas, by easily delivering online experiences with 'current' emphases (e.g. on political and social citizenship, climate change, sport, science, international projects or the Olympics) or to new audiences.

- There was a strong consensus that if such an interweaving of collections is to be created it should have no limitations on audience:- That this should be a broad national offering for everyone, including commercial users, specialist researchers/ enthusiasts, educational users, tourists and museum visitors.

5. There are 4 main routes moving forward:

- **Option One** – Building a 'single trusted gateway' to a new single data repository

  The Board have decided that this option should not be explored further.

- **Option Two** – 'Embrace the Integrated Architecture Project'

  The project board expressed the view that IAP should be investigated, paying attention to:

  - *The practicalities of contributing collections to a database (in particular, the ability to automate updates of new collections information or material)*

  - *Broadening access to museum collections (in particular its potential to use technologies to distribute the data to other websites, to combine it with other data, and to be interpreted and creatively reused in online communities)*

  - *The possibility of influencing the future direction of the project to see if it can deliver the outcomes of this study.*

- **Option Three** – Focus on creating a 'decent federated search'

  The project board expressed interest in this option and wish for it to be investigated further – looking at two sub-options:

  - *Developing the NMOLP 'OpenSearch'*

  - *Building a federated collections search using Google*

- **Option Four** - Encourage multiple experiments as 'action research'

  The project board expressed interest in investigating how lightweight technology prototypes could be utilised in the process of defining the best solution, in particular how these might help enhance audience engagement.

Note that these options are not mutually exclusive. Pursuing more than one would enable the partner museums to make decisions in future that are based on a stronger evidence base.

1.2 The original brief

The project board summed up the aims for the study thus:

As the digital world expands, the lack of a gateway to the nation's vast arts, humanities

and scientific collections becomes not just inconvenient and undesirable, but untenable and significantly inefficient. Web 2.0 is raising public expectations of access, engagement and reuse, and the sector needs to explore how best to meet these expectations. A single trusted, useable resource would offer significant efficiency savings and facilitate the development of enhanced features making full use of social technologies.

The V&A, the National Maritime Museum, the NMSI and Culture 24 are together investigating the potential for developing a central national online resource that will provide the foundation for future joint educational, research, creative and other public initiatives, open to other partners. A feasibility study is the first step towards this ambitious project."

The three museums initiated this partnership project because:

- They have a shared commitment to address these issues.

- They believe between them that they will need to address most of the key issues that any wider consortium would face.

The partnership does not speak for the sector, but the process involves wide consultation and what is learnt may have value for other institutions. The role of Culture24 is to offer experience and advise from their perspective as online cultural publishers and data brokers. They can also provide a neutral test site for any new online ideas.

There are two phases to the study. This report documents Phase I, dealing with:

- How the project can advance the individual partners' interests and strategic priorities, mindful of material differences in institutional policy, underlying concerns about funding and issues of workload, given museums' limited resources.

- The possible cross-over/integration of this project with other cultural-sector initiatives, and reasons why earlier initiatives may not have delivered integrated national collections.

- The taxonomical issues of dealing with multiple collections data as well as reviewing available visitor research to identify what functionality users might want.

Phase II will consist of an options analysis, focusing on:

- The views and capacities of the partner organisations in relation to the options

- The technological means of delivering each

- The possibilities and limitations of each option to engage audiences.

1.3 The methodology

A broad group of experts, from the partner organisations and beyond, were invited to form a 'community of enquiry'. They were asked to contribute in 3 ways:

1. Through 46 one-to-one interviews

2. By contributing thoughts in an online forum

3. Attending workshops.

A full list of participants can be found in the relevant appendices.

They formed two main groups:

1. Directors and a range of other staff from the partner organisations (who will be the primary group for consulting on the options in Phase II)

2. Representatives from policy or professional bodies, other museums or related initiatives, including the Strategic Content Alliance, MLA, Collections Trust and the European Digital Library.

In addition, Flow Associates undertook contextual desk research, the summary of which forms a 'story' of initiatives since the NMDC's vision a decade ago to create 'A Netful of Jewels', a co-ordinated grid of cultural collections online. The story touches on several initiatives, including Culture Online, NOF Digitise, Digital Futures, the DfES e-strategy, the European Digital Library and the Strategic Content Alliance.

1.4 Findings

1.4.1 General attitudes

1. Most respondents expressed frustration that England (and the UK overall) is behind other countries in not having a highly co-ordinated national collections offering. Seb Chan of Sydney's Powerhouse Museum (seen by many as at the forefront of facilitating online access to collections) summed up this frustration when he remarked that it is 'extraordinary' that UK museums 'lack a decent federated search'.

2. The majority of contributors suggest that the challenge of aggregating or federating collections is worthwhile and they value this study for the opportunity to explore options.

3. There were some challenges to this, questioning if there was enough evidence that collections online were used and valued by audiences to justify further investment, and also wanting more evidence about how the aggregated collections in other countries were being sufficiently used and valued.

4. A small number of challenging voices wondered why this study had been commissioned when:

   - There seems to be an initiative to address this issue already in progress (IAP as 'feeding into' Europeana).

   - The sector hasn't identified in any detail the market need for cross-collections access.

5. However, the strongest divergence of views lies not in *whether* aggregation/federation of collections should be embraced, but in *how* it should be realised.

   - Should we aim to create an authoritative museum collection database for all collections, which would imply a 'portal' site distinct from the museums' own sites?

   - Should we embrace a more distributed approach, using available web-services to search, combine and syndicate data from multiple collections?

6. Another interesting perspective is the assertion that, when it comes to presenting information, traditional museum practice and the web are at opposite ends of the spectrum. Museums are 'aggregators', gathering objects together within a boundary of 'a collection' or collections. But the web can be seen as an opposite force. Essentially it *disaggregates* items from within existing boundaries (buildings, brands, collections) and allows us to reconnect them in our own frames of reference. Working with the web therefore requires work to be done to address issues of, say, copyright, along with new thinking about how 'aggregator brands' (museums) can work in a disaggregated world (the web).

1.4.2 Anti-portalism

The majority of our interviewees made it very clear that they did not think this project should result in a new single 'portal' or 'gateway' site based on a 'walled garden' data repository. Challenges to this came from

staff across most of the partner bodies, at varying levels of seniority, as well as from the external interviewees.

This 'anti-portalism' varied in strength and rationale:

- "Without myriad points of entry a cross-collections access is flawed. We need a cross-collections access tool that can sit on many sites, not one"

- "Don't develop another portal because we have a perfectly good one coming in the form of Europeana, which we can contribute to through the Integrated Architecture Project (IAP)"

- "We mustn't send visitors away from our own websites."

Views that were more supportive of a repository/portal came from those:

- Promoting the IAP/Europeana route

- Concerned that users might 'stumble into chaos'

- In favour of a consistent depth of field of metadata that they feel is only possible with a data repository

- Suggesting that a new best-practice collections management system could be applied, such as K-Emu.

It is important to point out that single repository does not equate with a single 'portal' and some views expressed may come from this not unreasonable (though incorrect) belief.

1.4.3 Tension between 'culture' and 'information'

In our interviews it became clear that interviewees saw two 'paradigms of use' for cultural content online. These paradigms can be categorised as follows:

Users either,

- Seek 'cultural experience' by:

    - looking for recommendations or going to museum brands they know,

    - searching out information to plan real-world museum visits using the web,

    - finding creative participation, or narratives, that evoke a 'real world' museum visit in an online context

or,

- Seek information or resources by:

    - looking for any data that deals with their particular interests

    - using a wide range of online tools e.g. Google, Wikipedia, virtual libraries, image libraries or museum websites

    - relying on authoritative brands that they know and trust, for example public service broadcasters, knowledge aggregators and museums

    This latter group can be considered 'museum agnostic' - i.e. they may or may not care if objects they come across are in museums or not, let alone care which museum. Note that the same person may be a museum fan and a 'museum agnostic' when using the web in different contexts.

If there was a tendency to characterise potential users in either one way or the other, this was because interviewees were focused on the audiences they know most about, and had made certain assumptions

about what this offering should be accordingly.

On the whole, the staff working in museums (whether the three partner museums or beyond) tended to see users in the first group, whereas interviewees who did not work within museums or had previously worked outside them tended to see users in the second group.

Our recommendation would be to acknowledge both paradigms. Providing for both will involve distinct streams of work.

- Catering for 'informational' uses will require a sound technical infrastructure, which enables data to be served in flexible ways, removed from silos, not limited by themes or types of collection, and distributable across different online outlets.

- Catering for the 'cultural' uses will require editorial 'layers' and learning stimuli that enable online 'conversational' interaction between collections organisations and users.

1.4.4 Questioning the need

Our research sought to answer the question, 'who is the market for an interweaving of national collections online?' Answers fell into three broad categories:

- 'We don't know, let's find out'

- 'Everyone'

- A diversity of suggested target groups, such as schools.

1.4.4.1 The call for more audience research

Some contributors (both external interviewees and some key staff in the partner museums) expressed the view that we should begin by clarifying whether or not the lack of integration of national collections is really a problem. Do we really understand how different people use cultural collections online? They point out there is no solid body of *published* research with a comprehensive view on how audiences interact with cultural collections online.

It is known that teachers and academics demand information, such as articles and learning packages, to meet their subject needs but it is still not clear if they are making much use of unmediated cultural collections *per se*.

Furthermore, we do not know what the market is for cross-collections searching and aggregation services.

1.4.4.2 A call to 'research by prototyping'

Some of the project partner staff pointed out that the UK has invested millions in digitisation so now it is our duty to create products to better use this digital content. The project board agreed that we should not wait for lengthy prior research to formally establish need, but instead create prototypes to test audience needs and responses in the 'live arena'. The staff who work closest with the web see that technology offers us solutions to relatively easily and cheaply create cross-collections facilities, which can start small and build with user feedback.

1.4.4.3 The broader the church, the larger the congregation

There was a strong consensus that if such an interweaving of collections is to be created that it should have no limitations on audience, that this should be a broad national offering for everyone, including commercial users, specialist researchers/ enthusiasts, educational users, tourists and museum visitors.

1.4.4.4 Provide a platform

The other strong view was that any solution should not be hampered by the need to create a large amount of new content, or by narrow thematic restrictions. (This is not to say that the project should not evolve through a number of small projects that focus on particular themes, users or communities of interest, as long as they use, and feed into, the overall infrastructure.)

1.4.5 Is this the right partnership?

Views fell into two camps:

- Some respondents asked how the involvement of a small number of partners relates to a possible solution for searching across many collections. How can only three museums' collections provide proof of concept, when the concept is about a critical mass of contributing collections?

- Other contributors, in particular key staff in the partner museums, saw the benefits of a collaboration initiated by a consortium of museums rather than being driven by a policy body. They felt it would encourage a 'realistic approach'. If the concept can be proven by three museums, it could benefit from better 'buy-in' and be expanded to include others museums subsequently. The inclusion of Culture24 and NMDC in the consortium play valuable roles in reaching a wider audience and linking to other stakeholders across the sector.

1.4.6 Commonalities between the lead partners

1.4.6.1 Common concerns

- The need to clean up and create more digitised collection data, which might be seen by some staff as a priority over any new project.

- The fact that projects (such as new buildings or major exhibitions) drive many digital developments, and this may include the development of new infrastructure as well as thematic content.

- A legacy of 'silos of collections data' within each institution, due to discreet project funding, and the difficulty of achieving a common data model between collections comprising, for example, books, artefacts, archives and digital material, which have different collections management standards and software.

- A concern that the goal of a 'monolithic' data repository will be unsustainable and unachievable.

- An aspiration to move from 'project-based' digitisation to 'operational' digitisation, underpinned by sector-wide strategic goals.

1.4.6.2 Common interests/enthusiasms

- A commitment to the aim of some form of cross-searching of collections.

- A tendency to prefer light-weight, slow-building and well evaluated projects.

- A belief that this project could be used to address concerns that digitisation should be a priority, by providing a platform that, through its growing use, will attract funds for digital content and other institutional projects.

- A desire and sense of duty to increase and widen public use of already digitised collections.

- An interest in the potential of achieving useful strategic developments that benefit the wider sector. To give two of many possible examples, this project could create a platform for delivering digital aspects of the notional 'Museum of British History' or support the MLA/Cultural Olympiad project

'Stories of the World'. It could also lay the path for connections with broadcasters developing content for a new era of converged media.

- An interest in how this project can develop a model for museums to respond swiftly to changing political agendas, by easily delivering online experiences with current emphases (e.g. on Citizenship, climate change, sport, science, international projects of the Olympics) or to new audiences.

- A wish to develop a product that enables a breadth of approaches to editorial and user content creation, including tools that relate to places, times, collection items, stories and study subjects. Many of these projects cannot be achieved effectively by institutions working in isolation, or through use of the resources of one institution alone.

- A real interest in the benefits of collaboration, in terms of sharing professional expertise and research and creating more innovative and engaging products for audiences.

- An interest in action research to realise the potential of web 2.0/web 3.0 for audience engagement and for efficiency savings.

- An interest in looking at ways of shifting from a time-limited project funding model to funding strategies that are on-going, and more businesslike – i.e. they respond to a definite 'market' demand and establish multiple revenue opportunities.

- An interest in finding ways of not wasting further resources on false starts.

1.5 Initial options appraisal

1.5.1 Option One – Build a 'single trusted gateway to a single data repository'

1.5.1.1 What might this look like?

Progressing as soon as possible to the creation of a single trusted gateway as a way into a new 'walled garden' data repository that will enable:

- cross-collections searching,

- an adequate depth of field in the metadata, which supports searching across categories of objects, books, archival documents and digital material,

- an authoritative presentation of national collections, aiming eventually for comprehensiveness

- layers of further functionality including User Generated Content and learning resources,

- a flexibility of creative uses of images underpinned by solid copyright policies,

- the use of Application Programming Interfaces (APIs)[1] to enable the presentation and use of this data in multiple contexts (as well as, or instead of, a branded portal),

- clear distinction between each museum brand and clarity about the source of collections,

- provision of a 'route to market' for further digitised collections.

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[1] *Application Programming Interfaces (APIs) act as 'service counters' for the systems that lie behind them. Whilst the owner of the system (say an institution) may choose to present their data and services in a particular way (say, on their institutional website) an API allows other applications to retrieve data and manipulate it or display it in another way. Offering ways into data in this way allows third parties (or indeed the owning party) to offer new interpretations or presentations of that data, and/ or create 'mash-ups' (combining data from one or more source, e.g. from separate institutions). In many circles it is seen as a good business model to create an API when developing a new service, so that your content has the potential to reach a much wider and distributed audience.*

This would be driven by a consortium of the NCOFS partners, at first using only the collections from the V&A, NMSI and NMM. It could then evolve to include secondary partners.

1.5.1.2 Appraisal

Ease	This appears to be the most difficult option of the four, because of the likely cost, concerns about existing workload and the difficulty of agreeing details and common data standards.
Desirability	Although the great majority of interviewees have said that some form of cross-collections searching is desirable, the same proportion have expressed strong reservations about the feasibility of the above approach to achieve such an outcome.
Combinability with other options	It could be combined with Option Four, (Multiple experiments). It would be undesirable to combine it with Option Two (Embrace IAP).

1.5.1.3 View of the project board

The Board decided on 19th May that this option should not be explored further, although some of its aspirations as described above should be transported for consideration within the other options. It is also important to ensure that staff consulted in phase II can express views on this option.

1.5.2 Option Two – Embrace IAP

1.5.2.1 What might this look like?

Help deliver, support and influence the **Integrated Architecture Project**, (which is being jointly managed by Culture24 and the Collections Trust) which can feed into Europeana by creating a 'portal' for England and/or UK[2]. The IAP project is looking at converging a range of existing developments into a single, coherent offer. The result, say the two partners, "will see the start of a unified infrastructure for creating, managing and sharing digital information across MLA and its funded initiatives, delivering locally based services from a national platform. The project is taking a staged, practical approach. It seeks to reduce duplication, add value and cut costs. It will also champion good practice in digital publishing, standards, benchmarking and evaluation."

Embracing IAP in the context of this study would involve:

- Providing a statement of requirements for such a service, such as the provision of well-documented and supported metadata harvesting tools.

- Adding digitised collections, images and metadata into the People's Network Discovery Service (PNDS) The estimate of workload for this varies between 2 days and 4 weeks.

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[2] The Integrated Architecture Project has received funding to deliver an 'aggregator' that will join up disaggregated sets of content. There are four key components to be aggregated:

- a database of institutional identities (evolved from the GIFTS database used for the accreditation of museums)

- a database of collections descriptions from Cornucopia and MICHAEL

- data from existing online collections: Item-level digitized collections in the People's Network Discovery Service (from the NOF-Digitise programme)

- an editorial layer allowing users of the data to contextualize it

- Making use of provided interfaces that will enable the presentation of collections data in multiple contexts.
- Contributing expertise and ideas to support the development of policies, taxonomies, and the editorial functions (led by Culture 24), to ensure that it delivers on the vision as stated in the brief for this study.
- Engaging with the funding streams (e.g. ATHENA), studies and facilities offered by the European Digital Library, delivered via Collections Trust and MLA.

1.5.2.2 Appraisal

Ease	It would appear easier to follow this route than Option One ('single gateway'), although it will still involve some effort to help shape what is still a fairly notional project. It should be noted that many museums have found it difficult to contribute collections to the PNDS, which is why OpenSearch was chosen for the NMOLP. A comfort factor for the NCOFS partners is that 'someone else' is largely responsible (Collections Trust is the lead project manager, for MLA) and that start-up funding of £360k has already been secured.
Desirability	The main advantages of this option are: • That it already contains many of the digital collections created via NOF-Digi and that many museums are currently in the process of inputting further collections. • The PNDS uses protocols which the sector is broadly favourable towards, although there are still concerns about the process of contribution and updating. • It also contains existing data such as the register of designated museums and the collections descriptions in MICHAEL and Cornucopia, which will be opened out so that museums can update their own profiles and create their own websites. • Its management by Collections Trust and Culture 24 offers new opportunities to contribute to it in detail. However, • in its current form the interface for visitors is poor and will need improving. (Culture24 are working on how to improve this in the new generation of Culture24 sites that are being built at the moment. These will have a thematic navigation that has been developed out of user testing and is designed to work using an Amazon-like approach of "if you like this, you might like this… ?") • There is currently something of a negative fulfilling prophecy in the attitudes of some – i.e. 'the content represented is not compelling, therefore we won't provide compelling content'.
Combinability with other options	The IAP is progressing anyway and many museums may be considering contributing to it. It will be most successful if the sector can understand the costs and benefits of engaging with it. Further

	exploration of the IAP could be combined with developing a federated search (option three) or lightweight technology experiments (option four), but in reality it may be difficult to resource a full contribution to the IAP as well as exploring these other options.

1.5.2.3 View of the project board

On 19th May Board members expressed views that IAP should be investigated, paying attention to:

- **The practicalities of uploading collections and users' subsequent access to them (in particular interfacing with Web 2.0/ 3.0 technologies)**

- **Governance issues and the possibility of influencing the future direction of the project to see if it can deliver the desired outcomes of this study.**

1.5.3 Option Three – Focus on creating a 'decent federated search'

1. 5.3.1 What might this look like?

If it is considered more important initially to bring together collection data, than to facilitate advanced catalogue searches and access to 'deep' information about items, then federation and syndication is the best option.

> *"Even academics and specialist researchers more often start with one word searches and don't use all the features of advanced searches" (Daphne Graham, from research by English Heritage for their Heritage Gateway)*

This option would involve:

- Building a federated collections search using either Google, OpenSearch or similar

- Improving the order of search results (by quality and/or relevance) and providing search filters

- Improving the search descriptions, for example by including thumbnail images and key metadata (possibly using automated key-wording solutions such as OpenCalais)

- Development of search 'widgets' for museum websites and feeds

- Development of a central search interface to showcase the collections through popular searches and/or topical subjects (e.g. identity, cities, British history or British ingenuity), possibly using resources like Wikicharts or social tagging to identify popular topics.

- Development of creative learning resources that utilise federated searches.

1.5.3.2 Appraisal

Ease	This option would be a great deal easier than Option One because it does not require a single collections management system and importing of data into it. The technology is understood and there are models to follow. There is obviously some work in agreeing the right system between partners, in crafting it for usability. It is more focused and less experimental than option Four (multiple lightweight technology experiments).
Desirability	Given the Government's ambition to raise the international profile of UK culture, it is surprising that there is not yet a decent federated search. This approach is very likely to achieve good results for the

	majority of users. The user would be able to explore collections based on topics such as subjects, eras, places and people. The feeds or search results will take users to museum websites (to collection entries, but also learning resources and events), which has the benefits of not depleting visitor figures.
Combinability with other options	This could be combined with option 2 (supporting the IAP, if it can interface with collections more acceptably than it does now). It could also be preceded or parallel with some experimental work (see option 4).

1.5.3.3 View of the project board

On 19th May, the Board expressed interest in this option and wish for it to be investigated further – looking at two sub-options:

- **developing the National Museums Online Learning Project 'OpenSearch'**

- **using Google to develop a federated search**

1.5.4 Option Four – Encourage multiple experiments as 'action research'

1.5.4.1 What might this look like?

Incubate multiple *lightweight experiments* in technology, letting the successful experiments be sustained and mainstreamed by interest and participation. The multiple experiments might be:

- Experiment with low-cost trials that combine data (e.g. from the three collections or more) and apply third party tools to help people search, map, interpret and personalise content. This could be achieved by announcing a competition for developers, following the model of BBC Backstage. http://backstage.bbc.co.uk

- Working with Google to discuss ways of improving the indexing, tracking and deep searching of collections

- Making collections more findable and usable by editors of Wikipedia

- Releasing some collections without copyright restrictions for creative use, showcasing possibilities through collaborations with third party web companies such as Flickr.

1.5.4.2 Appraisal

Ease	It should be fairly easy to undertake any of the experiments described above, although there would be work involved in clarifying aims and criteria of any initiative. Such an approach requires relinquishing a degree of control, which explains why it is the most exciting option for those who advocate it and the most frightening for others.
Desirability	This approach could be a desirable starting point, following the feasibility study. It could yield many ideas and build skills and understanding within the sector. Directors and funders need to understand the possibilities of such projects, support their staff to create them, embrace them into branded web offerings and accept that such experiments will also live outside their museum sites.

Combinability with other options	Naturally these experiments are combinable with other approaches, and depending on how they are presented could form a 'first stage' of the other options outlined. For instance, experiments may test various approaches to federated searching (informing any project that addresses Option 3).

1.5.4.3 View of the project board

On 19th May, the Board expressed interest in investigating into how experimental approaches could be utilised and funded in the process of defining the best solution, in particular how these might help enhance audience engagement.

2. Introduction to the study

2.1 The brief

The study's project board summed up the context for this research admirably:

> *"Students of all ages are demanding learning-rich online resources; museums are rapidly expanding their online catalogues and publishing an increasing range of digital materials; and the cultural sector is acknowledged to be a seedbed of ideas and an inspiration for the Creative Economy. Yet museum collections remain under-utilized because individual institutions lack the resources to invest significantly in the web. The present situation, where these public resources lie scattered across unconnected websites, each developed to meet institutional rather then national strategic objectives, prevents this country from supporting the education sector and the creative industries in ways that will be essential for our future success.*
>
> *As the digital world expands, the lack of a gateway to the nation's vast arts, humanities and scientific collections becomes not just inconvenient and undesirable, but untenable and significantly inefficient. Web 2.0 is raising public expectations of access, engagement and reuse, and the sector needs to explore how best to meet these expectations. A single trusted, useable resource would offer significant efficiency savings and facilitate the development of enhanced features making full use of social technologies.*
>
> *The V&A, the National Maritime Museum, the Science Museum and Culture 24 are together investigating the potential for developing a central national online resource that will provide the foundation for future joint educational, research, creative and other public initiatives, open to other partners. A feasibility study is the first step towards this ambitious project."*

There are two phases to the study. This report documents Phase I, dealing with:

- how the project could advance the individual partners' interests and strategic priorities

- the possible cross-over/integration of this project with other cultural-sector initiatives (e.g. National Museums Online Learning Project, MLA's Integrated Architecture project, People's Network Discovery Service, MICHAEL, HEFCE/HEFCE-funded consortia projects for the digitisation of major cultural resources of national importance through JISC)

- reasons why these earlier initiatives may not have delivered integrated national collections

- the possible cross-over/integration of this project with commercial search and syndication services

- material differences in institutional policy (e.g. charging for access to and use of online resources)

- the taxonomical, tagging and language issues that dealing with this kind of data has

- available visitor research and evaluation to identify what additional functionality users might want, which might provide a basis for Phase II of the project.

- the issues underlying concerns about funding and workload, given museums' limited resources.

2.2 A community of enquiry

Assisted by the project board Flow has invited a group of experts, and representatives from differing perspectives, to contribute to the enquiry. This is a fairly broad group, inclusive of people based outside the UK.

This community of enquiry is being asked to contribute in 3 ways:

1. Through one-to-one interviews

2. By contributing thoughts online using a 'Google Groups' forum

3. Attending a series of workshops:

   - Initial project board workshop – conducted 6th March, 2008

   - Workshop for broad community of enquiry 1 – focusing on organisational and audience issues – Friday 9th May at the Dana Centre

   - Options workshop for board – conducted Monday 19th May at the V&A

   - Small workshops focusing on technical aspects of the options taking place in June/July.

The strands of our research were agreed with the project board and form the headings in the Appendix. 'Responses to enquiries'.

2.3 Contextual research

In addition, Flow undertook broad, additional 'contextual' desk research. The findings of this research (bolstered by relevant information from the interview process) are included in section 3.

3. Contextual research

3.1 Mapping the sector

3.1.1 Recent History

3.1.1.1 A Netful of Jewels

Published by NMDC in 1999, this was a significant visionary report outlining the need for a comprehensive national cultural network online, including museums, galleries, archives and libraries. It set a target for 400 'digital museums' by 2002, which may possibly have been achieved by now, but more ambitiously it called for a coherent national strategy of funding, training and grid-based access, which still eludes the sector.

3.1.1.2 Culture Online

The DCMS initially conceived Culture Online to "build a digital bridge between learning and culture" at a planned cost of £150 million, but it was scaled down to £17 million and it became, at best, an experimental ground for internet-based cultural experiences (an example being the 'Icons' project "which attracted more than a million unique visitors in its first year"). However, only one Museum (the V&A) was able to benefit from its funding and collection digitisation was not funded (except on a small illustrative scale).

3.1.1.3 Culture 24

The 24 Hour Museum, now named Culture 24, began as a partnership website between the MDA (now Collections Trust) and the Campaign for Museums. It was supported by DCMS funding (via MLA) from 1999 (or 2001) as it was seen as a key resource for achieving a digital cultural network. Culture24 is a partner in this study and is also a lead partner in the delivery of the 'Integrated Architecture Project' (IAP) – see section 3.2.1. It is undergoing a major restructure as an organisation and developing plans, related to this study and to the IAP, to use emerging technologies to provide deeper, more systematic and more widely distributed content to more audiences.

3.1.1.4 NOF-Digitise

NOF-Digitise was a £50 million programme, intended to digitise learning materials across the UK. It enabled a wide range of organisations, including theatres, local archives and universities to digitise some materials of partly local and niche interest, but also enabled some larger projects of broader interest. It was beneficial in creating many millions of high quality images and for developing shared technical standards. A good deal of the fund was spent on writing and designing interpretation and marketing materials. However, there were a number of issues about how it was made accessible to users, whether the niche material was too discrete, or whether it lost 'brand' by being mixed with other institutions' material. When it was realized that there was such a wide variety of niche material on 150 portal sites, there was an attempt to group it together in one portal, 'EnrichUK' (now offline) and now on http://www.peoplesnetwork.gov.uk/discover but neither attempt made the most of the possibilities of aggregation. (Note that this portal will be redeveloped as part of the Integrated Architecture Project and all museums or archives are invited to upload their digitised collections to it.)

Nick Poole, CEO of the Museum Documentation Association suggests *"NOF-digi is widely regarded in political and funding circles as having broadly failed…although there are a very few good services extant, a significant majority are dead, or moribund, or sitting on discs in curator's drawers. It was, in short, a huge and well-funded period of research and development for our industry and one which I think enabled us to move to the point we're at now."*

3.1.1.5 Digital Futures

David Dawson was until May 2008 Digital Futures manager for the MLA. Speaking on April 22nd, 2008 at a Museum Computer Group meeting he stated that for the past decade he had been attempting to deliver the 'Netful of Jewels' aspiration to create a 'digital museum'.

> *"People want museums to provide collection related information and they want interactive, participative services too. Both are essential to the digital museum. Users want integrated resources from museums, libraries, archives, universities and other arts, humanities and science institutions world-wide."*

A key goal has been to make sense of the NOF-Digitise and other legacy databases, in order to aggregate them, leading to the 'Integrated Architecture Project' (see section 3.2.1) and the intention to use this to create a national portal for Europeana (see section 3.2.2). This work has been informed by JISC's 2005 report (by Loughborough University) on the state of digitisation in the UK, which makes three clear recommendations:

- establish a UK framework for digitisation: Identify gaps; set standards; establish a coherent line on access

- coordinate existing services: Improve resource discovery; establish an inventory of available content; provide support, advice and guidance for content creators

- investigate user needs: Work with subject associations, societies and academies; use targeted surveys; make identified user needs a condition of future funding.

> *Note: the issue of investigating user needs is key and we return to this in depth in section 4.*

The task to deliver the Digital Futures vision has been closely wrapped up with policy from the DfES (now DCSF and DIUS) and their related bodies, as well as from DCMS. The two Departments have worked together on a number of cultural learning initiatives, but it is not clear how there is join-up in digital strategy for cultural learning. The MLA has now requested Collections Trust and Culture 24 to support the continued development of its digital strategy.

3.1.1.6 E-strategy and the digital curriculum

Various cultural organisations such as the British Library, National Archives and the BFI have been involved in plans and discussions about how they can influence and contribute to the DfES' e-strategy (in particular the aspect known as 'the Digital Curriculum'). Parts of these discussions are about how the archived content from broadcasters and publishers, especially the BBC, could feed into the digital curriculum. By the same token there is a question about how the archived content of the MLA sector could feed into broadcast content. Tying in with both these ambitions is a discussion about how the internet can be used to offer an integrated and cross-platform environment for culturally-enriched experiences. This visionary thinking has led up some cul de sacs. For example, the DfES decided to give responsibility for £150 million worth of the digital curriculum to the BBC, which was disputed by commercial suppliers, leading to the suspension last March of BBC Jam http://jam.bbc.co.uk/

The E-strategy is now being overseen by BECTA http://partners.becta.org.uk/index.php?section=es. They are working with Culture 24 on the plans to create a Teachers Cultural Resource Discovery tool and to ensure that cultural resources are distributed across the National Education Network.

3.1.1.7 'The National Knowledge Bank'

The MLA has been closely connected to DfES developments, in particular in relation to the roles played by

BECTA and JISC. In 2006 David Dawson was seconded to DfES and developed a plan for a National Knowledge Bank, working with the Strategic Content Alliance.

> *"The National Knowledge Bank will provide managed access to multimedia resources from across the cultural sector, enabling access to materials such as books, museum objects, newsreels, TV programmes, artworks, documentary archives and historic and archaeological sites. Although much of this material is already available in digitised form, it is distributed on a myriad of websites and often learners and researchers are unable to find materials that are of use to them, and are not able to easily access, manage and use those resources. The National Knowledge Bank will draw together quality-assured resources - images, text, sound and moving images in ways that will be supported by personalised tools that enable users to 'discover' relevant resources and to create and share their own interpretation of the content."*

Note: This is no longer a live proposal.

3.1.1.8 JISC

The Joint Information Systems Committee is a HEFCE-funded body, which exists to build knowledge and resources around ICT for the Higher and Further Education sectors. Since 2004 they have funded digitisation of archival collections. To give an indication of the size of fund, phase 2 offers £12 million. The collections include Pre-Raphaelite collections from Birmingham Museum & Art Gallery and historic newspapers and sound archives from the British Library (see www.jisc.ac.uk/whatwedo/programmes/programme_digitisation.aspx). These will be made accessible and reusable on a service, under development, called JORUM. This will deliver both single assets (documents, images, diagrams) and comprehensive learning objects (interactive units and content packages). JORUM materials will be available to staff and students from registered organisations. JISC has also agreed with the National Education Network (NEN) to make some of its datasets available to schools registered with the NEN (see www.nen.gov.uk/news/31/jisc-collections-for-schools-pilot.html).

JISC is also a key partner and host of the Strategic Content Alliance. This is a 3 year programme (ending in 2009) in partnership with the British Library, MLA, BBC, BECTA, EPSRC and the NHS. Its aim is to build a common information environment where users of publicly funded e-content can gain best value from the investment that has been made, by reducing the barriers that currently inhibit access, use and re-use of online content. Much of this work is about policies and standards. One strand is audience research:

> *"Understanding audiences, their needs and behaviours is at the heart of the project. Mechanisms to aggregate content from different sources must be capable of dealing with and responding to the many different needs that each individual has, for example multiple communities of interest with different levels of understanding in each – the research physicist who is a steam engine fanatic, the working mum who wants to research early English women writers." Audience Analysis and Modelling, Chris Batt, May 2008*
> http://sca.jiscinvolve.org/files/2008/05/sca_chris_batt_report-02.pdf

Note 1: That the SCA is keen to invite NMDC members to a briefing about its work and findings, and to invite them to be affiliate members. Also, it may be possible to include JISC in any plans to feed collections data into a federated search, although access restrictions to collections make this difficult.

Note 2: The drive to establish needs is highlighted by JISC as it is here – see Section 4.

3.1.1.9 Renaissance in the Regions and Strategic Commissioning

These two linked DCMS initiatives should be mentioned because they are currently underpinning networking

and funding behind collaborative and strategic learning programmes in the sector at national and regional levels.

Renaissance is a £150 million programme to transform England's regional museums. It is delivered through regional hubs, whereby learning and developments are shared between 5 or so museums, supported by one with greater capacity. http://www.mla.gov.uk/programmes/renaissance/what_is_renaissance/whatintro

Interestingly, it has not led to many collaborative collections-based websites, perhaps only one: http://www.20thcenturylondon.org.uk. The partners are Museum of London, London Transport Museum, Jewish Museum, Croydon Museum, Bromley Museum, Brent Museum, Hampstead Museum, Horniman Museum, World Rugby Museum, Bishopsgate Institute and MODA. This is a very valuable project to learn from because of the involvement of small museums of differing management types. However, it is limited by its focus on the subject of one place in one century.

Strategic Commissioning has provided £19 million funding (with a further £13 million announced for the next 3 years) for two strands:

- a programme for national museums to work in partnership with smaller sector organisations across the regions to develop their learning provision.

- strategic research and development led by the MLA Regional Partners, to increase the use of museums by schools and children's services.

Both strands have resulted in many online learning resources that include interpretation of collections. Most of the MLA partner websites have non-location specific names such as www.learnwithmuseums.org.uk (although they are regional) whilst the National museum partnership websites are thematic e.g. http://www.understandingslavery.com (partners are National Maritime Museum, National Museums Liverpool, British Empire and Commonwealth Museum, Bristol Museums, Galleries and Archives, Hull Museums and Art Gallery).

None of the infrastructure of these websites is shared across the Strategic Commissioning programme, and, unstrategically, they sit in isolation from each other. Nor do they share the infrastructure of the museum partners' own websites, raising questions about how they can be maintained and sustained.

3.1.1.10 National Museums Online Learning Project

This ISB-funded £1.7 million project has been developed by 10 (now 9) national museums, led by the Victoria & Albert Museum, with the intention of making the vast amount of content already on museum websites better used by learners. It does not involve digitisation and is not a single site, but involves the creation of enquiry tools (webquests and creative journeys), which sit on the participants' sites. The project has included the development of a federated search for all the collections. It offers important lessons for managing collaborative projects between museums of different sizes and types. Carolyn Royston, project manager of NMOLP sits on the board overseeing this study.

The NMOLP offers any NCOFS project:

- A working group of 9-10 national museums, which could provide a ready group for an expansion of NCOFS developments

- A lightweight federated search, using Amazon's OpenSearch to test the potential of further ways of interpreting multiple collections

- A Drupal platform on which sits tools including the Creative Journeys, which enable users to creative a profile page and to gather, tag, describe and share collection items from across the partners' sites.

Where it could be enhanced:

- The search is a simple keyword search, so more search criteria and filters could be added.

- It could be desirable to add an option for a more neutral or museum-agnostic 'creative journey'

- Further functionality could be added onto the Drupal platform, which enables many plug-ins

- Further partners could be added to the NMOLP over time.

3.1.1.11 Your Paintings

This is a product under development (and subject to successful funding bids) by the Public Catalogue Foundation with other partners (including V&A, National Gallery, Culture 24). The intention is to create an integrated online system enabling digital cataloguing of collections for all holders of publicly-owned paintings. The system is being designed for oil paintings in the first instance, but can expand to other media, including possibly prints and drawings and other cultural artefacts. This has reach to collections outside the cultural mainstream, such as town halls and fire stations. The emphasis is on using the latest technologies to enable democratic interpretation of paintings and providing a range of features to enable creative and educational use of the collections.

Note 1: Updated news – this initiative has not received HLF funding.

3.1.2 The comparative context outside England

Seb Chan (from Powerhouse Museum in Australia) expressed astonishment that, despite the active and innovative profile of museums web professionals from the UK, there was still not a 'decent federated search' across UK cultural collections. Indeed, it might be telling that this study is not overtly exploring a federated search for UK cultural collections, but more tentatively looking at some kind of integrated facility between three collecting institutions (with a suggestion that this might broaden out to other collections at a later date). Does this reflect a lack of ambition or will, or perhaps

- the enormity and variety of the UK's collections and collecting institutions?

- the reality of four home countries with cultural and educational policy devolved to each?

That said, most developed countries worldwide have, or are developing, a primary cultural digital aggregator. Most of these are lacking in popular design, interactivity and web 2.0 features. It also remains to be discovered how well used these portals are.

Examples include:

- MuseumFinland: Distinguished by having developed a common terminology, called FinnOnto, which enables machine-readability of data.

- Culture France (www.culture.fr)

- Collections Australia Network. This website provides a collections search across 80 CAN partners, plus the Powerhouse, Libraries Australia and Picture Australia. It works well functionally but appears to be aimed more at the professional sector than the wider public. www.collectionsaustralia.net. In addition Australia's Federated Search Project uses Amazon's Opensearch technology to create a search facility across all cultural collections of Australia, including libraries and archives http://www.nla.gov.au/initiatives/federatedsearch.html

- Canadian Culture Online and Canadian Heritage Information Network (CHIN). Canada has a substantial and co-ordinated national digital programme, although the online provision for the wider

public still appears difficult from the Google user's perspective. The Culture Online portal is now offline http://www.culture.ca/english.jsp. CHIN's Artefacts database is here: http://www.chin.gc.ca/English/Artefacts_Canada/index.html

3.2 Outside the museum sector

3.2.1 The role of search engines

3.2.1.1 The Deep Web

Google has announced its intention to search the 'deep' web. The 'Deep' web refers to those parts of the web that are not easily indexed by search engines. This includes content that is not linked to other pages, is embedded in multimedia formats, is shielded from search engines, lies in password-protected areas or is rendered on dynamically generated pages. Estimates vary but the deep web is regarded to be somewhere in the region of ten times larger than the web visible to search engine indexing. Many on-line cultural collections live in the 'deep web'.

Google is encouraging organisations with collections of data to give individual URL's to each item and submit those lists of URL's to them, thereby opening them up to feature in search engine results.

Their development of new ways of feeding data may provide some ideas for Google to develop a feed specification for collections data, to present it in more structured and useful ways. For example, Google Transit or Google Products suggest ways that collections could be presented.

3.2.1.2 Machine readable semantics

The desire for information on web pages to be understood not only by humans, but by machines, is long held. The evolution of Microformats which attach agreed meanings to elements in webpages that machines can read and interpret is being championed by Yahoo amongst others with its Open Search Eco System (although this system depends on site owners marking up pages with these microformats).

3.2.2 Flickr Commons

http://www.flickr.com/commons

In June of 2007, Flickr began a collaboration with the Library of Congress, allowing the public "a voice in describing the content of a publicly-held photography collection". The aim was to give "a taste of the hidden treasures in the world's public photography archives", and to show how input and knowledge from the wider public could make collections "even richer". Another notable user of this system is the Powerhouse Museum in Sydney, Australia who used Flickr Commons to open up its Tyrell Collection of photographs.

One month into its experiment with Flickr Seb Chan of the Powerhouse museum wrote:

> *"Our images have been viewed 39,685 times to yesterday. That's more than an entire year on the old Tyrrell website (which, incidentally, has more images and is better indexed by Google)"*

He noted also noted that:

> *"75% of our traffic comes from within Flickr, 13% direct, 10% from other websites linking, and less than 1% from search" and "Tonnes of tags have been added and they have been of a quality that we've not experienced in our other tagging projects. I am firmly of the belief that the quality is a result of the Flickr environment (let's call it 'culture') and its userbase."*

This seems to add credence to the mantra that if you seek further engagement with cultural collections it pays to go 'where the eyeballs are'- in this case Flickr itself (a natural 'portal' for those interested in photography)

Georgina Oates of Flickr remarks:

> *"The reason I think The Commons is so appealing to libraries and museums is the sheer number of people who visit there every day (in the millions). We've already seen spectacular interactions and discussion from the Flickr membership, where pre-existing special interest groups have sprung forth to share information, stories and resources from the wider web. The benefit for Commons participating institutions is that they are free to take or leave any of this newly gathered information to supplement their existing catalogue records, as we've seen the Library of Congress already beginning to do. (Over 100 records in their catalogue have been updated with information provided via The Commons on Flickr). Now, I'm certainly not saying it's ALL GOLD, and that there isn't a lot of flippant, humourous, mundane stuff too - "Thank you for this project!" etc - but, talking to the Library staff, they've been utterly thrilled by the level of engagement from some people".*

3.3 Changing context

The Netful of Jewels vision and the subsequent attempts to deliver it via NOF-Digitise, Culture Online and the MLA's strategic work was predicated on thinking about the web that is now being challenged by several factors, described below.

3.3.1 The effect of emerging technologies

3.3.1.1 Use of the web is evolving

Evidence shows that where people have access to the internet, worldwide, people do use social web tools and they contribute their own content to the web.

Universal McGann's survey of 17,000 Internet users worldwide in March 2008 highlighted several key findings:

- 83% watch video clips, up from 62% in the last study in June 2007

- 78% read blogs, up from 66%

- 57% of internet users are now members of a social network

- RSS consumption is growing rapidly up from 15% to 39%

- Podcasts are now mainstream digital content, listened to by 48%

Social networks have been "a key driver for the growth of social media":

- 22% of social network users have installed a widget or applications

- 55% have shared photos

- 22% have shared their videos

- 31% have started a blog

- The world's biggest social network is MySpace with 32% weekly reach followed by Facebook on 23%.

See www.readwriteweb.com/archives/report_social_media_challenging_traditional_media.php

3.3.1.2 Organisations turn inside out

The internet has given vent to the demand that public and commercial organisations 'turn themselves inside out'. This demand may be driven by the needs of

- Increased transparency;

- Globalisation of reach and identity;

- A desire to reach smart, connected markets;

…and more recently…

- seeking *input* of market information and user generated content.

3.3.1.3 'Cloud computing'

This term refers to the trend that increasingly computing resources will reside 'somewhere on the internet' (rather than on computers in your organisation) and that we'll connect to them and use them as needed. It can be seen in the provision of online software and services such as 'Google Apps'. It also relates to the increased use of web-based digital storage services, such as Box.net, Flickr and You Tube.

3.3.1.4 Ubiquitous computing and cross-platform publishing

This is the integration of computers, including web services, into a variety of objects and activities. For example, computing power can be put into contact lenses and touch-screen computers put into school desks. More popularly, this manifests itself in the growing use of PDA's and multi-functioning mobile phones. Many believe that web content must now be designed for varieties of interfaces, such as small screens, facilitating access whenever and wherever it is desired.

3.3.1.5 Application Programming Interfaces

Application Programming Interfaces (APIs) act as 'service counters' for the systems that lie behind them. Whilst the owner of the system (say an institution) may choose to present their data and services in a particular way (say, on their institutional website) an API allows other applications to retrieve data and manipulate it or display it in another way.

Offering ways into data in this way allows third parties (or indeed the owning party) to offer new interpretations or presentations of that data, and/ or create 'mash-ups' (combining data from one or more source, e.g. from separate institutions).

In many circles it is seen as a good business model to create an API when developing a new service, so that your content has the potential to reach a much wider and distributed audience.

3.3.1.6 Democratisation, user generated content and the social web

The internet has generated a number of affordable or free tools that enable the wider public to create and publish their own media, leading to a massive expansion and democratisation of media production. These tools are tied into social networks so that videos, blogs, photographs, music and collections of information can be shared, commented on and added to by communities of interest. It can be described as 'conversational' or 'two-way' media. This affects museums in the following way:

> *"Alongside the new opportunities for public participation in the interpretation of objects online lies a fundamental change in the nature of the object, as a result of digitisation programmes which transform material, 'possessable' artefacts into volatile amalgams of bits and bytes. The*

ability of users to take, manipulate, re-distribute and re-describe digital objects is a primary source of their educational value. It is also, however, a source of difficulty for institutions as they come to terms with the changing patterns of ownership, participation and knowledge production we are experiencing in the current media age."

http://www.education.ed.ac.uk/e-learning/ahrc.pdf

3.3.1.7 A globalising perspective

The web is a key agent in driving a major increase in globalisation:

- It enables teams to work together from remote locations

- It increases knowledge of the world, especially about and by those countries that are digitally networked

- It potentially changes cultural values as people learn more about and interact with each other.

3.3.1.8 The semantic web, or machine-readable web

The inventor of the internet, Tim Berners-Lee, is the main proponent of the machine-readable web (aka semantic web or web 3.0). In 1999 he said "Your data needs to be understood not by people, but by machines." The Semantic Web Think Tank focused on the implications for the museums sector, and published a 'roadmap' in 2007. Embracing and trialling web 3.0 approaches potentially offers large labour savings, major gains in audience reach and increased usability.

3.3.1.9 Changing nature of broadcasting

Ofcom's report on the future of public service broadcasting identified that the public are increasingly taking advantage of digital interactive technology to access public service content: www.ofcom.org.uk/media/news/2008/04/nr_20080410

Projects like Adobe Open screen www.adobe.com/openscreenproject are developing new ways of driving rich internet experiences across television, mobile phones and various kinds of computers.

The means of content production are becoming cheaper so that more people can create more content for these channels (including museums).

Ofcom's report, and its lead commissioner Tom Loosemore, argues that museums must also transform themselves into interpreters and distributors of media rather than allow their processes to revolve around collecting and keeping artefacts.

3.3.1.10 Horizon scanning work by the education sector

The DCSF is funding work to explore 'Beyond Current Horizons', to understand how future shifts in the global context and technology will affect education. This work is being carried out by Futurelab, Stephen Heppell and others. (www.heppell.net/horizontal/about.html). Their study organises technological innovations into three broad, inclusive categories: 'automation', 'ubiquitous computing' and 'the brain/world interface'.

Another horizon scanning project is exploring 'Next Practice in Learning and Teaching', exploring changes in learning technologies: www.innovation-unit.co.uk/images/stories/files/pdf/horizon_scanning_final_report.pdf

Despite teething troubles and many issues in encouraging education to adopt new forms of ICT, attempts will continue and museums will need to keep abreast of changes arising.

3.3.2 Changing perceptions

In our interviews it became clear that interviewees saw two 'paradigms of use' for cultural content online.

These paradigms can be categorised as follows:

Users either,

- Seek 'cultural experience' by:

    - looking for recommendations or going to museum brands they know,

    - searching out information to plan real-world museum visits using the web,

    - finding creative participation, or narratives, that evoke a 'real world' museum visit in an online context

or,

- Seek information or resources by:

    - looking for any data that deals with their particular interests

    - using a wide range of online tools e.g. Google, Wikipedia, virtual libraries, image libraries or museum websites

    - relying on authoritative brands that they know and trust, for example public service broadcasters, knowledge aggregators and museums

    This latter group can be considered 'museum agnostic' - i.e. they may or may not care if objects they come across are in museums or not, let alone care which museum.

There is some resistance to seeing usage in this way in museum sector because:

- Museums are traditionally geared to keeping their collections safe in one place, with one authoritative description. When Ross Parry of the University of Leicester says we should "let each online collection item go free as a feral object" such thinking is challenging to more traditional views of curation.

- Museums' funding agreements include web visitors as targets. There are worries that it is difficult to count visitors to online content that is syndicated or fed to other sites. Dylan Edgar represents the sector's wariness about mash-ups and feeds:

    "At the risk of sounding like a KPI-obsessed bureaucrat, it's more to do with the practical problems associated with accounting for our public spending and demonstrating the value of our online presence at a sectoral level. We're only just getting to grips with this in the Web 1.0 World where it's relatively easy to track use and pin our audiences down to ask them what they think. Once you get into the Brave New World that Ross and co. advocate, it potentially becomes much harder and frankly I'm not sure that the majority of museums are ready. I do believe that these new ways of using our online collections are of value and will promote new types of engagement among different audiences. The problem is showing it, and communicating it to our external stakeholders in a way that they can appreciate."

3.3.3 Where are our cultural collections to be found?

The main places you can find cultural collections are:

3.3.3.1 On individual museum websites

Examples:

British Museum	www.britishmuseum.org

Science Museum	www.sciencemuseum.org.uk
Victoria and Albert Museum	www.vam.ac.uk
Letchworth Garden City Heritage Museum	www.letchworthgc.com/placestovisit/history/gardencityheritagemuseum.html

Larger organisations may use database driven websites incorporating several collections, while smaller museums may simply publish them on 'static' HTML pages, sometimes hosted on local authority sites.

3.3.3.2 On collaborative thematic websites:

Examples:

Exploring 20th Century London	www.20thcenturylondon.org.uk
Collect Britain	www.collectbritain.co.uk
Understanding Slavery	www.understandingslavery.com/
Moving Here	www.movinghere.org.uk/

Project funding often dictates that museums engage in such thematic work (rather than digitisation for pragmatic reasons), and requires collaboration between partners. Often these projects have brands and Content Management mechanisms that are distinct from their own museum websites.

3.3.3.3 In community archives

Examples:

| WW2 People's War | www.bbc.co.uk/ww2peopleswar |
| My Brighton and Hove | www.mybrightonandhove.org.uk |

A good deal of funding (especially National Lottery) has been devoted to 'digital storytelling' projects that gather and share 'people's history'. These may include some digitisation of heritage collections but focus on gathering oral histories, creative testimonies and people's collections.

3.3.3.4 On 'broad aggregators'

Examples:

People's Network Discover Service (formerly Enrich UK, to become the main collection database in the Integrated Architecture Project)	www.peoplesnetwork.gov.uk/discover/
The Heritage Gateway (English Heritage), an aggregator portal to the nation's historic environment records	www.heritagegateway.org.uk/gateway
JORUM (JISC) is an aggregator of learning and teaching resources for FE and HE, which includes JISC's digitised cultural collections	www.jorum.ac.uk/
Art Rabbit is about contemporary galleries rather than cultural collections but it is a well-constructed aggregator, which might be a useful model and partner	www.artrabbit.com/

3.3.3.5 Dispersed and syndicated collections

Examples:

| Wikipedia | www.wikipedia.org |

Commercial image libraries	www.gettyimages.com

3.3.4 The strategic status quo

- In April 2008, Museums Galleries Scotland published its Digital Content Action Framework http://www.museumsgalleriesscotland.org.uk/pdfs/Digital_Content_Action_Framework.pdf

- Culture Wales is planning a major digital culture and history programme, building on its Culturenet Cymru offering.

- There is no equivalent current strong statement of future action for England. This is due in part to restructures at DCMS and at BECTA, but also to the recent changes at MLA. The lead projects in MLA's Digital Futures programme have been passed on to other bodies, including the Collections Trust and Culture 24.

This hiatus presents an opportunity for the sector itself to identify exactly what is needed in terms of strategy and to collaborate in doing so. It is also important to gather more knowledge about what is planned for the future, what is likely to happen, and how these might help the sector achieve a more efficient and user-friendly online offering.

3.4 The most relevant initiatives

3.4.1 Integrated Architecture Project (I.A.P)

3.4.1.1 What is it?

The **Integrated Architecture Project** (which is being jointly managed by Culture24 and the Collections Trust) is looking at converging a range of existing developments into a single, coherent offer. The result, say the two partners, "will see the start of a unified infrastructure for creating, managing and sharing digital information across MLA and its funded initiatives, delivering locally based services from a national platform. The project is taking a staged, practical approach. It seeks to reduce duplication, add value and cut costs. It will also champion good practice in digital publishing, standards, benchmarking and evaluation."

The Integrated Architecture Project has received funding to deliver an 'aggregator' that will join up the disaggregated sets of content. There are four key components to be aggregated:

- a database of institutional identities (evolved from the GIFTS database used for the accreditation of museums)

- a database of collections descriptions from Cornucopia and MICHAEL

- data from existing online collections: Item-level digitized collections in the People's Network Discovery Service (from the NOF-Digitise programme)

- an editorial layer allowing users of the data to contextualize it

Collection owners will be able to maintain this data via three methods:

1) They can edit and update their own *institutional* data (in effect an opening up of the GIFTS database)

2) Museums will be able to update their own section of the Culture 24 website (as opposed to submitting change request to Culture24 as is the case today)

3) Museums could have editorial control over their own mini-site (with their own URL) using the IAP as the website platform.

3.4.1.2 Relevance

The IAP:

- potentially provides a more aggregated way of accessing collection items

- will very likely provide the database for the national portal for Europeana (see 3.2.2 below)

- has the possibility to work in conjunction with the Teachers Cultural Resource Discovery facility

However, questions remain, notably

- How easy will it be for collection owners to upload item-level data (including images of those items) to a single portal?

- How compatible is this approach with 'web 3.0' tools?

- What is the potential of building narrative and interpretive tools onto such a database?

3.4.2 Europeana (European Digital Library)

3.4.2.1 What is it?

The European Digital Library, through the Europeana project, aims to create a single access point to cultural collections for Europe. This will involve 'aggregators that work together to:

- group collection data based on content

- group collection data based on location (i.e. by country)

The Europeana project has three strands of work:

1) Organisational – developing a governance model. The EDL Foundation aims to create a legal body to co-ordinate and run Europeana as an operational service. (The board has invited representation from sector specific bodies such as ICOM, LIBER, UBICA and FIAT, as well as from ministries in each country).

2) Technical – working on interoperability and prototyping a 'proof of concept'

3) Usability – concentrating on providing functionality that users want.

3.4.2.2 Relevance

Europeana potentially addresses some key issues identified in the study so far, notably:

- that there are multiple overlapping sectors holding cultural collections, with different views on how to present this coherently to the user,

- that there is a strong wish for a coherent national offering.

Most of the other European countries have created or begun to create their own national portals, which will incorporate the technologies and tools being developed by EDL as they see fit. There are also plans to create portals related to film, sound and so on. The collections emphasis in all the projects is on museum objects or special/visual collections from archives and libraries. EDL states that no money is needed for any one institution to sign up to Europeana, only 1.5 days effort, and that you can benefit from some funded streams such as ATHENA and from tools and data cleaning experiments.

The experience of the Europeana project also hints at a reluctance to engage with it within the UK cultural sector. Jill Cousins from the European Digital Library says:

"In terms of the involvement of ministers and strategic national bodies, to the extent of achieving solid outcomes, some countries are better than others. The Netherlands is easiest, France is quite tricky. But the UK? There's been this typical view – 'the UK is not part of Europe. We have world class institutions in UK so why do we need to join?' One key problem seems to be the MLA. The museums don't seem to like the idea of an intermediary body negotiating for them. In addition the bigger cultural organisations in the UK don't have a 'parent' role, so they won't necessarily act to usher others into the fold. We would like to see the UK put together something so that they can have a strong national portal as part of Europeana and indeed your feasibility study would not be taking place if the sector didn't have the need for such a national offering. But the UK is my worst country for achieving buy-in. I've been to talk to lots of organisations. There is general enthusiasm, but they say 'we will need to form a committee, we're too busy, we're not ready…' It costs them nothing to sign up. All we ask is that they spend 3 hours on a questionnaire and then another day of time. They can't really use the excuse of not having clean data as they will surely have some. Even just a small contribution of content will be helpful to get going. They can also benefit from our experimentation with data cleaning and interoperability tools"

The Europeana experience raises key questions:

- How possible is it, and what discussions have there been already, to establish a portal(s) for the UK? What would this cost (in the broad sense) and how much of this cost can be provided by the EDL? Is the PNDS (being enhanced through the IAP) the only viable option for the English portal?

- How likely is it that key nationals will submit collections data (via OIA) to any future portal (based on PNDS) aiming to increase the number of other contributors through example and advocacy - and aiming to build up critical mass that will make any portal a worthwhile offering?

- Is the Europeana experience an indication that the real problem in integrating collections online has very little to do with technology – and more to do with problems in how the UK cultural sector is organised?

3.4.3 National Museums Online Learning Project

3.4.3.1 What is it?

The NMOLP is a 3-year, £1.7m Treasury-funded project that has been developed by 10 national museums and galleries (British Museum, Imperial War Museum, National Gallery, National Portrait Gallery, Natural History Museum, Royal Armouries, Sir John Soane's Museum, Tate, Victoria and Albert Museum, Wallace Collection) to "get the vast amount of content already on these ten national museum and gallery websites better used." The purpose of the project is "not to create a new website or digitise more objects, but to focus on using existing databases, articles and functionality to encourage users to engage critically and creatively with museum and gallery collections". The target audiences for the project are:

- Schools – where the project will focus on creating curriculum-linked webquests (supporting a learning methodology "that encourages critical and analytical use of raw data")

- Lifelong learners - where the project will focus on 'Creative Journeys' that encourage people to make use of museum and gallery websites in their own creative activity – and share these journey's with others.

3.4.3.2 Relevance

Whilst there is concern not to conflate the NMOLP with this feasibility study or its possible outcomes, and that it is perceived not to be 'substantial enough' to meet certain assumptions about what is needed (no digitisation, no curated content about collections, no transfer of data to a repository) the NMOLP project does seem to offer opportunities on which to build a more comprehensive offering. This becomes more apparent when we consider the majority views of the interviewees spoken to so far on two key points.

1)   The majority favour a lightweight search option that is easy for partners to apply and easy for users to navigate. Research (by English Heritage for their Heritage Gateway) has shown that even specialist researchers prefer keyword-based free search. NMOLP offers a federated search that enables users to search across several museums' websites to reach particular collection items.

2)   The great majority has strongly asserted that this new project should 'not produce another portal'. NMOLP is not a portal site but a set of tools for users that sit on each partner's websites, so it addresses the fear that an integrated offering will detract web traffic.

Given the funds already expended on the project, and its funding by ISB, it is very important to establish how it can expand to provide tools to other museums and provide a foundation for further development of technology, pedagogy and collections information.

3.4.4 Powerhouse Collections Database

3.4.4.1 What is it?

The Powerhouse Museum has developed an award-winning collections management system called K-Emu, now used by other institutions such as the Smithsonian. Seb Chan, is leading the world in applying emerging technologies to collections online. For example, he has used a tool developed by Reuters (called OpenCalais), which automatically attempts to create rich semantic metadata from submitted content. OpenCalais reads data and sorts its results into four categories; 'Who', 'what', 'where' and 'when'.

3.4.4.2 Relevance

The Powerhouse website won the MUSE Awards Gold Award. Judges said:

> *"The Powerhouse Museum's new relational search and collections database is a model for organizing, exhibiting, and promoting museum collections".*

Part of the power of the Powerhouse approach is that it invites users to add their own metatags, search, and browse by tag cloud, by the 'relatedness' of objects, or by special collections "in an easy-to-use, transparent interface that offers consistent and near-instantaneous feedback and results".

Combining Calais' semantic data with additional tagging by users "opens the bank vault of the museum to visitors, enthusiasts, and researchers," said the judges.

According to the museum

> *"The Powerhouse Museum Collection Database is aimed at providing vastly increased access and usability for the general public accessing the Museum's online collection. Whilst museum collections have been online for many years they have been primarily aimed at scholars, researchers, and those who enjoy the notion of an 'advanced search". The Collection Database upends this by delivering a search and browsing experience that has been designed entirely around increasing discoverability. It employs social tagging, search tracking and recommendations, and semantic content analysis, whilst also making use of the Museum's*

formal taxonomies, to make the Museum's ongoing rich research around the collection accessible to all."

The result of these innovations? The Museum reported a 300% increase in web traffic over a one year period.

Beyond this, the Powerhouse have used OpenSearch (technology that allows search results to be published so that they can be syndicated and aggregated) and have suggested that it would not be difficult to combine the search results of more than one collection or museum, giving the example of compasses in both the Powerhouse and the National Maritime Museum (UK).

3.4.5 Data combining experiments

3.4.5.1 What are they?

A number of museums web professionals have been trying out new ways of sharing and combining collections data, using open source tools.

They include:

- Aggregations of museum collections for searching, for example www.museumcollections.org.uk/mc/index.asp

- Plotting of museum collections onto maps, for example, NMM's Franklin relics geotagged to the locations they were found in

- Combining of search results from several databases on a specialist theme

- Visual data feeds mapped onto frameworks such as timelines http://feeds.boxuk.com/museums/

More examples can be found on the Mashed Museum directory: http://sites.google.com/a/electronicmuseum.org.uk/mashed-museum/Home

3.4.5.2 Relevance

It is important to be aware of the possibilities of 'mash-ups' because:

- they provide examples of combinations of museum collections, which can be user-tested and evaluated

- they are very cheap and easy to create (e.g. www.museumcollections.org.uk cost £15 and took 20 minutes, and searches 35 museum websites

- people outside museums will be making them.

3.4.6 Open Archives Initiative (OAI) Protocol for Metadata Harvesting

http://www.openarchives.org

3.4.6.1 What is it?

The Open Archives Initiative (OAI) is a mainly US based group of people and organisations that evolved out of a need to increase access to scholarly publications through interoperable digital repositories. Support for the OAI's goals comes from the Digital Library Federation, the Coalition for Networked Information, and from a NSF Grant. One of its major achievements is an application-independent interoperability framework based on metadata harvesting: the OAI Protocol for Metadata Harvesting (OAI-PMH).

Heritage organisations who have systems that support the OAI Protocol can expose metadata about the content in their repository, i.e. allow service providers to harvest the data for services such as search engines.

3.4.6.2 Relevance

- Europeana is promoting the OAI-PMH

- Daniel Evans, Head of Web for the NMSI, said that the museums sector in the UK seems poised to adopt the OAI Protocol as a mainstream approach for data validation. It is relevant to any work involving interoperability between data repositories.

4. All about need

4.1 A lack of knowledge about need

There is a lack of published comprehensive understanding as to how all audiences interact with cultural collections online, their needs and how those needs might be met better in the future. This question was, at the sensible behest of the project board, the focus of a workshop held as part of the study on the 9th May at the Dana Centre. Attending the workshop were:

Alan Seal	Head of Collections Management	V&A
Beth McKillop	Director of Collections	V&A
Bridget McKenzie	Director	Flow Associates
Carolyn Royston	Project Manager, NMOLP	V&A
Daphne Charles	Development Team Leader (Web)	English Heritage
David Anderson	Director of Learning & Interpretation	V&A
Dylan Edgar	London Hub ICT Development Officer	London Transport Museum
Fiona Romeo	Head of Digital Media	National Maritime Museum
Hadrian Ellory Van Dekker	Head of Documentation	Science Museum
Hayley Restall	Planning Co-ordinator	V&A
Helen Ashby	Head of Collections and Knowledge	National Railway Museum
James Watson	Digital Collections Manager	National Maritime Museum
Jane Finnis	Director	Culture24
Jeremy Ottevanger	Web Developer, Museum Systems	Museum of London
Jill Cousins	Director	Europeana
Kate Bellamy	Secretary	NMDC
Margarette Lincoln	Deputy Director	National Maritime Museum
Mark Stevenson	Director	Flow Associates
Nick Poole	CEO	Museums Documentation Association
Robert Bud	Curator	Science Museum
Ross Parry	Programme Director, Museum Studies	University of Leicester
Sarah Winmill	Head of ISSD	V&A
Tom Loosemore	Senior Advisor, Digital Media	Ofcom
Tom Steinberg	Director	My Society

The meeting was split into four groups to focus on the following market/ audience areas:

- Everyone/the general public

- Commercial (e.g. creative industries)

- Educational (i.e. teaching and learning organisations)

- Specialists/expert

We asked the groups to discuss the following 6 questions:

- 'For the audience you are discussing…

    - Do you have a feeling there is a market demand for a single trusted gateway to digital collections?'

    - What evidence is there to support this?'

    - What evidence is lacking in order to support this?'

    - Do you have a feeling there is a market demand for other ways to access multiple collections on-line?'

    - What evidence is there to support this?'

    - What evidence is lacking in order to support this?'

Clearly, without access to formal research the summary presented here is anecdotal, drawing on the experience (and prejudices) of those present at the workshop. However, given the constituency of those present these perceptions much be accorded a certain weight. Nonetheless Flow recommend that a mechanism for establishing needs of audiences (whether this is via formal or action research) is long overdue.

4.1.1 General audiences ('the wider public')

The group tasked to consider this audience felt there was no demand for single trusted gateway for the 'general' user and suggested that history warns against 'monolithic' approaches. However, they did believe strongly that there was demand for other ways to access multiple collections online citing 'current search patterns', and the popularity of the Flickr Commons experiment and of Wikipedia.

4.1.2 Commercial audiences

The group tasked to consider this audience felt there was no demand for single trusted gateway for 'commercial' users. Instead they felt commercial audiences expected/ needed:

- Google-like searches

- The ability to refine searches

- Quick access to rights information

- Expert mediation when they wanted it, not as a matter of course

Like the first group they believed strongly that there was demand for other ways to access multiple collections online citing evidence such as large-scale digitisation programmes from commercial organizations such as Google and Microsoft and the rise of online picture libraries. (Note, Microsoft have recently announced the folding of their book digitisation programme.)

4.1.3 Educational audiences

The group tasked to consider this audience felt there may be a need for a trusted gateway to cultural resources for educational audiences. The feeling in this group was that teachers need to make sure they can trust the materials they are using, need to find them quickly and would ideally like to find them all in one place. However, they felt the demand wasn't so much for unmediated access to collection items, but more for structured learning packages, often tailored to specific curriculum/ course topics. It was pointed out in

this context that the National Education Network is *already* a single gateway for learning content, including some digitised collections. One thought was that partners like the NEN could help make cross-collections searches more relevant to educational audiences.

4.1.4 'Specialist'/'expert' audiences

The group tasked to consider this audience were 'uncertain' of the need for a single trusted gateway to cultural resources for 'specialist' audiences, but were clear there is a need, particularly for academics, for access to structured and trusted information. Jill Cousins from the European Digital Library cited EDL's own user research which suggested a positive response to an integrated cultural collections offering but there were concerns that the benefits might not justify the expenditure. In short, this group felt academic/ specialist audiences would not in themselves justify the investments needed to create cross-collections access.

4.2 What might the partners create?

4.2.1 Something for everyone?

What could the partners create or enable? A grand 'vision' might be:

"A cross-collections exploration facility,

- enabling searching and gathering of collections (images and descriptive data) from several organisations via dimensions that include subject, place, time and object type,

- …with relevant links to relevant 'layers' of content (themed interpretation, learning resources, exhibitions and events),

- …with tools that enable users to tag collections, share, interpret and 'curate' them

- …and museum curators to do the same

These functions may not all exist in one solution but as several distributed across different sites, through the use of APIs, widgets etc.

Note: Section 5: 'Options Analysis' looks at broad routes forward for the partnership (and documents the project board's response to them).

4.2.2 Use cases

Given the lack of definitive research on need, it can be valuable to consider possible 'Use Cases' that help us to reflect on how different users *might* engage with any web-based cross-collections facility. When considering options for ways forward in Phase II, such usage scenarios can help expose the strengths and weakness of various approaches. Some illustrative Uses Cases might include:

4.2.2.1 'Teacher'

A teacher interested in art and history resources might want to:

- Search a range of terms related to syllabus topics,

- Gather visual thumbnails of several collection items and place them in a slideshow format for use on a whiteboard

- Find where and whether the items are on display and arrange visits

- Find links to relevant workshops, learning resources or publications on those topics.

4.2.2.2 'Product Designer'

A product designer interested in materials science might want to:

- Search for telephones spanning the last century
- Sort these by their place of manufacture
- Tag some of the items – using their specific knowledge about the materials and processes
- Post a question for anyone to answer
- Take one collection image to illustrate a wikipedia entry

4.2.2.3 'Teenager'

A teenager interested in fashion might want to:

- Find examples of black clothes in paintings, theatre costumes and fashion collections
- Tag and bookmark them
- Send a favourite to a friend
- Request that an image be submitted to Artshare so they can include it in their Facebook profile

4.2.2.4 'Mature Student'/ Parent

A mature student and parent might want to:

- Try random searches for inspiration, to find items that appeal or might give her an idea for an essay
- Conduct a random search with her children, as an alternative to fun Google Images search
- Look to see if there are any collections to do with trains that can be seen in museums nearby

4.2.2.5 'Local history writer/photographer'

A local history writer/photographer might want to:

- Search for any items related to a place
- Copy or buy (depending on policies) high-resolution images to illustrate a booklet

4.2.2.6 'Regional museum curator'

A regional museum curator interested in medical history might want to:

- Gather and tag searches of collection items related to an exhibition on sexual health and contraception
- Produce an online article or exhibition linking to those gathered items, enabling the comments function so that users or other curators can supply interpretations and knowledge of the items and related history.

5. Initial options appraisal

5.1 Option One – 'single trusted gateway' to a new single data repository

5.1.1 What might this look like?

Progressing as soon as possible to the creation of a single trusted gateway as a way in to a new 'walled garden' data repository that will enable:

- cross-collections searching,

- an adequate depth of field in the metadata, which supports searching across categories of objects, books, archival documents and digital material,

- an authoritative presentation of national collections, aiming eventually for comprehensiveness

- layers of further functionality including User Generated Content and learning resources,

- a flexibility of creative uses of images underpinned by solid copyright policies,

- the use of API's to enable the presentation and use of this data in multiple contexts (as well as, or instead of, a branded portal),

- clear distinction between each museum brand and clarity about the source of collections,

- provision of a 'route to market' for further digitised collections.

This would be driven by a consortium of the NCOFS partners, at first using only the collections from the V&A, NMSI and NMM. It can then evolve to include secondary partners.

5.1.2 Appraisal

5.1.2.1 Ease

This appears to be the most difficult option of the four, because of the likely cost, concerns about existing workload and the difficulty of agreeing details and common data standards.

5.1.2.2 Desirability

Although the great majority of interviewees have said that some form of cross-collections searching is desirable, the same proportion (including people from lead partners) have expressed strong reservations about the feasibility of the above plan to achieve such an outcome. The main 'pro' of this option is that it could allow commissioning the best collections management database, using the latest technologies.

5.1.2.3 Combinability with other options

This option could be combined with Option Four (Lightweight Experiment). It would be undesirable to combine it with Option Two (Embrace IAP)

5.1.3 View of the project board

The Board decided on 19th May that this option should not be explored further, although some of its aspirations as described above should be transported for consideration with the other options. It is also important to ensure that staff consulted in phase II can express views on this option.

A walled garden data repository with single portal is problematic because:

- **It is by far the most expensive project**

<p style="color:red; font-weight:bold">

- It is difficult to find a common data model that will provide a significant depth of field in the data for markedly different types of collections

- It would take longer to achieve very widespread collections and to involve new partners, which would be a requisite for a project that is defined by the aim of searching, gathering and curating across many collections

- It might be difficult to enable automated updates, enabling contributing institutions to keep their collection records in the repository up to date

- It could be seen to replicate the efforts of the Integrated Architecture Project (and Europeana)

- If the main aim is to create a facility that builds on a cross-collections search (rather than a large dataset with uniform standards), this would be an unnecessarily cumbersome approach

- Single portals do not reach audiences without a great deal of marketing.

</p>

5.2 Option Two – Embrace IAP

5.2.1 What might this look like?

Help deliver, support and influence the **Integrated Architecture Project**, (which is being jointly managed by Culture24 and the Collections Trust) which can feed into Europeana by creating a 'portal' for England and/or UK. The IAP project is looking at converging a range of existing developments into a single, coherent offer. The result, say the two partners, "will see the start of a unified infrastructure for creating, managing and sharing digital information across MLA and its funded initiatives, delivering locally based services from a national platform. The project is taking a staged, practical approach. It seeks to reduce duplication, add value and cut costs. It will also champion good practice in digital publishing, standards, benchmarking and evaluation."

Embracing IAP in the context of this study would involve:

- Providing a statement of requirements for such a service, such as the provision of well-documented and supported metadata harvesting tools.

- Adding digitised collections, images and metadata, via OAI-PMH, into the People's Network Discovery Service. (The workload for this is said to be 1.5 - 2 days.)

- Making use of the API's that will enable presentations of the collections data in multiple contexts.

- Contributing expertise and ideas to support the development of policies, taxonomies, and the editorial functions (led by Culture 24), to ensure that it delivers the vision of the brief for the NCOFS.

- Engaging with the funding streams (e.g. ATHENA), studies and facilities offered by the European Digital Library, delivered via Collections Trust and MLA.

5.2.2 Appraisal

5.2.2.1 Ease

It would appear easier to follow this than Option One, although it will still involve some effort to help shape what is still a fairly notional project. The easing factors for the NCOFS partners are that 'someone else' is largely responsible (Collections Trust is the lead project manager, for MLA) and that start up funding has already been secured. £360,000 has been released via MLA to develop the system. This seed money and the good relationship with EDL, DCMS and DCSF will potentially help leverage further funding.

5.2.2.2 Desirability

The main advantages of this option are:

- That it already contains many of the digital collections created via NOF-Digi and that many museums are currently in the process of inputting further collections.

- The PNDS uses OAI protocol, which is broadly favourable across the sector.

- It also contains existing data such as the register of designated museums and the collections descriptions in MICHAEL and Cornucopia, which will be opened out so that museums can update their own profiles and create their own websites.

- Its management by Collections Trust and Culture 24 offers new opportunities to contribute to it in detail.

However:

- In its current form the interface for visitors is poor and will need improving. (Culture24 are working on how to improve this in the new generation of Culture24 sites that are being built at the moment. These will have a thematic navigation that has been developed out of user testing and is designed to work using an Amazon-like approach of "if you like this, you might like this… ?")

- There is currently something of a negative fulfilling prophecy in the attitudes of some – i.e. 'the content represented is not compelling, therefore we won't provide compelling content'.

5.2.2.3 Combinability with other options

The IAP is progressing anyway and many museums may be considering contributing to it. It will be most successful if the sector can understand the costs and benefits of engaging with it. Further exploration of the IAP could be combined with developing a federated search (option three) or lightweight technology experiments (option four), but in reality it may be difficult to resource a full contribution to the IAP as well as exploring these other options.

5.2.3 View of the project board

On 19th May Board members expressed views that IAP should be investigated, paying attention to:

- **The practicalities of uploading collections and users' subsequent access to them (in particular interfacing with Web 2.0/ 3.0 technologies)**

- **Governance issues and the possibility of influencing the future direction of the project to see if it can deliver the desired outcomes of this study.**

5.3 Option Three – Focus on creating a 'Decent Federated Search'

5.3.1 What might this look like?

If it is considered more important initially to bring together collection data, than to facilitate advanced catalogue searches and access to 'deep' information about items, then federation and syndication is the best option.

> *"Even academics and specialist researchers more often start with one word searches and don't use all the features of advanced searches" (Daphne Graham, from research by English Heritage for their Heritage Gateway)*

This option would involve:

- Building a federated collections search using either Google, OpenSearch or similar

- Improving the order of search results (by quality and/or relevance) and providing search filters

- Improving the search descriptions, for example by including thumbnail images and key metadata (possibly using automated key-wording solutions such as OpenCalais)

- Development of search 'widgets' for museum websites and feeds

- Development of a central search interface to showcase the collections through popular searches and/or topical subjects (e.g. identity, cities, British history or British ingenuity), possibly using resources like Wikicharts or social tagging to identify popular topics.

- Development of creative learning resources that utilise federated searches.

5.3.2 Appraisal

5.3.2.1 Ease

This option would be a great deal easier than Option One because it does not require a single collections management system and importing of data into it. The technology is understood and there are models to follow. There is obviously some work in agreeing the right system between partners, in crafting it for usability. It is more focused and less experimental than option Four (below).

5.3.2.2 Desirability

Given the Government's ambition to raise the international profile of UK culture, it is surprising that there is not yet a decent federated search. This approach is very likely to achieve good results for the majority of users. The user would be able to explore collections based on topics such as subjects, eras, places and people. The feeds or search results will take users to museum websites (to collection entries, but also learning resources and events), which has the benefits of not depleting visitor figures.

5.3.2.3 Combinability with other options

This could be combined with option 2 (supporting the IAP, if it can interface with collections more acceptably than it does now). It could also be preceded or parallel with some experimental work (see option 4).

5.3.3 View of the project board

On 19th May, the Board expressed interest in this option and wish for it to be investigated further – looking at two sub-options:

- **developing the National Museums Online Learning Project 'OpenSearch'**

- **using Google to develop a federated search**

5.4 Option Four – Multiple experiments as action research

5.4.1 What might this look like?

Incubate multiple **lightweight experiments** in technology, letting the successful experiments be sustained and mainstreamed by interest and participation. The multiple experiments might be:

- Experiment with low-cost trials that combine data (e.g. from the three collections or more) and apply third party tools to help people search, map, interpret and personalise content. This could be achieved by announcing a competition for developers, following the model of BBC Backstage. http://backstage.bbc.co.uk

- Working with Google to discuss ways of improving the indexing, tracking and deep searching of collections

- Making collections more findable and usable by editors of Wikipedia

- Releasing some collections without copyright restrictions for creative use, showcasing possibilities through collaborations with third party web companies such as Flickr.

5.4.2 Appraisal

5.4.2.1 Ease

It should be fairly easy to undertake any of the experiments described above, although there would be work involved in clarifying aims and criteria of any initiative. Such an approach requires relinquishing a degree of control, which explains why it is the most exciting option for those who advocate it and the most frightening for others.

5.4.2.2 Desirability

This approach could be a desirable starting point, following the feasibility study. It could yield many ideas and build skills and understanding within the sector. Directors and funders need to understand the possibilities of such projects, support their staff to create them, embrace them into branded web offerings and accept that such experiments will also live outside their museum sites.

5.4.2.3 Combinability with other options

Naturally these experiments are combinable with other approaches, and depending on how they are presented could form a 'first stage' of the other options outlined. For instance, experiments may test various approaches to federated searching (informing any project that addresses Option 3).

5.4.3 View of the project board

On 19th May, the Board expressed interest in investigating into how experimental approaches could be utilised and funded in the process of defining the best solution, in particular how these might help enhance audience engagement.

6. Summary of findings referenced to brief

6.1 How the project could advance the individual partners' interests and strategic priorities

6.1.1 Common concerns expressed by partners

- The need to clean up and create more digitised collection data, which might be seen by some staff as a priority over any new project.

- The fact that projects (such as new buildings or major exhibitions) drive many digital developments.

- A legacy of 'silos of collections data' within each institution, due to discreet project funding, and the difficulty of achieving a common data model between e.g. books, artefacts, archives and digital material.

- A concern that the goal of a 'monolithic' data repository will be unsustainable and unachievable.

6.1.2 Common interests/enthusiasms shared by partners

- A commitment to the aim of some form of cross-searching of collections.

- A tendency to prefer light-weight, slow-building and well evaluated projects.

- A belief that this project could be used to address concerns that digitisation should be a priority, by providing a platform that, through its growing use, will attract funds for digital content and other institutional projects.

- A desire and sense of duty to increase and widen public use of already digitised collections.

- An interest in the potential of achieving useful strategic developments that benefit the wider sector: For example, this project could create a platform for delivering the notional 'Museum of British History'. It could also lay the path for connections with broadcasters on developing content for a new era of converged media.

- An interest in how this project can develop a model for museums to swiftly respond to changing political agendas, by easily delivering online experiences with current emphases (e.g. on Citizenship, climate change, sport or science) or to new audiences.

- A wish to develop a product that enables a breadth of approaches to editorial and user content creation, including tools that relate to places, times, collection items, stories and study subjects.

- A real interest in the benefits of collaboration, in terms of sharing professional knowledge and creating more innovative and engaging products for audiences.

- An interest in learning more about the potential of web 2.0/web 3.0 for audience engagement and for efficiency savings.

- An interest to look at ways of shifting from a time-limited project funding model to funding strategies that are on-going, and more businesslike – i.e. they respond to a definite 'market' demand and establish multiple revenue opportunities.

6.2 Possible cross-over/integration of this project with other cultural-sector initiatives

6.2.1 Integrated Architecture Project

Jeremy Ottevanger suggested that we should deliver our collections to the People's Network Discover Service (IAP > Europeana) 'for them to do the grunt work' with taxonomies, search technologies and so on. This would free up collaboratives such as the NCOFS partners or the Renaissance hubs to develop layers of narrative and creative tools that can sit on top of that content.

6.2.2 Cultural Olympiad

The Visit Britain website says "The Cultural Olympiad will involve theatres and museums, libraries and built heritage; cinema and digital technology." We aim to discuss links with the London Olympics in phase II and will flesh out the next iteration of the report.

6.2.3 Strategic Content Alliance

There is one year left of this study. The British Library and MLA are members of the alliance, but the MLA contribution may need to be boosted by museums themselves. Museum directors are invited to be affiliates and to organise a briefing meeting with the SCA.

6.2.4 Museums Computer Group

The MCG is reviewing its role and structure, wishing to embed digital skills and understanding across the museum profession and to be a more established association that can be more firmly involved in strategic developments. It has delivered the AHRC Semantic Web Thinktank, which is primarily about how the machine-readable web can support more natural and flexible searching of collections. It has produced a 'route map' which should be better understood by the NCOFS partners http://culturalsemanticweb.wordpress.com/

6.2.5 The National Museums Online Learning Project

The NMOLP offers important lessons for managing collaborative projects between museums of different sizes and types. The federated search developed by the project is an important springboard for considering the development of a wider search facility, either expanding the reach of the search facility developed by NMOLP or using the lessons learnt to develop another form of federated search that fulfils the ambitions of the partners. Examining the practical and organisational possibilities of federated searching is an important strand of Phase II of this project (See Section 5.3 above).

6.3 Why earlier initiatives may not have delivered integrated national collections

The simple answer to this is that previous initiatives lacked ambition and scope. Ordaining a national integrated online collection would have involved a level of direction that is not traditional in the relationship between DCMS and national museums, and that is made difficult by the disconnects between national museum and local authority/regional museums, and between museums and archives/libraries.

Integrated national collections could have come about in the following ways:

- National museums collaborating, making a distinction between their branded sites for marketing their own museums and a single collection site for national learning. DCMS funding agreements insist that nationals focus first on their own real world programmes, on building capacity within their

organisations and increasing web hits.

- DCMS and DfES (as was) ordaining a national cultural offering for the digital curriculum. The digital curriculum has stalled, with Curriculum Online, BBC Jam and BECTA's e-strategy off line or slowed down.

- An implementation of Culture Online that was successful for museums, acknowledging that digitising cultural collections would have enriched this offering.

- A more successful implementation of NOF-Digitise, involving more national collections and with a more engaging joined-up interface to this material than the People's Network Discover service.

6.4 Possible cross-over/integration of this project with commercial search and syndication services

This will be investigated in Phase II of the study.

6.5 Material differences in institutional policy

Differences in institutional policy fall are most relevant in relation to a specific project or issue. Therefore Phase II will look at how the options under investigation will 'play' based on the different organisations policies, on issues such as copyright for example. A broad brush analysis of the 'stances' of the partner museums might be:

- NMSI is perhaps most concerned that this project will show up, or distract from, the need to do more digitisation and collection publishing.

- NMM is perhaps most focused on development of a highly accessible onsite archive, with both online collection publishing and interactive digital media projects closely related.

- The V&A is perhaps more concerned to engage in national projects, but there remain internal structure and workload issues.

Of course, all these institutions interact with the wider sector – but it could argued have differing approaches to it. For example,

- NMSI is concerned with international collaboration, and is most concerned with contemporary science

- NMM is perhaps more interested in exploring semantic and social web innovations to open up its archive to the broadest possible audience

- V&A is well connected with Government policy and has most impetus to collaborate with other nationals via the NMDC.

This spread of enthusiasms can be seen as key asset in relation to this study. If they can be combined there are potentially many economies and efficiencies to be enjoyed.

6.6 Taxonomical, tagging and language issues of dealing with collections data

In general, these issues have come up in interviews, but will need to be a particular focus in phase II, to be considered in relation to each option.

6.7 Evaluation of what additional functionality users might want

As detailed in section 4, the issues of need is still a matter of much debate. Phase II of the study will look at how some of the proposed options forward may support understanding more fully what users might want via action-research.

6.8 Underlying concerns about funding and workload, given museums' limited resources

It is clear that these underlying concerns are widespread. Any solution therefore must seek to make life easier, not more onerous for any parties involved. Many respondents have said that we need to look at ways of shifting from a time-limited project funding model to funding strategies that are on-going, and more businesslike – i.e. they respond to a definite 'market' demand.

Another concern is that any project must dovetail with existing institutional programmes. Each partner must be able to define their contribution in relation to their needs.

7. Next steps: Phase II

7.1 Aims

- *To investigate the most viable options in more depth*

- *To communicate the benefits and possible outcomes of such projects*

- *To research and describe the mechanisms by which the projects can be delivered and managed, in terms of funding sources, connecting initiatives and partnerships the roles of the NCOFS partners.*

7.2 Methodology

The first option of building an ambitious data repository and single gateway has been discounted in this first phase, agreed on 19th May. The second phase will explore the following options:

- Embracing and influencing the Integrated Architecture Project

- Developing a 'decent federated search'

- Undertaking multiple experiments as action research

They will each be analysed according to the following criteria:

Dimension	Considerations
Internal stakeholders	The capacity and willingness of each partner to commit and contribute to each option • what it enables for them • how it meets their needs • how it relates to institutional policy
External stakeholders	Possible benefits of each option from the audience point of view, including: • educational users, • informal/general users, • tourists, • specialists/academics, • commercial or creative users.
Technology	How existing solutions or models can be used: • agility and ability to prototype • an 'on the ground' technical assessment of how 'doable' the various approaches outlined for Phase II of the project are - i.e. helping us differentiate the 'nice on paper' from the 'nightmare in real-life'.
Economics	• Probable costs

- The potential to fund

- The connection with other initiatives and agendas

- The potential to sustain

7.3 Personnel

- Bridget McKenzie, lead consultant

- Mia Ridge, technical consultant

- Mark Stevenson, project manager and writer

7.4 Deliverables and dates

- Phase II interim report – 4th July

- Phase II final report – 31st July

Appendix: Interview responses

Our 'community of enquiry':

Who	Organisation
Adrian Bevan	Visit Britain
Alan Seal	V&A
Amy Robinson	Visual Arts Discovery Service
Anra Kennedy	Culture 24
Beth McKillop	V&A
Carolyn Royston	NMOLP
Catherine Draycott	The Wellcome Trust
Chris Kastel	National Education Network
Daniel Evans	NMSI
Daphne Charles	English Heritage
David Anderson	V&A
David Dawson	MLA
David Hassell	BECTA
Dylan Edgar	London Transport Museum
Fiona Romeo	National Maritime Museum
Fran Hegyi	LOCOG
Gail Durbin	V&A
Georgina (George) Oates	Flickr
Hadrian Ellroy-van- Decker	Science Museum
Hayley Restall	V&A
Hedley Swain	MLA
Helen Ashby	National Railway Museum
Ian Blatchford	V&A
James Watson	National Maritime Museum
Jane Finnis	Culture 24
Jennifer Rigby	National Archives
Jeremy Ottevanger	Museum of London
Jill Cousins	The European Digital Library
Jon Pratty	Culture 24
Kate Bellamy	V&A
Kevin Fewster	National Maritime Museum
Margarette Lincoln	National Maritime Museum
Mark Jones	V&A
Martyn Farrows	Lexara (formerly Simulacra)
Mel Burns	NMSI
Mike Ellis	Eduserv

Nick Poole	Museums Documentation Association/Collections Trust
Pamela Young	British Museum
Paul Goodman	National Media Museum
Paul Walker	Blackpool council
Robert Bud	Science Museum
Ross Parry	University of Leicester
Rupert Williams	Science Museum
Sarah Winmill	V&A
Scott Furlong	National Maritime Museum
Seb Chan	Powerhouse Museum (Australia)
Stephen Heppell	Freelance
Stuart Dempster	JISC
Sue Kennedy	National Maritime Museum
Sue Wilkinson	MLA
Terry Makewell	NMOLP
Tim Boon	Science Museum
Tom Loosemore	Ofcom
Tom Steinberg	My Society
Mat Pfleger	Creative Archives Licence Group
Matthew Trewhella	Google

A.1 Strand 1: 'The Context'

A.1.1 What are the edges, ranges and overlaps of the cultural collections sector and where could the NCOS outcome sit in this context?

This question was intended as a framework on which to pin any knowledge. It sought to elicit broadbrush mapping of the different and common approaches, and understand the limits of digitisation and web initiatives across museums, archives, libraries, contemporary arts & galleries, HEI's, specialist bodies (e.g. science trusts or institutes) and so on. It brought up issues relating to institutional identity, geographical applicability, types of data, levels and limits of access to collections, approaches to intellectual access (e.g. learning methodology) and the use of emerging technologies.

Summary of responses

Contributors showed two key schools of thought:

1. This is a project for museums, about museum objects which are mainly visual, and enables a virtual cultural experience and the telling of stories

2. This is about helping people seek information, and so should encompass any kind of data that enables people to interpret and understand culture, including heritage sites & buildings, libraries, archives, contemporary digital culture, sound & film archives.

These two schools of thought relate to two 'paradigms of use' for cultural content online expressed in '3.3.2 Changing perceptions', i.e. Users either seek 'cultural experience' by looking for recommendations or going to museum brands they know or seek information or resources by looking for any data that deals with their

particular interests. It is worth re-iterating that this latter group of users can be considered 'museum agnostic' - i.e. they may not care if objects they come across are in museums or not, let alone care which museum

If there was a tendency to characterise potential users, this was because interviewees were focused on the audiences they know most about, and had made certain assumptions about what this offering should be accordingly.

A.1.2 What do you think would be a useful project?

This was a catch-all question, deliberately broad. The Board members agreed that the project is about collaborating to find the best way to enable searching and interpretation facilities across multiple collections.

Summary of responses

- *"When portals proliferate you need more portals to make sense of more portals"* - Daniel Evans

- *"Oh no, not another portal"* - Several interviewees

The responses to this question varied between statements about how such a project should be achieved and whether or not it should be tackled at all. Most were very clear that they didn't see the value of 'another cultural portal site' or, 'worse, a data warehouse' that is separate from individual museum websites.

Examples given were:

- Time Warner and AOL's pooling of brands into one portal, costing many millions of dollars, which was hardly visited because the portal was an 'unknown' brand.

- The pooling of much of the NOF-Digitise material into the People's Network Discover service which seemed to completely annex objects from the very NOF-Digitise projects (such as http://www.collectbritain.co.uk/) that created them

- SCRAN, which worked well in supplying cultural collections to schools, but as a concept is 'of its time'. It is a walled garden, subscription-only site. It currently doesn't have sustained public funding. Contributors of collections material struggle to keep it up to date within SCRAN. (See the page on uploading collections: http://www.scran.ac.uk/?PHPSESSID=67kjh5fk3b2cd8i5989e3ecsa3)

Other (paraphrased) comments:

- "Exposing information to many possible uses is the most useful project"

- "If inconsistent data standards are the key problem, then rather than see them as an obstacle, let a collaborative project like this be the impetus for us to clean up our data together"

- "Build on and learn from existing demonstrators (e.g. JISC Image repositories and NMOLP)"

- "Providing for teachers is a key audience, for example, using the National Education Network"

- "We need to build foundations, dealing with copyright, understanding audience demand and ways of targeting new users, and understanding how we stand in relation to the digital offer in other countries"

- "You need to go where the eyeballs are – so you need to work with Google and Wikipedia"

- "You either need to make a better international way of searching all cultural collections, or if this is a national offering, focus on crafting it carefully about place – defining the place and using location as a way in."

- "We should really investigate the demand for social tools and user generated content on museum sites"

- "Staff across museums need to know more about how to operate in the new world of the web (e.g. using Facebook apps)"

- "Europeana is the most useful project"

- "A focused review of the outcomes of the Semantic web thinktank is needed"

- "We shouldn't be looking to create a single solution, instead a strategy under which many small action-research projects can bring wider benefits to the sector".

- "I'll support anything that will get our digitized collections out there and better used in different ways on the web."

- "Reinvent Culture Online, with the concept of the 'long tail' very firmly in mind".

- "We need an agreed rights structure for creative use of cultural collections data".

A.1.3 What relevant initiatives have existed in the past and why have they not delivered national integrated services?

What did we learn from Culture Online? What about SCRAN? What about the People's Network? What were their limitations? How can we build on them rather than start from scratch?

Summary of responses

- *"We have to learn from this past. We can't keep building these portals. We need to mark-up collections so that they can be searchable on the web. We should be atomizing our collections and letting them go as feral creatures, which can then be gathered and linked through various tools"* - Ross Parry

- *"These past projects are legacies of our technological approach in the twentieth century. We used to build big things that did things for people. Now, the succeeders are the small things that help people do things with each other, like Facebook and Twitter. You need to start with mutuality."* - Stephen Heppell.

The majority of responses suggested that the underlying problem is not so much the fast pace of technological change, but the lack of empowerment for museums to be agile in response to it.

Other comments:

- "NOF Digitise and Culture Online were not sustained, too taken up with the need to create thematic content and serving political agendas, so we have just ended up with silos of information. There is no money to continue ICONS (a COL project) and Every Object Tells A Story is currently offline".

- "The lesson of Culture Online is that any new project must be led by the museums themselves and not commissioned in a top down way".

- "Curriculum Online was a fiasco – it was damaging to the development of good cultural resources".

- "JISC have created digital collection repositories, which aren't very accessible for a wider public, but there is lots to learn from them as they have done lots of blue sky thinking".

- "The lesson of SCRAN is not to create a walled garden that is only licensed to schools."

- "Too many of our digital projects have been too narrowly focused on particular themes, detailed descriptions of particular objects. These highlight objects get recycled into the next digital project. We need more comprehensive digitisation, without simply creating dry databases."

- "Most people won't use these JISC, or OAI sites, and possibly not Europeana if it's not done right. We need to learn from these that we need to work with where people are spending time (My Space, Wikipedia, Google)."

- "Looking at online digital storytelling or memory gathering projects such as The People's War, these are failures because they are simply archives, passively presented, with no way of bringing the material alive."

A.1.4 What relevant initiatives exist now, or are being planned for the future, and what potential do they have to deliver national integrated services?

What can the European Digital Library (the Europeana Portal) offer UK museums? What is the potential of the Strategic Content Alliance? What is the potential of the National Museums Online Learning Project?

Summary of responses

- *IAP/Europeana*:

    - "IAP/Europeana offers the key step towards achieving the Netful of Jewels vision."

    - "The V&A is ready to submit collections to the PNDS (the collection database for IAP/Europeana)."

    - "Museums hesitate to take risks to embrace new partners such as Europeana – they want to see what emerges first before submitting collections to it."

    - "We should learn from how successful other national portals have been, comparatively with each other. We should look at Netherlands, Finland, Norway, Germany and Sweden to see what can be achieved."

- *The e-strategy (BECTA, National Education Network):*

    - "BECTA tends only to look to the commercial sector rather than the cultural sector for setting standards and developing learning resources."

    - "The cultural sector doesn't, on the whole, proactively engage with DCSF & BECTA, or learn from new developments in education."

- *NMOLP*

    - "NMOLP offers many opportunities to build on (e.g. in terms of the Open search across collections) and the learning about collaboration".

    - "If NMOLP could be built on, it should offer tools that allow users to create 'museum agnostic' collections".

    - "It would be good to use NMOLP as a test case for user research: How much are people using it and in what ways, and what else would they want?"

- *JISC and the Strategic Content Alliance:*

  JISC are starting to make their collection content available to schools now (to registered schools on the NEN). They are aware of the rich content in museums and archives, and how this could better support the needs of schools, colleges and academic researchers.

  The SCO offers a good deal of strategic thinking and practical work to build foundations to ensure that digital public content is better accessed by educational audiences. They have extended the invitation to museums to become affiliate members.

A.1.5 What can we learn from initiatives elsewhere in the world?

What can we learn from, and how could we collaborate with, for example, CHIN (Canada), CAN (Aus), culture.fr (France), Powerhouse (Aus), Artstore (US)? What else is out there?

Summary of responses

- "Artstore in the US is too much of a data warehouse – you supply your data, but you lose the link back to your institution."

- Many people cited the work done by The Powerhouse Museum in tagging collections, cross searching, data combining and federating, not just for their own collection. "Seb Chan has probably already solved it"

- "Flickr Commons is an interesting project. It doesn't offer the solution but offers one route for us to reach more audiences, to gather more interpretations to some of our collections and combine them with others (e.g. through tagging)."

Other projects mentioned included:

- Museum Finland: which uses a semantic system called FinnOnto for standardising meanings across *all* Finland's public websites (not just museums).

- Steve.museum: A partnership of 8 US museums have experimented with social tagging of artworks - see http://steve.museum/index.php?option=com_frontpage&Itemid=1 Their activities include "researching social tagging and museum collections; developing open source software tools for tagging collections and managing tags; and engaging in discussion and outreach with members of the museum community who are interested in implementing social tagging for their own collections".

- National networks of web services: Canada and Australia are developing national networks of web services for museums (and libraries and archives). This involves creating online collections management systems and tools that enable collections data to feed into education resources and editorial content.

A.2 Strand 2: Partners and participation

A.2.1 What are the debates that have been taking place about the need to create an integrated cultural collection offering, and between which parties?

What should the study be sensitive to?

Summary of responses

Sensitivities abound, most recently stimulated by:

- the announcement of the Integrated Architecture Project

- the resignation of David Dawson as Digital Futures Manager at MLA

- the recent promotion of the Europeana prototype and EDL encouraging UK to create a national portal

- the 'road map' published by the Semantic Web Think Tank, a collaboration between the Museums Computer Group, Culture 24 and MDA

- concerns by some museums about shifts in attitude towards opening up access to collections data and enabling non-commercial use of good quality images

- the inclusion of a federated search in the National Museums Online.

The strongest divergence of views lies not in *whether* aggregation/federation of collections should be embraced, but in *how* it should be realised.

- Should we aim to create a traditional and authoritative museum collection database for all collections, which would imply a portal site distinct from the museums' own sites? This point of view tends to favour controlled, walled garden sites that use carefully honed data standards.

- Should we embrace a machine-processable approach, using new web-services to search and combine data from multiple collections? This point of view tends to favour openness of access to collections, web 2.0 social tools and distributing content into the rest of the web.

A.2.2 Enquiry question 2.2: What is the best route for high-level ownership, advocacy and funding to enable this project, and what options are there (such as the Olympics, the Cultural Offer and other policies) to give this project an impetus?

Who should drive and fund this project? What options are there (such as the Olympics, the Cultural Offer and other policies) to give this project an impetus?

Summary of responses

- *"This shouldn't be too politically driven. It should be neutral and flexible."* Dylan Edgar

Respondents have suggested possibilities for high-level advocacy and funding including:

- *DCMS*

  The DCMS 2005 strategy paper 'Understanding the Future: Museums and 21st Century Life' supports the vision of this project: "Collaborations on scholarship and purchasing are becoming more commonplace. This could go further, with more – and more innovative – sharing of collections. In this way, the concept of national collections changes too. The internet holds the greatest potential here, and museums must look at ways of using its potential to build understanding of collections, cutting across institutional (and national) boundaries. In this new century, it will be more important than ever for museums to create access to their collections. This may redefine conventional questions of ownership. The debate about ownership of collections is a national and an international one.'

  www.culture.gov.uk/Reference_library/Consultations/2005_closed_consultations/21_centuary_museums.htm

The DCMS should therefore be heartened by an initiative that promises to promote the nation's assets internationally and also that encourages efficiencies through collaboration across the sector. The interest it has shown in NMOLP is indicative.

Accordingly, the project should connect with initiatives led by DCMS (with DCSF), in particular:

- *The Museum of British History*

  A call for ideas following supportive statements by Gordon Brown

- *Engaging Places*

  A scheme to bring the curriculum to life by helping children and young people engage with places and the built heritage.
  http://www.culture.gov.uk/what_we_do/Architecture_design/engaging_places.htm

- *The London Olympics*

  There were doubts about how easy it would be to engage with the Olympics, partly because it might delimit the project. However, a national collections online facility would be very beneficial for the London Olympics and Visit Britain tourism communications. In particular, the MLA Olympics project 'Stories of the World' may benefit from this project.

It is also important to roll out information and invitations to participate in this project to DCMS sectors outside museums, through Ofcom, BFI, Design Council, Visit Britain, LOCOG and others.

Two interviewees warned that DCMS may not take an active interest or lead in this project so it would be important to be proactive in communicating its benefits to them, and to involve the MLA in backing this presentation. Messages to DCMS should focus on audiences not collections, on social benefits not technocratic developments.

- *MLA*

  It is important to maintain good relationships with MLA and to influence emerging strategy following their restructure. However, it is not clear yet what role they will play in terms of digital strategy in future. It is possible that the MLA could become more of a 'business to business' organisation, supporting collaboration rather than rolling out policy from above. We have learned that MLA will shut down many of the MLA regional learning websites and merge them into one, with all the duplicated content reduced.

- *The Treasury*

  The Invest to Save Budget, which funded the NMOLP, is now ended: *"To date all ISB funds have been spent and it is not known at this stage, but is unlikely, that there will be funding for further rounds of ISB funding"* http://www.isb.gov.uk/hmt.isb.application.2/index.asp

- *DCSF*

  It will be important to connect with the relationships between BECTA, the National Education Network and JISC. Also, the DCSF is consolidating the Learning Outside the Classroom Manifesto as an organisation.

- *The Cultural Offer/Find your Talent*

  This is as yet undefined, and is clearly a reformulation of Creative Partnerships. However, there is a great deal of untapped potential in the use of the internet in a co-ordinated way, to engage children

and young people in cultural experiences and creative practice. There should be a conversation with Paul Collard, who is charged with developing the Cultural Offer.

- *Commercial partners and large foundations*

    By example, see Microsoft Foundation's Community Investment programme:

    http://www.microsoft.com/about/corporatecitizenship/us/communityinvestment/default.mspx

- *The European Union*

    The European Digital Library has funding streams available for foundation-building projects. This project should also look to learn from legislation that is being drawn up by the EU and USA on Intellectual Property.

- *The British Council*

    The British Council (funded by the Foreign & Commonwealth Office) is undergoing a major review of its policies, for example by foregrounding cross-arts strategic themes such as global citizenship. Their review includes a major rethink of their web strategy, using it more for dialogue and nurturing creative exchange.

In order to engage these funding and advocacy sources, this project should not seek to meet one particular funding or political agenda, but should be flexible so that it can build in funded elements from various sources.

The point was made that we shouldn't think of this as a major externally-funded project but as a strategy that changes the way museums allocate their core funding. The DCMS funding agreements already include targets for the web, so museums should look at how they can get better engagement by shifting their expenditure. This might include more investment in in-house digital skills and ongoing digitisation as a matter of course. A perspective related to this was that a federated search project would not be very expensive so should not involve too much political maneouvring and cumbersome fundraising.

It is worth noting that, as well as high-level advocacy and funding, it is also important to champion the project amongst key staff in the sector at ground level. The ideal route for this is the Museums Computer Group. They are reviewing their profile and structure, wishing to 'do for digital heritage what GEM did for Inspiring Learning for All' (Ross Parry).

A.2.3 What are the barriers and success factors in this partnership (consortium of partners listed above) in driving and delivering the project?

What is the mechanism of this particular partnership? (The V&A, NMDC, NMSI, NMM & Culture 24)

Summary of responses

Not many interviewees chose to comment. Those that did warned about the difficulties of collaboration…

> "*True collaboration between multi-partner institutions is difficult and requires time, effort, and resources. For NMOLP, we spent time upfront developing a collective vision and understanding of the project, andidentifying the benefits of working in partnership as well as the potential barriers to success. This work has underpinned the project and any new collaboration should ensure that it specifically builds partnership working into its project plan.*" - Carolyn Royston .

…or suggested that it should not hamper the vision:

"There are lots of political and institutional issues about collaboration, such as wanting to hold onto knowledge. It is important not to be too tied down by those but to get on and ask who do we want to reach, what would be exciting to do for the future?" - Jane Finnis

Questions were raised about the partnership involving three national museums when the vision would seem to embrace (or should embrace) the nation's cultural collections. It will be very important for the partnership to be open to other interested parties, sharing learning and inviting contributions, to encourage goodwill.

The partners are all aligned to the mission of creating a cross-collections facility of some kind, share a great deal in terms of core values, institutional priorities and resource constraints. There will be inevitable differences in detail. In planning the project management, it will be essential to acknowledge those differences, to allow for open discussion of them and to devise areas of responsibility for each partner that enable them to meet their own needs and deliver to their own strengths.

A.2.4 What is the potential, and what are the constraints, to involve secondary partners and to widen participation to other kinds of organisations holding collections?

Which other partners and types of collections might be involved? Should the project embrace:

- smaller museums?
- local as well as national collections?

Should it look

- beyond the museums sector?
- beyond the public sector?
- beyond the UK?

Summary of responses

- *"If it's too difficult to contribute people won't do it"* James Watson
- *"It doesn't matter that this project was started by 5 partners. There is an argument for starting small and rolling out, as long as that partnership doesn't constrain the ambitions and scope."* Tom Loosemore

Some respondents felt strongly that this should be a facility to explore the nation's cultural collections as comprehensively as possible, not just the national museums collections. For example, an independent museum that is the house of an inventor or writer may be able to complete the jigsaw of related artefacts held in a national collection. This project would also benefit the smaller organisations, just as the IAP is seen by some to do.

The Collections Trust and the Visual Arts Discovery Service both expressed an interest in supporting smaller organisations to benefit from initiative such as the one being explored here. Some cited English Heritage's Heritage Gateway – which offers a model for engaging secondary contributors. They developed a pilot site, which led to a toolkit and a roadshow to draw in other partners.

Involving secondary partners (when possible) could enable a spreading of professional knowledge and skills about web technologies across the sector. This should be seen as a vision of shared web services across the sector, open to all relevant bodies, supported by DCMS and MLA.

If the facility includes an API, this could enable organisations of any size to adapt the offering to their own needs, although some will need support to do this.

A.2.5 How can this offering be designed to promote the participating institutions as distinct institutions or brands, whilst enabling better connection across enquiry communities (e.g. localities, disciplines, collection types)?

How can museums or organisations ensure control of their representation? How can they ensure this will not affect them meeting their own targets?

Summary of responses

- *"I talk a lot about the 'inside out museum' (as in Jon Pratty's paper) or the disaggregated collection. Rather than aggregating collections we need to acknowledge the nature of the web, which is to disaggregate. Museums have been places where objects have been stored, gathered, framed and arranged in a dense space. The objects are proximal and we are all trained to see museums as holistic and collective. On the web, it's the opposite. We have lifted the frame and let the collections free. The collections are atomised. But we need to discover ways of re-linking and pattern-making. Connected to this is that we have this traditional view of stepping over a threshold into a museum, but on the web the boundaries are a lot more fragile. This does raise many questions about rights and values and responsibilities. If museum objects can be dispersed, what about the value to the source communities?"* Ross Parry, University of Leicester

The copyright issue

- Nearly every institution has differences in 'terms of use' of collection images and data.

- Some participants felt that this would be a barrier. Others took the view that a lightweight offering (e.g. a federated search) would sidestep it.

- The partner museums all seem to be moving towards an open, non-commercial approach to their collection data online: *"We always thought we could make money from them. But there's so much competition in the marketplace. Basically now we just want people to know where they come from"* - Mel Burns, NMSI

- The applications used for the NMOLP's Creative Journeys allow users to pull collection items from several collection websites into their own profile page. The NMOLP has developed a working approach to deal with copyright and the NCOFS should learn from this.

- People are now increasingly used to harvesting images (and other material) from across the internet and placing it into different sites.

- All museums need to do foundational work to deal with this new reality, such as ensuring that all provenance information is part of the image file. This will ensure that atomized items can be attributed to their source collections when distributed.

- Creating a cross-collections facility should not depend on such work being done first.

The branding issue

- When a portal is created, there is a danger of losing the strong sense of brand of each contributing organization, and moreover there is a struggle to raise awareness of the new brand of the portal.

- The facility envisioned by this study puts collection items at the core of the service delivery, with learning resources, exhibitions and so on as secondary layers. The challenge of this focus is that a

mass of collection items, when atomized and combined with other collections, may create a complex foggy web with the user at the centre of the web.

- Some interviewees said this shouldn't matter at all – this would be a positive outcome: *"The objective should be not to raise the profile of institutions but to increase learning."* Tom Loosemore

- It is possible to design tools (rather than one big site) that will increase traffic to museum websites but that also enable people to gather links and data from several different sources. *"A distributed collection offering has to acknowledge the providing organisations."* Jon Pratty

A.3 Strand 3: Audiences and users

A.3.1 Should there be any limitations on the audiences this project is addressing? If so, which ones and why? If not, how can multiple audiences best be catered for?

We asked people to think about how the see their audiences e.g. differentiated by:

- Learning level: a spectrum from specialist researcher to very young/ novice

- Geography and national identity: England, UK home countries, Europe, international

- Purpose of enquiry: one-off enquiry, passion, leisure browsing etc

Summary of responses

- There was a strong consensus that there should be no limitations on audience, that this should be a broad national offering for everyone, including commercial users, specialist researchers/ enthusiasts, educational users, tourists and museum visitors.

- It is important not to create separate silos for different audiences, because individuals might have multiple identifications and areas of expertise or skill.

- This project should also avoid falling into either a populist or specialist camp, but enable the spectrum from light engagement (finding things with your name or birthday, or favourite colour) to specialist exploration.

- The breadth should extend well beyond the UK, and perhaps should even consider international users and tourists as a primary audience.

  - *"You need to think big, beyond the UK. For example, what if you want to connect Asian collections here with ones in Delhi."* Catherine Draycott,

  - *"In the web world, the vast majority of your users are outside your nation. You must involve them in the creation of the product, the weaving of narratives. It would fail if you don't"* Stephen Heppell.

- The broader the range of subjects and types of collection, and the lighter the metadata/search solution, the less likely it will be to provide the 'depth of field' for particular specialists.

- Whilst any solution should be useful as a platform for creating learning and teaching resources, it should not be hampered by the need to create lots of content, or by any thematic restrictions.

  - The project should not be designed too narrowly for specific audiences, but should be considered with a range of different user groups in mind. It is important to know if cross-collection exploration is something that can tap into a range of needs, and if so, how to make it easier to meet people's needs. (Examples of possible use can be found in Section 5.)

- Some interviewees felt that although this should be a broad public offering, the needs of educators should be considered as key audiences. *"This should be focused. It should start with schools. It would be a big hit."* - Chris Kastel, NEN. However, David Hassell from BECTA is more cautious: *"There is a question about whether educators know what to do with cultural material…People used to using textbooks are daunted by the scale and openness of 9 million cultural artefacts."*

- The demand is also clear from Higher Education educators and researchers. *"The Research Information Network findings [about access to cultural collections online] are that researchers want easy access to this content. They just don't know what's there."* David Dawson

- There were also some comments that this would be a useful resource for curators, and have benefits for the contributing museums themselves, as well as anybody working around the cultural and tourism sectors. *"If we can find out what is in other collections easily, then we will do our jobs more efficiently."* Helen Ashby

A.3.2 What is the latest and best practice in engaging learners in interpreting cultural collections online and what is possible in future?

How can good practice be sustained and enhanced by feeding into this project? What is clearly working, or at least definitely exciting the innovators? What really works to keep people engaged? How can we evaluate good learning and teaching about cultural collections when it happens online?

Summary of responses

- The NMOLP Web Quests and Creative Journeys represent good practice because they promote personalised or self-directed enquiry-based learning. This should be built upon in any new offering.

- *"People are interested in people and places, not canonical knowledge"* - David Dawson. The facility should enable people to explore collections in relation to places and people that interest them. Their interests and search terms should be recorded in the system and used to generate further content.

- In general, the majority of contributors felt that opportunities would be lost if the offering didn't explore a variety of ways of encouraging user interpretations (in the form of tags, comments, personal collections and so on). Digitisation is in itself a force for democratizing access to collections: For example, curators may not think that 50 types of coal are of interest, but by putting them online you may reach a number of coal enthusiasts who can add knowledge to the records.

  - *"We know User Generated Content is important to people"* Martyn Farrows, Lexara

  - *"UGC is important to us"* Mel Burns, NMSI

  - *"We really need to know more about what UGC is"* Paul Goodman, National Media Museum

- Tom Loosemore pointed out that the most compelling and underexploited kinds of UGC are not so much 'tagging', but the use of raw material to make creative products and inviting public to upload their own creative work as bona fide collections.

- It is also important to follow the social web trend of enabling people to form communities of interest, to ask and answer questions, to discuss interpretations and to share their own creative work.

A.3.3 How might this project use social networking or Web 2.0 approaches to involve users?

How can web 2.0 approaches enable narratives or creative research about collections, but also, how can they be practical solutions to enabling organisations and users to connect with each other and gain better access to collections?

Summary of responses

- There was general support for web 2.0 approaches, with these the most eloquent:

  "Threading narratives is key to the success of such a project. People have all sorts of labels and narratives. You need to allow people to annotate objects, they can be like pinches of salt to put in the recipe. For example, one thread might be brittle artefacts, and the annotations might be about the physical fragility of the material from a scientist, about its conservation needs from a curator, and then a personal touch e.g. 'my great grandmother made those dresses, she described sewing on the sequins, and how she had to wear white gloves to stop her hands bleeding on the dress'." Stephen Heppell

  "One tragedy this could address is that every day a ton of people die and we haven't captured their stories and their knowledge. We are failing to organise what knowledge we do gather from people so we aren't learning from our mistakes. Museums work on old-fashioned assumptions about knowledge, that it is expensive to gather and store. We need to see a proper online time capsule system so that people can record for posterity the detailed histories of time, place, families, groups and topics. We need a new conception of museums that is that you gain something but you also give something e.g. a piece of your knowledge. We assume that we have to filter out then publish, but the internet doesn't work like that." Tom Steinberg

- But there were a few provisos:

  - *"Remember that Regional Broadband Consortia block public social networks from schools on safety grounds."* - Chris Kastel. However he added that the 'Education Island' of Second Life was seeing strong use and that young people (teens) outside school make avid use of social networks such as Hi 5 and Bebo.

  - The social web should not be seen as *"adding bells and whistles to a giant online catalogue"* (Jon Pratty) but the project overall should be seen as the weaving of meanings and narratives around our cultural collections. The social tools are secondary to that process, only means to that end.

A.4 Strand 4: Achieving consensus on options and delivery

A.4.1 How can this offering enable the best means of exploring collections?

Summary responses

Some conversations focused on particular solutions, for example:

- Terry Makewell reflected on the options analysis behind the decision to use Opensearch for NMOLP, which can be read in this paper:

  http://www.archimuse.com/mw2008/papers/makewell/makewell.html

- Sarah Winmill described the V&A's Core Systems Integration Project with its Common Data Model for four types of cultural content.

- Jennifer Rigby, at the National Archives, described the process of providing URL's for each collection item then sending this data to Google via Site Maps. This enables each item to be searchable by Google.

Some people favoured a data repository:

- *"Our plan would be to use OAI and open it up to this project. We need to set up an aggregator, a repository, with everyone contributing their data to the site. For a good example, look at OAIster ('find the pearls')….You can take part in an Open Search project without changing your database. The danger is that you are just opening up your whole database. The whole record could all be taken. This would enable mash-ups (for example, anyone could create a personal digital gallery of ceramics from different institutions, with full data records). If Open Search is doing the same as SRU then that is good, but we must be concerned about hijacking data. We've not made the policy decision about using Open Search, generally apart from it being the favoured option for NMOLP."* Alan Seal

- David Dawson: *"You could go lightweight and take an Open Search option, but if you want to do interesting stuff with the content you should go for the OAI approach and upload content to Discover. It takes a few days work to put the OAI in, and to do collection mapping."*

Others favoured an 'Open search' approach

- *"Why not use Open Search? Seb Chan uses it, the NMOLP uses it. Seb's system is about getting systems to talk to each other. You tag tags, and look at users tags. The NMOLP federated search is OK, but it is limited and highly structured – it's keyword only, and the keywords are given to you already within particular themed pathways."* - Jane Finnis

  Note: these (comments relate to very early prototype model and Carolyn Royston keen to point out that "NMOLP federated search has now developed significantly".

Some interviewees focused on the users' perspective:

- *"It has got to have pictures. It would be pointless if not. It's not just to make it look nicer, but to make the information easier to find. If you are searching across types of collections, then there are going to be so many overlaps of meaning that have to be helped by visual images. For example, the word 'Dart' has two meanings in railway history, let alone the other meanings of the word dart."* Helen Ashby

- Another plea for a simple visual search: *"It must be incredibly easy and compelling to search, like on Google Images. You see thumbnails straightaway. You see what you want. You must also provide tools for browsing, manipulating, personalising and sharing. You have to be able to pull those things into your own space [which should be their own space not a museum or portal specific space]."* Daniel Evans

- Daphne Graham shared the salient points of the usability research for the Heritage Gateway: *"Advanced searches are difficult. People are so used to Google they want a single box, a free text box, even the professional users want this. People like maps. For 80% of questions, there is a geographical element. They just want to type things in and not refer to several drop-down lists. People are asking for Google-style ranking of results."*

A.4.2 How can this include an API for partner's own websites?

Summary of responses

Where people had knowledge to comment on this, the API approach was favoured and not controversial.

- *"An API approach is the way forward. The portal has been done. The concern is that the technical background in smaller museums is so limited that there might not be capacity to do much with an API e.g. mash-ups. You need an approach that is providing support and training, and scaling up supported by bigger partners."* Dylan Edgar

A.4.3 How might the project embrace provision of access to collections of 'non-collections' material such as learning resources? Is such material desirable?

What kinds of 'non-collection' material should we be considering? Is such material desirable?

Summary of responses

This was not a major topic of discussion in the first phase. However, it would seem that it is possible to relate topic searches to collections, learning resources, interactive content and exhibitions, if the content can be tagged appropriately. It would be desirable to allow users to find such content in relation to collection items they are interested in.

A.4.4 How can this project leverage and practically connect with other similar initiatives and technology tools?

This question will be addressed more fully in phase 2 of the study. The most cited technologies/ developments to watch were:

- Web initiatives at the Powerhouse Museum.

- Google Transit, Google Base, Google Enterprise and Google Sitemaps.

- Stuart Dempster noted that "The Strategic Content Alliance is doing demonstrator projects using the People's Network Discover resource, with BL, BBC and MLA."