

Museum Pieces?
The Role and Value of National
Museum Libraries in the Digital Age

Rupert Nicholas Williams

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the degree of Doctor of Philosophy

Department of Information Studies
University College London

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Declaration of originality

I, Rupert Nicholas Williams, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Rupert Nicholas Williams

PhD Candidate

Abstract

This thesis examines how national museum libraries are planning to respond over the next decade to the strategic challenges and opportunities they are facing as a result of socio-technological changes that are occurring during the digital age.

The study adopts a pragmatic philosophical approach and uses an explanatory sequential mixed-methods research design. The research consists of a two round Delphi survey, which was distributed to two hundred national museum libraries across forty countries, and seven case studies, which were undertaken across five countries. The case studies are comprised of semi-structured interviews with library managers and users, and document analysis of library strategies and policies. The results are presented as thematic conclusions and possible future scenarios.

The research shows that many library managers have a clearly defined sense of their libraries' roles, values, and future strategic priorities. However, there is a lack of consensus concerning strategic positioning, with some seeking to augment internal museum support and others aiming to increase public engagement.

Collection development is set to remain predominantly print focused, with acquisition of electronic resources likely to develop gradually. This position contrasts with libraries in other sectors, notably academic libraries, where the print to digital change process is typically occurring more rapidly. Similarly, utilisation of digital technologies that support service provision and content delivery will take place in a highly selective and planned manner.

Most library users have a positive outlook about their national museum libraries. They particularly value the specialist nature of the collections, the subject knowledge of

library staff, and opportunities for scholarly collaboration. However, there are concerns about collection discoverability and library communication.

The research findings point towards three possible future scenarios for national museum libraries – internally focused consolidation, externally focused commercialisation, and mixed economy contradistinction. Each offers plausible options for strategic planning over the next decade.

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Chapter 1 – INTRODUCTION

1.1 Context

According to the sociologist Manuel Castells, the new technological paradigm that emerged in the late twentieth century has had such a significant impact that a point has now been reached where “technology does not determine society: it is society and society shapes technology according to the needs, values, and interests of people who use technology” (Castells & Cardoso, 2006, pp. 3-6).

For libraries, it can be argued that this period of profound change, often referred to as ‘the digital age’ or ‘the information age’, and which is characterised by a shift from a predominantly industrialised socio-economic landscape to one dominated by information computerisation (Castells, 2010, pp. 13-20), has been more impactful than any event since the invention of the printing press.

Many librarians have therefore had to consider, over a short period of time, how their libraries can remain relevant to and valued by users in the face of a fast changing information landscape dominated by mass online publication and consumption of virtual resources (Dillon, 2011; A. Hill, 2004; Holt, 2007; Jennings, 2013; Nijboer, 2006; Sommers, 2005), and how their business models should adapt to best reflect fast evolving user needs and priorities (Beard & Dale, 2008; Kenney, 2009; Lewis, 2007; S. Liu, Liao, & Guo, 2009; Long, 2006; Sidorko & Yang, 2009).

1.2 Statement of the problem

Much research has been undertaken within the field of library and information science (LIS) over the last two decades in relation to the role and value of libraries in the digital age. However, this research has typically been confined to certain types of libraries, notably academic and public libraries. By contrast, very little research of this kind has

been undertaken regarding libraries operating within the cultural heritage sector, especially those that belong to national museums. The limited amount of literature that exists is mainly restricted to descriptive accounts of the libraries, often focusing on the nature and scope of their collections, and overviews of the services and resources they deliver.

One field of academic study that has yielded interesting research is *museum informatics*. One of the most prolific museum informatics scholars is Paul Marty, who has written extensively about the accumulation, analysis, and distribution of knowledge within museum environments, and how information technologies in museums intersect with one another (Marty, 1999a, 1999b, 2006, 2007a, 2007b, 2010, 2014).

Other authors have also examined museum informatics within specific museum contexts, including digital curation of museum records and research data (Dallas, 2016; Ray, 2017), use of crowdsourcing for the social tagging of cultural collections within museums (Chae, Park, Park, Yeo & Shi, 2016), and use of story-telling to articulate the value and impact of digitised cultural heritage collections (Marsh, Punzalen, Leopold, Butler & Petrozzi, 2016).

These themes though are somewhat tangential to the main purpose of this research, given their focus on museums generally rather than museum libraries specifically, and are therefore not investigated during the literature review.

However, several transferable themes can be derived from these studies, particularly the social and organisational impact of information technology use by museum staff and visitors, and these are kept under consideration during the research process.

Overall though, there is little published research of direct relevance to the topic of this thesis. However, this reinforces my contention that this is an important and significantly underdeveloped area of study, which has the potential to greatly add to the corpus of knowledge relating to the contemporary role and value of libraries.

1.3 Motivations for the study

This study was conceptualised whilst I was working at a national museum library in the UK between 2007 and 2013. During this period, the Museum initiated a project to develop a new library for use by museum staff and the public. It was intended that this library would reflect the research needs of both the existing library's users and a new generation of future users who, it was assumed, would require access to a wide array of electronic resources and digital technologies.

It became apparent though that little published information existed that could guide this project, and so it was decided that further research was needed to help direct it. The idea for this thesis thus emerged from this requirement.

However, my professional interest in this area meant that this soon evolved into a wider investigation about the potential conflicts and issues that national museum libraries around the world, many of which are based on pre-digital era models and practices, might face in a rapidly changing information environment.

This thesis therefore seeks to deliver valuable information that is grounded in 'real life' situations, which will benefit both national museum library practitioners, as they plan to deliver library services into the third decade of the 21st century, and LIS academics, as they seek to gain a better understanding of museum libraries as a distinct sector.

1.4 Research aims

The principal aim of this thesis is to understand if and how the digital age is impacting upon national museum libraries globally, and to investigate how they are responding to and planning for the challenges and opportunities that this period is creating.

The research seeks to investigate links between the social and technological changes brought about by the digital age and the current and future operational functions and strategic ambitions of national museum libraries. Linked to this, the research also seeks to examine the organisational role and status of national museum libraries, the services and resources they deliver to different types of users, incorporation of digital technologies into their service offerings, the impact online resources are having on traditionally print dominated collecting policies, the usage patterns and behaviours of internal and external users, and perceptions of value to different stakeholders.

It should be noted that an initial aim of this research was to undertake a comparative investigation of these issues from the perspective of national museum libraries that had been planned and set-up during the 21st century, which were termed *emergent* libraries, and national museum libraries that had been planned and set-up during the 19th and 20th centuries, which were termed *established* libraries. It was hoped that by comparing and contrasting the strategic approaches and operational characteristics of these digital era and print era libraries, a more complete picture would emerge of the current and future role and value of national museum libraries.

The research undertaken during this study and the data analysis afterwards were therefore both conducted with this objective in mind. However, during the course of this process it became clear that no significant differences, variations, or anomalies could be found between the strategic approach and operational characteristics of emergent and established national museum libraries. Neither were there any notable

differences in the other areas being investigated as part of this study. In fact, it was found that there was a remarkable degree of similarity and congruence between the two across all areas of the research.

As nothing of significance could be inferred from the data, and as the notion of emergent and established national museum libraries was a hypothetical construct devised for this thesis, it was therefore decided not to follow-up on this angle of investigation during the writing-up of the results. As such, no mention is made hereafter of emergent or established national museum libraries.

Furthermore, it was decided not to attempt to differentiate between national museum libraries in any other way, e.g. by subject specialism, as it was felt that assessing national museum libraries collectively would produce more robust and useful research data than would be the case with the imposition of abstract and artificial sub-sets.

1.5 Research questions

Three overarching research objectives were designed from these research aims. These were then deconstructed and turned into initial research questions, which informed and guided the totality of the research being undertaken and shaped the core conceptual issues.

By the conclusion of the literature review, these initial research questions were re-examined to reflect the relevant information retrieved. A process of question re-framing was then conducted, which resulted in a final set of twelve research questions being identified – see Table 1.

It is important to note that the timeframe for the research presented in this thesis is the ten years from 2014 (when the primary research commenced) to 2024¹. This short to medium term period was selected for three reasons. Firstly, it ensured coherence with the central theme of 'the digital age'. Secondly, it was considered to be far enough into the future for significant developments or changes to occur within library settings whilst at the same time ensuring that research participants could realistically anticipate how these might impact upon library practice, usage, and provision. And thirdly, because it was felt a longer-term timeframe would mean the research questions could only be answered in an abstract and poorly defined manner, which would weaken the effectiveness of the practical outcomes of the research.

| Research Objective | Initial Question | Reframed Questions |
|--|--|--|
| To explore the current and future organisational and strategic status, position, and alignment of national museum libraries within their museums and their contributions to museum programming and related activities. | How are/will national museum libraries (be) organisationally structured, strategically positioned, integrated, and aligned within their museums and what do/will they contribute to museum programming and related activities? | How do/will national museum libraries align and integrate within their museums, and what organisational roles and functions do/will they serve? To what extent and how do/will national museum libraries actively contribute to museum programming activities and what impact does/will this have on library use? What are the main strategic objectives that have been set for national museum libraries and how do/will these align with museum objectives? What activities and initiatives do/will national museum libraries pursue to stay competitive and relevant and what is/will be their impact? |

¹ This does not include the Literature Review, which has a longer historical timeframe.

| | | |
|---|---|---|
| <p>To assess the current and future demand for and supply and management of services, collections, and resources provided by national museum libraries and the value that these deliver to different stakeholders.</p> | <p>Who are the current/future users of national museum libraries and why do/will they use them and what value do/will they derive from them? How are/will the development of these services and resources (be) planned?</p> | <p>Which types of users currently use national museum libraries and which types of users are being prioritised by libraries in the future, and why?</p> <p>How and why do/will users use national museum library services and resources and to what extent and how are/will be their needs fulfilled?</p> <p>What are/will be the collection and resource development priorities for national museum libraries and how and why are these being prioritised?</p> <p>How do/will national museum libraries measure the value of the services and resources that they deliver to users and other stakeholders, and why?</p> |
| <p>To examine the current and future uptake and use of digital technologies, tools, and e-resources by national museum libraries, the reasons for their use and their current and future impact and benefits in the context of service provision.</p> | <p>To what extent, how, and why are/will digital technologies, tools, and e-resources being/be adopted and used by national museum libraries, how do/will they impact upon library service provision, and what value and benefits do/will they deliver to stakeholders?</p> | <p>What established and new digital technologies and tools are being/will be adopted by national museum libraries and how and why are they being / will they be implemented and used?</p> <p>To what extent and how are/will electronic resources being/be procured by national museum libraries and how do/will they impact upon the delivery of services to users?</p> <p>How and why are/will digitisation and other digital projects being/be undertaken by national museum libraries, and what level of use and impact do/will they have?</p> <p>How and why are/will Web 2.0 and social media being/be used by national museum libraries and what impact does/will they have?</p> |

Table 1 – Research objectives, initial, and reframed research questions

1.6 Scope

Few definitions could be found for *museum libraries* in the literature (see section 2.5.1), and none could be found specifically for *national museum libraries*. However, by extracting what relevant information could be identified a clear idea emerged of what criteria needed to be met by libraries in order to be included in this research.

Firstly, libraries needed to be incorporated within or directly affiliated with designated national museums or galleries². For the purposes of this research, an accepted definition for national museums was the one outlined by the United Kingdom's Museums Association³, which stipulates they should be "*established and funded by central government*" and "*generally larger institutions that hold collections considered to be of national importance*". Assignment of national status based upon the criterion of a collection's national importance is a subjective judgement, and therefore it was recognised that this point could be disputed. That notwithstanding, this description was taken as a reference point when determining a museum's national status.

Secondly, it was felt that libraries needed to be staffed by at least one professionally qualified librarian, hold a collection that is being actively developed, and deliver services and resources to museum staff and/or the general public. Some or all of these elements were referred to in the literature (Bierbaum, 1996; K. Collins, 2003; Heinrich, 2011; Houghton, 2002; Otike, 1990; Tarrête, 1997; van Boxtel, 2009; van der Wateren, 1999; Zamora, Lacave, & de Lis, 2010), and was thus accepted as a suitable benchmark for the scope definition of a national museum library.

² In order to simplify the terminology used throughout, *national museums and galleries* when discussed collectively are hereafter referred to as *national museums*. Galleries when discussed individually are referred to as *art museums* or *national art museums*.

³ See: <http://www.museumsassociation.org/about/frequently-asked-questions>

One area that was not clear from these criteria though was the position of archives, which are frequently collected and managed by national museum libraries. These are interpreted as either being the parent museum's own historical records (although not current business or object records) or the papers and records of individuals or organisations acquired by a museum as part of its collecting policy. It was therefore decided that archives would only be considered to be in scope if they were either physically part of or were administratively managed by a national museum library.

Museum libraries initially deemed to be out of scope for this research included those belonging to non-national museums, e.g. local authority, university, or private museums⁴. Within national museums, any departments that provided information services outside of the library setting, e.g. documentation departments, were also considered to be out of scope.

1.7 Research constraints

Several constraints were encountered during the research. These are discussed in more detail in the following two chapters but are briefly referenced here.

During the secondary research phase, the main constraint related to lack of published literature on topics of relevance to the research questions, specifically in relation to national museum libraries. As will be seen in the Literature Review chapter though, this issue was partially addressed by broadening the search parameters.

During the primary research phases, the main constraints related to practical and logistical problems associated with undertaking a global study, such as translation of survey and interview documentation and time and resource requirements needed to

⁴ This point is returned to in the Literature Review and Methodology chapters.

undertake research in multiple countries. Solutions for these and other similar issues are discussed in the Methodology chapter.

Several research limitations encountered after the data analysis was concluded are also briefly discussed in the Conclusions chapter.

1.8 Research ethics

The research undertaken for this thesis did not present any particular ethical concerns as no vulnerable persons were the subject of the research. However, the ethical dimensions of the research were considered throughout and steps were taken wherever necessary to ensure any potential ethical issues were addressed.

Specifically, this meant ensuring that participant agreement and consent was obtained at each stage of the research. As can be seen in the Appendices, this was achieved via distribution of emails requesting participation in the Delphi survey and case studies, inclusion of a consent statement at the start of the survey, and obtaining verbal consent prior to the recording of interviews. All participant names and venue locations were also anonymized during the writing-up of the research.

1.9 Thesis outline

The research presented in this thesis is divided into six chapters, bibliography, and appendices. Following this chapter, the second chapter is presented. This provides background and context to the initial research questions through a review of the relevant literature. The third chapter discusses the philosophical and methodological approach that guides the research and describes the methods and processes used during the study. The fourth chapter presents and analyses the results of the two round Delphi survey. The fifth chapter then presents and analyses the results of the

case studies interviews and document analysis. The thesis concludes with the sixth chapter, which presents the general conclusions of the research and also three future scenarios, each offering different strategic models for possible adoption by national museum libraries over the next decade. The chapter ends with an overview of the contributions and limitations of the study and further research recommendations.

Chapter 2 – LITERATURE REVIEW

2.1 Introduction

A comprehensive review of the published literature is frequently undertaken at the start of the research process to identify previous work in the field, and to gauge whether the research is able to make a unique contribution to the wider body of knowledge. A literature review is also often needed to inform the development of the research questions, and guide the direction and focus of the research.

According to Cresswell (2014, pp. 25-28), the literature review accomplishes several purposes. “It shares with the reader the results of other studies that are closely related to the one being undertaken” and “it relates a study to the larger, ongoing dialogue in the literature”. Furthermore, “it provides a framework for establishing the importance of the study as well as a benchmark for comparing the results with other findings”.

However, the literature review should not just constitute a process of locating and reporting relevant information, it should also involve the researcher adopting a critical position and forming an opinion about the ideas contained within the literature (Walliman, 2006, p. 182).

It is also important to note that the literature review is typically not a one-off activity, but rather a recursive process occurring at multiple stages throughout the lifespan of the research. This allows the researcher to keep abreast of relevant new publications and to continuously reframe or refine the research questions if required. This is especially important with this thesis where publications concerning new technologies and innovations might impact on the relevance and currency of the research topic.

In this respect, the literature review is one part of the wider cyclical process of the research project as a whole (Hammond & Wellington, 2013, p. 101; Gorman & Clayton, 2005, p. 40). As Gorman & Clayton note:

The process certainly moves forward, but there is also movement in the opposite direction as succeeding stages uncover data or suggest ideas that revise approaches decided upon or conclusions in earlier stages.

The literature review therefore intrinsically links to and directly informs the development of the research questions (Pickard, 2013, p.33). However, developing meaningful research questions is in itself a critical part of the research process as it determines the efficacy of the literature review and in turn the success of the research project. Punch (2005, p. 37) summarises the importance of effectively constructed research questions in the following way:

- They organize the project, and give it direction and coherence.
- They delimit the project, showing its boundaries.
- They keep the researcher focused during the project.
- They provide a framework for writing up the project.
- They point to the data that will be needed.

2.2 Search criteria

Literature searches were undertaken on the following LIS and multi-disciplinary databases: *Library and Information Science Abstracts*, *Library, Information Science and Technology Abstracts*, *Library and Information Science Source*, *Arts and Humanities Citation Index*, *SCOPUS*; *Web of Knowledge*; *Google Scholar*.

Searches were undertaken for journal articles published since 1995. This date was selected as it was felt earlier publications would not contain information that was

relevant enough for this research. However, earlier papers were selectively checked in some areas, e.g. for historical information. English language papers were selected in the first instance, although articles published in French, German, Italian, and Spanish were also selectively considered.

A number of research bodies and institutions have also published reports that cover issues relating to this thesis, and these were reviewed too. These include reports published by organisations such as, the Arts Council of England, and the Institute of Museum and Library Services in the United States. Finally, library catalogue searches of University College London Library, Senate House Library, and the British Library were undertaken to identify all relevant monographs. Publishers' websites were also reviewed to identify relevant new publications.

2.3 Search results

In total, 1,727 references were retrieved during the literature searches, which were loaded into an EndNote database. These references were systematically filtered for relevance via an assessment of each publication's abstract and keywords. This removed approximately 50% of the retrieved publications, leaving 860. A further relevance filter was then applied by reading the introduction and conclusion of each remaining publication. This removed just under 30% of the publications, leaving 617 articles. These were read in full and any irrelevant papers were discounted, leaving 428 publications. Of these, 332 publications were cited in the thesis.

The subject scope of these references was broader than first envisaged because, as will be explored further later, few articles were found during the literature search that specifically related to the main research topic of *national museum libraries*. As such, it became clear that it would be difficult to draw sufficient conclusions from the literature if only national museum libraries were considered at the expense of other

types of museum libraries. Accordingly, a decision was taken to extend the search to identify relational links with general (i.e. non-national) museum libraries. However, whilst this brought into play some further papers, it did not significantly add to the body of knowledge. Links to other similar libraries were therefore needed so relevant transferable themes could be identified and applied to national museum libraries.

Identifying what types of libraries should be selected for this purpose was not easy though as national museum libraries share similar traits, in differing respects, to public libraries, academic libraries, and special libraries (Bierbaum, 2000; Kolganova, 1999; Koot, 2000). However, it was clear comparisons could not be made to all these as it would be difficult to draw any valid conclusions given their varied nature. Even comparisons to special libraries alone, which, according to the authors above, is the most relevant for museum libraries, would not be possible as too many diverse, unrelated libraries are included in this category, e.g. legal libraries and health libraries.

Consideration was therefore given to using the broader term 'cultural heritage libraries', given the close similarity between museum libraries and other types of cultural heritage libraries (Kolganova, 1999; McCrary, 2011; Wallach, 2001). However, it was felt that this classification was too narrow. Furthermore, insufficient research had been published examining the contemporary role and value of cultural heritage libraries, which posed the same problem in terms of drawing adequate conclusions. Accordingly, it was felt the literature search needed to be extended to include a category that was narrower in scope than 'special libraries' yet broader than 'cultural heritage libraries'.

The role and function of museum libraries were therefore assessed in relation to other types of libraries. This process revealed that museum libraries could arguably be said to most closely match 'research libraries' given that two of the most important roles

that museum libraries perform are the provision of information support for researchers (Collins, 2003; Ekdahl, 1999; Kolmstetter, 2007; Koot, 2001; Kostanyan, 2011; Nijhoff, 1999; van Boxtel, 2009; van der Wateren, 1999; R. Watson, 2001), and the development and dissemination of important, specialist, and often unique collections of research materials (David, Granger, & Picot, 2003; Kolganova, 1999; Nijhoff, 1999; Otiike, 1990; van der Wateren, 1999; Vogel, 2014; R. Watson, 2001; Zamora, Lacave, & de Lis, 2010). And as Kolganova (1999) points out, the concept of research libraries is helpful for apprehending the peculiar character of museum libraries and offers a productive approach for their investigation.

A decision was therefore taken to widen the literature search to incorporate the broader theme of research libraries. However, articles relating to this topic were only selected if they were considered to be highly relevant and if the research findings could realistically be applied to national museum libraries.

Furthermore, it should be noted that many scholarly publications interchangeably use the terms 'research libraries' and 'academic libraries'. However, many of these specifically refer to university libraries and do not acknowledge other types of research libraries, e.g. those affiliated to learned societies or research institutions. This is partly a problem of definition, for as Maceviciute (2014, p. 282) points out, "the world of research libraries is quite a complicated place to inhabit and investigate". However, Maceviciute goes on to explain that most people understand research libraries as being affiliated with a research institution and as having smaller and more focused collections than university libraries.

For this thesis therefore, articles that refer to research libraries but actually relate to university libraries have mostly been discounted from the literature review as they do not fit the aforementioned research library profile and are considered too far removed

from national museum libraries in terms of their role, size, budget, staffing, collection profiles, user numbers, etc.

2.4 Chapter outline

The literature review is divided into the following five sub-sections, each of which addresses one or more of the research questions:

- Definitions and analysis of museum libraries and national museum libraries, and an assessment of their users, organisational role, status, and position.
- An examination of the concept of *the digital age* as it pertains to libraries and issues affecting or impacting upon museum libraries in the digital age.
- Library collecting in the digital age, changes in the collecting policies of museum libraries and research libraries, and the impact of digital collections.
- The digital opportunities that are being sought, digital strategies that are being set, and digital projects and activities that are being undertaken by museum libraries.
- An examination of the different methodologies used to measure the value of library services, including definitions and different approaches used by libraries.

The literature review concludes with a summary of these findings and an evaluation of how they impact upon the research questions.

2.5 Museum libraries

The following section provides an overview of published research relating to museum libraries. It commences with definitions and descriptions of museum libraries. This leads onto an assessment of national museum libraries and art museum libraries. An examination of the organisational role and function of museum libraries then follows.

Finally, an evaluation is provided of different types of museum library users, their usage methods and reasons for use.

2.5.1 Defining and describing museum libraries

Museum libraries play an important, if often understated, role in the functioning of many museums (Navarrete & Mackenzie Owen, 2011). However, little research has been conducted that focuses on this, with most publications concerning museum libraries investigating in broad terms the core functions that they perform and only a few offering a more detailed analysis of their role and purpose.

One of the earliest published references to museum libraries was provided in 1943 by John B. Montignani, who describes the Metropolitan Museum of Art Library in New York as having a primary purpose of “serving museum staff whilst also acting as an important centre of research to the outside scholar and student” (Montignani, 1943). Whilst undoubtedly being an accurate summary of a museum library’s principal *raison d’être*, this is a somewhat superficial view. As will be seen later, more recent authors have expanded on this description although few have managed to provide a succinct, all-encompassing description or definition of their holistic role and function.

This might be attributable to the fact that museum libraries and the work and status of museum librarians within their museums is not widely recognised or acknowledged, and is frequently neither reported nor promoted. This lack of awareness also occasionally extends into the literature, as demonstrated by a paper by Urban (2014) on the historical and contemporary influence of librarianship on professional museum information work. Urban describes how professional library practices, such as cataloguing and collection management, have directly influenced and impacted upon the work of museum curators, registrars, and researchers, but he fails to mention that

many museums have their own libraries and archives that hold extensive collections, which are typically managed by professional librarians and archivists.

And, occasionally, it appears lack of clarity about the role and function of museum libraries extends to museum librarians themselves, as exemplified by Kostanyan (2011), who cites the conflicting comments made by museum librarians at a Russian museum libraries symposia, where the topic of museum library access was discussed. Kostanyan describes how some colleagues suggested museum visitors should be excluded from accessing museum libraries, as they felt that enabling the scholarly research and preservation of library collections was their main priority, whilst others advocated providing equal access to all visitors. If museum librarians have an ambiguous view about such a fundamental issue, it is perhaps unsurprising that other observers may also be confused about the purpose of museum libraries.

On a similar theme, Kolmstetter (2007) highlights the problems associated with determining if museum libraries are internally or externally focused. This distinction can dramatically alter the core purpose of museum libraries' work, and Kolmstetter observes that recently it has been necessary for many museum libraries to adjust their traditional inward looking mindset to a more community oriented focus instead, especially when external funding is being sought. Recent examples of where such an external shift has occurred include the Imperial War Museum Library and the National Maritime Museum Library in the United Kingdom.

A different example of this uncertainty is provided by Koot (2001), who proposes that museum libraries should be described in special library terms given that they primarily exist to provide information that supports the key activities of their parent organisations, i.e. their museums, and that they play an important role as knowledge brokers within what are intrinsically information intensive environments. However,

Koot then goes on to acknowledge that the influence and status of museum libraries is often far less clear than this portrayal as they frequently suffer from insufficient funding, inadequate staffing, and lack of recognition from museum management.

One further example of the difficulties faced when examining this issue is provided by Uralman (2010) who, whilst describing art museum libraries in Turkey, mentions that although many of these libraries appear to all intents and purposes to be museum libraries, they do not actually “function as a museum library should” as they have no written collection development or donations policies, have no properly catalogued collection records housed on a library management system, and do not adhere to professional library standards.

Other authors though offer a clearer picture of the defining role of museum libraries. Lo, But, and Trio (2014), Navarrete and Mackenzie Owen (2011), and van Boxtel (2009) all discuss how museum libraries fundamentally exist to provide the contextual and general background knowledge for museum object collections and state that their most important function is to collect materials that support the research and exhibition outputs of their museums. They also mention a related core role of many museum libraries, which is the collection and management of documentation and information pertaining to the history and development of their museums, including items such as historic exhibition catalogues, curatorial files, object acquisition records, and press cuttings. As van Boxtel (2009) observes, a museum library will take on the task of capturing the complete history of its museum “like a spider in a web”.

From a wider perspective, R. Watson (2001) observes that museum libraries can be both a support resource for curatorial work or a facility offered to the public. He goes on to develop this broad statement by explaining that in the case of his library, the Victoria & Albert Museum Library, it primarily acts as a bibliographical expression of

the Museum's research programme. This view is expanded upon by Vogel (2014) who states that her library, the Rijksmuseum Library, exists partly to provide documentary information to support the Museum's mission and partly to consolidate and expand its function as an academic art historical library of national importance. And Weijsenfeld and Wolffe (2009) discuss how the primary purpose of art museum libraries is "to facilitate scholarly research by making available the accessible information, with an emphasis on unique documents." (p. 36).

However, whilst being technically correct, these descriptions still lack depth and substance. For instance, they do not adequately reflect the full range of tasks and activities typically undertaken by museum libraries. Likewise, they do not discuss their collections or collecting priorities. And neither do they express in any meaningful way how or why museum libraries are integrated within the wider organisational structure of museums and what difference they make and what benefits they bring to the internal and external workings of museums.

This may be due to the difficulty of summarising the varied work of museum libraries in one catch-all definition. As Navarrete and Mackenzie Owen (2011, p. 15) observe:

There is no single concept of what a museum library should be. They differ from each other as to their origin, the make-up of their collections, the way they are organized and funded, and the nature of their relation to the museum (parent institution). They all share the institutional role of managing acquisition and preservation of supporting materials for the museum collection, yet the way to go about this differs widely.

A more detailed description though is offered by Bierbaum (2000, p. 8), who states:

The library supports the museum at all points and in all phases of the museum's mission. The library will serve the information needs of

administrators and staff through its own resources or through access to other resources; it may preserve graphic materials for the exhibit staff or show where they can be obtained; it may preserve the archives of the museum or provide the archivist with necessary information about the institution and its history; and, when the time comes, it will enlarge the museum experience for the members – and the public – by providing further information and resources about the collections.

Similarly, Wasserman (1994, pp. 442-443) details the key areas of responsibility of her library, the National Museum of Women in the Arts Library, which she describes as being a multi-functional and pan-organisational facility offering a wide range of support services and resources:

(1) To provide information services to the museum's staff, interns, volunteers, and docents. This includes the provision of materials and research assistance in preparing exhibitions, tours, lectures, and scholarly papers; the identification and the location of specific works of art; and the verification of current prices for works by women and market trends for the museum's acquisitions.

(2) To serve as a specialized scholarly facility on art by women for art historians, art educators, artists, scholars, museum curators, students, art collectors, gallery owners, and the general public.

(3) To serve as an exhibition space for book-related arts, such as artists' books, book illustration, book bindings, bookplates, sketchbooks, scrapbooks, artists' letters, and manuscripts.

(4) To serve as the NMWA archives.

(5) To serve as a depository for the NMWA's publications.

However, van der Wateren (1999) offers perhaps the most insightful and concise description of a museum library, by explaining how it “supports research into the

object and its context; into the methodologies for conserving the objects; and finally it supports research relating to the display of the object, and into exhibitions.” (p. 193). For van der Wateren, this integral connection between museum libraries and their parent museums’ collections, and the associated provision of research support related to specific museum objects, is the primary reason for the existence of museum libraries, and one which differentiates them from any other type of library.

According to van der Wateren, “the heart of this research support lies in its collecting of evidentiary documentation”, and the ability of museum libraries to “develop deep and uniquely focused collections of research materials”. This primary purpose is seen as being equally valid for both museum staff and the public, with staff able to conduct professional research, and the public able to complement their experience of viewing an individual object within the museum with further contextual printed information.

In summary, it is clear that whilst useful insights have been provided in the literature, no single, authoritative definition or description exists in relation to museum libraries.

2.5.2 National museum libraries

As mentioned previously, a distinction exists between museum libraries in general and *national* museum libraries specifically. Given the focus of this thesis is on the role and value of national museum libraries, it was therefore necessary to examine how these types of libraries are portrayed in the literature.

However, in attempting to do this the problem that was mentioned earlier in the chapter soon became apparent, which is that no scholarly articles appear to have been published that offer a sound critical or analytical assessment of national museum libraries as a distinct homogenous group.

Several papers do cite one or more national museum libraries whilst discussing other topics, such as the nature of museum library collections (David et al., 2003; Wasserman, 1994). Similarly, other papers provide descriptive histories or overviews of named national museum libraries (Heinrich, 2011; Houghton, 2002; Vogel, 2014). None though adequately analyse or evaluate national museum libraries collectively.

Of those that do reference national museum libraries, some insightful findings are revealed, particularly in relation to their changing roles as a result of recent technological developments (Heinrich, 2011; Houghton, 2002; Otike, 1990; Zamora et al., 2010). The most prominent of these, which has a direct bearing on the functionality of numerous national museum libraries, relates to digitisation of collections and the exploitation of digital technologies, typically for the purposes of disseminating content, marketing services, and communicating with users. These themes will be explored later in the chapter.

However, other more negative issues are also highlighted in several papers where national museum libraries are specifically mentioned or referred to. Shortages of suitably skilled staff, the absence of interoperable catalogues with other museum libraries, significant backlogs of un-catalogued materials, and a lack of appropriate technological equipment are referred to as common problems within Spanish national museum libraries (Zamora et al., 2010). And similarly, in French national museum libraries, the theme of limited or incomplete catalogue records and interoperable systems is also recognised as a problem by David et al. (2003).

The most commonly reported difficulty though is insufficient funding. Otike (1990), for instance, reports that in Kenya the national museum's library is reliant on donors to supplement its serials collection and that securing the support of these donors is an onerous task. And Wasserman (1994) also echoes this view mentioning that the

National Museum of Women in the Arts Library in the United States is heavily dependent on donations of books and money due to its limited budget.

Indeed, the problem of lack of funding has led to some discussion about the need for national museum libraries to do more to earn their own funds through the sale of information products and intellectual labour, although, as might be expected, this is a contentious and frequently contested issue (Kolganova, 1999).

It is clear therefore that whilst scholarly research about national museum libraries is very scarce, what literature does exist offers a mixed view about their role and status.

2.5.3 Art museum libraries

Within the limited body of literature concerning museum libraries, art museum libraries tend to be referenced more frequently than other museum library classifications (e.g. science museum libraries, history museum libraries). This was observed in the literature search, with more articles retrieved on the theme of art museum libraries than all other classifications of museum libraries together. Furthermore, art museum libraries are alone in having a dedicated scholarly journal – *Art Libraries Journal*⁵.

Art museum libraries, like other museum libraries, reflect the scope of the museum or gallery they serve (van der Vossen Delbruk, 1987). This usually means that their principal focus relates to the provision of contextual and historical information about their museums' art works and exhibitions, and supporting their museums' missions.

⁵ The stated remit of *Art Libraries Journal* is to serve as the 'main international forum of the art library profession worldwide'. Its focus is therefore broader than that of just art museum libraries. See Art Libraries Journal (http://www.arlis.org.uk/documents/resources/alj_abstracts_list_web_2013_3.pdf).

Aside from the subject and mission focus though, and the fact that art museum libraries may collect certain items that are specific to the nature and scope of art museums, such as extensive artist files and books (Collins, 2003), exhibition and auction catalogues and other documentation relating to the art trade (Falls, 2009), there is little discernible difference reported in the literature between the role and function of art museum libraries and that of other types of museum libraries.

It can reasonably be asked therefore, why do art museum libraries feature more prominently in the literature than other museum libraries? As alluded to above, this can possibly be partly attributed to the intrinsic link between the object collections and curatorial work of art museums and the scholarly collections contained within art museum libraries.

Weijsenfeld and Wolffe (2009) highlight this point by characterizing art museum libraries as “repositories of indispensable and often unique sources of descriptive information”, such as museum documentation, education material and exhibition catalogues, which are highly valued by art historians and scholars.

Ekdahl (1999) shares this view by describing how the Library of the Museum of Modern Art in New York has historically shared the Museum’s “inclusive and expansive definition of modern art” by seeking out primary sources, such as publications of avant-garde artists, “which provide historical and intellectual context for major 20th century artists whose work is in the Museum’s permanent collection” (p. 241). Ekdahl notes that these once ephemeral publications are now in-demand as “they provide a cultural and intellectual framework for exhibited artwork.”.

Likewise, Uralman (2010) outlines the ways in which the Istanbul Museum of Modern Art Library has been integrated within the Museum’s collections through joint library-

curatorial collection development activities and through book exhibition areas inside the Library, which reflect the Museum's exhibitions and activities and which give visitors access to more detailed information about them.

But as previously stated, none of these activities differentiate art museum libraries from other types of museum libraries and therefore it does not adequately explain why art museum libraries are afforded more significance in the literature. There is unfortunately no documented reason for this phenomenon. However, it is possible that the ability of art librarians to work collaboratively together and organise themselves in a collective manner may have a bearing on this.

One of the main bodies responsible for this is ARLIS (Art Libraries Society)⁶, which is an international professional organisation for librarians and others involved in providing library and information services in the visual arts. ARLIS undertakes many collaborative activities including: hosting events, workshops, and conferences; making available specialist working groups and discussion forums to members; and producing a range of publications, including *Art Libraries Journal*.

ARLIS is unique within museum librarianship in that it seeks to serve a distinct, subject specific group of librarians, i.e. art librarians. Other professional groups that museum librarians belong to, such as the Museum Librarians and Archivists Group⁷ in the UK, whilst sharing the collaborative and collective ideals of ARLIS, are not subject specific groups and therefore do not cater for the needs of librarians working in a particular field. The importance of ARLIS as an established international body that encourages collaboration and collective working within art librarianship, including art museum libraries, is discussed by several commentators in the literature (Coulson, 1994;

⁶ ARLIS – <http://www.arlis.org.uk/>

⁷ MLAG – <https://mlagblog.org/>

Freitag, 1997; Pacey, 1994). It is further noted in these commentaries that the formation of allegiances with other art libraries is a key part of the success of ARLIS.

This emphasis on collaborative working and the formation of cross-sectoral allegiances and partnerships within art librarianship is a theme that is also acknowledged elsewhere (Collins, 2003; Lambert, 2002; Lotts, 2016; Weijsenfeld & Wolffe, 2009). Often though, as highlighted by Collins (2003), these collaborative ventures are due to financial expediency, with art libraries having to collaborate via consortium agreements in order to purchase the resources, especially e-resources, their patrons need.

But in other cases the urge to collaborate is borne simply out of a will to better meet the information needs of the scholarly community, an innovative example of which is discussed in a paper relating to the future of art librarianship in the Netherlands, where the concept of art librarians working together to deliver information support to scholars via 'collaboratories', i.e. specialist hybrid virtual and physical research environments, is proposed. (Weijsenfeld & Wolffe, 2009).

2.5.4 Organisational position and status of museum libraries

Museum libraries are different from most other libraries in terms of the close relationship and similarity of purpose that exists between them and their parent institutions, i.e. the museums they belong to, which also have a primary role of collecting and making accessible objects (Lo et al., 2014). When looked at another way, this relationship can be said to manifest itself as an information system existing inside another information system (Navarrete & Mackenzie Owen, 2011).

There are numerous critical factors that determine how this relationship works and how it influences the place and status of museum libraries within their museums.

Arguably, the most important of these are the organisational models within which museum libraries fit, the support they receive from museum staff, the level of funding provided to them by museum management, and, perhaps most critically, the nature and scope of their involvement with the core museological activities of their museums.

This hypothesis is acknowledged in the literature. Tarrête (1997), for example, states that museum libraries cannot fully play a role unless they are recognized and supported by their museums' administration. Similarly, Kolmstetter (2007) discusses how it is vitally important for museum libraries to be visible and integrated within the museums they serve. Bierbaum (2000) also highlights how museum libraries have the potential to gain much from being positioned within creative organisations, such as museums, as these are essentially "knowledge-based, interdependent enterprises" (p. 75), which have considerable information and knowledge needs.

Bierbaum (2000) observes that opportunities exist for museum libraries to directly collaborate and forge links with museum departments in areas that extend beyond the typical scope of libraries. A prime example of this is the design and delivery of museum exhibitions. Bierbaum proposes that by becoming involved in this area of museum work, libraries can make an explicit connection with their museums and the learning that takes place in both the libraries and museums.

This view is also echoed elsewhere, with several examples provided of how museum libraries can work in effective partnership with and make a unique contribution to the delivery of organisation-wide objectives undertaken by other museum departments. In addition to exhibition planning, these include learning / education programmes, documentation processes, and information management activities (Docampo, 2010; Kolganova, 1999; Moody, 2012; Suls, 2008; Zamora et al., 2010).

Exploring the notion of collaborative working and interdepartmental relationship building, and investigating the potential opportunities and challenges this presents, is the objective of a 2008 OCLC report entitled *Beyond the Silos of the LAMs: Collaboration Among Libraries, Archives and Museums* (Zorich, Waibel, & Erway, 2008), which outlines the findings of a series of workshops attended by senior staff working within “campus institutions” that contained libraries, archives, and museums. In addition to several universities, this included two national museums, the Smithsonian Institution in the U.S. and the Victoria and Albert Museum in the U.K.

The report highlights plenty of visionary thinking amongst workshop participants, including ideas for large scale, pan-departmental digitisation programmes for photographic collections; creation of unified reading rooms where users can access and research museum, library, and archive collections in one space; and pooling of institutional information resources through the creation of federated cross-searchable platforms for museum, library, and archive collections information.

However, the report also acknowledges that there are many circumstances that need to be addressed if a collaborative venture is to flourish. These include the need for: a clearly defined and shared vision; an organisational mandate or high-level directive; incentive and reward structures as motivators; the presence of ‘change agents’ to keep the collaboration alive; and human, financial and technical resources to enable collaboration to succeed. It is noted that without these, and other similar catalysts, collaboration of this kind may be unsuccessful.

Despite these potential barriers, some museum librarians have clearly succeeded in positioning their libraries at the heart of their museums, frequently as a result of engaging in cross-departmental, collaborative activities.

This is the case at the Reijksmuseum in Amsterdam, where the Library has engaged in internal collaborative working over a long period of time, which has resulted in it now being widely regarded as core to the business of the Museum, and has allowed it to operate with a degree of independence (van Boxtel, 2009). Likewise, Otike (1990) mentions that the Kenya National Museum Library is afforded the same departmental status and commands the same respect as other departments.

And Lo et al. (2014) state that at the Hong Kong Maritime Museum, collaboration between the Museum's librarians and curators has made it possible for the Library to set-up many new education initiatives and outreach programmes, which has also had the added benefit of allowing librarians and curators to re-define "their new educational and recreational roles in the local context and in the global knowledge society" (pp.112-113).

More broadly, Kirchhoff, Schweibenz & Sieglerschmidt (2009) describe how in Germany, a collaboration between museums, libraries, and archives, including museum libraries, has created an online repository of digital catalogues, finding aids, and digitised content: the BAM (Biblioteken, Archiv, Museen) Portal.

Moody (2012) though offers perhaps the most encouraging view of the effects of museum / library collaboration and integration, describing how the Rock and Roll Hall of Fame Museum in the United States is involved with many aspects of the Museum's work, which helps "take the Museum to a new level of visibility and recognition as a world-class cultural institution, connecting further with the scholarly community while at the same time serving the information needs of all music fans." (p.100).

Whilst these examples reflect positively on the organisational position and status of museum libraries, for some museum libraries there is a different perception.

Navarrete and Mackenzie Owen (2011), for instance, note that the relationship between museum libraries and parent museums is generally one of subordination and that library collections are often seen as being of secondary importance to museum object collections. This is magnified by the fact that many museum libraries have a fairly small-scale institutional presence and have limited resources and staff, if indeed they have any staff at all as some are reliant on volunteers.

This is problematic for museum librarians in terms of ensuring internal and external visibility and relevance and recognition for their libraries, as well as broadening their libraries' reach and diversifying their range of activities (Chepesiuk, 1996; Collins, 2003; Kolmstetter, 2007; Koot, 2001; Kostanyan, 2011; Uralman, 2010; Weijnsfeld & Wolffe, 2009). Occasionally, the picture is even bleaker, with Tarrête (1997) describing how some smaller museum libraries are little more than “a meagre collection of disparate works piled up in an office corner”.

This lack of presence, size, and resource is partly reflective of the development path many museum libraries have taken over the years, often emerging and growing from print room collections of prints and drawings, departmental collections of reference books and technical manuals, or registry collections of museum papers and archives (Navarrete & Mackenzie Owen, 2011).

Some see this as being indicative of a serious problem, which draws into question the validity of museum libraries as independent entities. Weijnsfeld and Wolffe (2009), for example, cite a panel discussion at an event attended by Dutch art museum librarians where the participants questioned whether it is still necessary for each museum to maintain its own independent library. The consensus reached was that in most cases museum libraries serve too small a public to justify continuing as individual libraries and, from a policymaker's point of view, the sensible option would

be for libraries to either merge their collections and expertise, or form partnerships with university libraries.

An alternative approach to ensuring the viability of individual museum libraries is for them to be subsumed into departments with broader remits. Lambert (2002) discusses this in relation to the National Art Library at the Victoria and Albert Museum, which merged with the Prints, Drawings, and Paintings Department to form the Word and Image Department. Lambert sees this merger with a more curatorial focused department as offering “new paths of development for us all and, in particular, an enhanced contribution for the new Department across the full range of material culture as represented in the V&A's collections.” (p.5). The merger of museum libraries with other museum departments is also documented elsewhere, with examples provided of recent mergers of Dutch museum libraries with the documentation and collection registration departments in their museums (van Boxtel, 2009).

On balance though, most researchers adopt a middle-ground position, reflecting the fact that whilst museum libraries may not have the same high-profile status of more public-facing museum departments, and whilst museum librarians may not wield as much organisational influence as staff employed in curatorial or educational roles, their approach to collecting and their dissemination of knowledge and information has equal value across multiple domains (Koot, 2001; Lambert, 2002; Marty, 2007; Uralman, 2010; van der Wateren, 1999; R. Watson, 2001).

Furthermore, the role of museum librarians, and by implication museum libraries, is variously discussed as offering unique qualities to the museum environment as a whole. For instance, van der Wateren (1999) mentions how museum librarians bring separate skills to their museums, particularly in relation to their ability to act as a buffer between curators and the general public. Likewise, Koot (2001) discusses how

museum librarians are “trained and experienced mediators between individual users and the knowledge stored in their museums.” (p. 254).

And Bierbaum (2000, pp. 152-153) posits the view that museum librarians and libraries fill an “intellectual, recreational or emotional need” for museums. Bierbaum elaborates on this idea by discussing how the information museum libraries provide is transformed into knowledge which can be used to improve the curatorial research process and augment the museum visitor experience. Bierbaum sees the completion of this transformation coming “when the visitor thinks about the message of the exhibit, when the curator finds evidence to support his research thesis”.

Whilst these descriptions perhaps gloss over some of the finer details of exactly how museum libraries can influence the flow of information and knowledge within the museum environment, they nevertheless reveal that their role and organisational status is perhaps more complex than might superficially appear to be the case.

2.5.5 Museum library users and usage

Bierbaum (2000) states that museum libraries exist to serve a dual function, providing scholarly information support to museum staff, whilst also simultaneously enlarging the museum experience for the public by providing further information and resources about museum collections. This view is shared by other authors, who also observe that museum libraries have two distinct and separate target audiences in museum staff and the general public (Collins, 2003; Kolmstetter, 2007; van Boxtel, 2009).

The concepts of ‘museum staff’ and ‘the general public’ are nebulous though and attempts have been made to further define in more detail exactly which types of museum staff and what categories of the general public typically make use of museum libraries.

Regarding museum staff, the accepted opinion in the literature is that museum libraries exist to serve all staff employed by their museums. However, it is also acknowledged that some museum professions will use museum libraries more frequently and with a more focused purpose than others.

Generally speaking, museum staff involved in exhibition planning or delivery are cited as being the most active users of museum libraries, in particular curators, content developers, and conservators, as well as staff involved in learning and public education activities. And it is noticeable that scholarly research for exhibition planning and development, as well as research for the delivery of museum learning programmes, are consistently referred to in the literature as being the main reasons why museum staff use museum libraries (Collins, 2003; Docampo, 2010; Kostanyan, 2011; Otiike, 1990; van Boxtel, 2009; van der Wateren, 1999; R. Watson, 2001).

Implicit recognition is also given to the fact that museum librarians tend to prioritise the development and management of collections, services, and resources for staff working in these types of roles over those working in what might be termed 'non-scholarly roles'. For example, Collins (2003) proposes that museum librarians need to "promote the connection that a well-maintained museum library will enable curators to conduct in-depth research that will lead to more provocative, scholarly exhibitions" (p.80). To illustrate this point further, albeit from the opposite perspective, nowhere in the literature is there any acknowledgement of the information support that museum libraries provide for museum staff working in departments that have no direct bearing on the development and delivery of museum exhibitions or learning programmes.

There is also near consistent agreement in the literature that museum visitors, and the general public more broadly, should be catered for by museum libraries. This is often simply acknowledged as a statement of fact with examples given of where

public-facing services are offered by named museum libraries (Ekdahl, 1999; Kolmstetter, 2007; Lambert, 2002; Tarrête, 1997; Tateishi, 2013; van Boxtel, 2009; Wasserman, 1994; R. Watson, 2001). In these examples, no consideration is even given to the notion of the general public not being served. However, it is acknowledged by some that the full range of services that museum libraries offer to museum staff may not be extended to museum visitors or the public at large, with borrowing of library materials being the main restriction. For example, van Boxtel (2009) discusses how no museum libraries in the Netherlands lend books to the public as these materials need to be available for use by curators and other museum staff.

Some authors have rightly pointed out that provision of library services to the public is a recent phenomenon for museum libraries, with most traditionally, and some still, restricting access to and developing collections for museum staff only, ensuring, in effect, that these functioned as private libraries for curators (Kostanyan, 2011; Navarrete & Mackenzie Owen, 2011; Uralman, 2010; van der Wateren, 1999; Zamora et al., 2010). However, in those historic cases it is interesting to note that even though public access was not officially sanctioned, limited public access was often made available where museum library collections became known within scholarly circles. But this was usually via scholars' professional relationships with museum curators (van der Wateren, 1999).

Several researchers have taken the issue of general public use of museum libraries further by segmenting categories of public users. Museum visitors are most frequently referred to in this respect, albeit in a fairly homogeneous manner, particularly museum visitors who are seeking further contextual information about museum objects they have viewed during their museum visits (Koot, 2001; Lambert, 2002; van der Wateren, 1999; Weijnsfeld and Wolffe, 2009). However, the second most widely documented public users are university students, with the specific scholarly information needs of

students as opposed to the more generic information needs of other public users regularly being highlighted (Ekdahl, 1999; Kolmstetter, 2007; Kostanyan, 2011).

A detailed discussion relating to this is offered by Malinkovskaya (1999), who states how the Library of the Pushkin State Museum of Fine Arts in Moscow was primarily created and continues to serve as an education centre for students of the State Moscow University. Malinkovskaya highlights how this educational role has increased over the years, with examples cited of seminars held in the Library featuring eminent art historians and of the role it has played in supporting students' degree course work.

This link is so intrinsic that Malinkovskaya talks about how the Library is now widely considered to be the 'alma mater' for many students of the University. She also discusses how the connection between students and the Library is mutually beneficial. For students, these benefits principally manifest themselves through access to special publications that would otherwise be difficult to locate, and by the fact that they are able to consult and have professional contact with well-known scholars who also use the Library. From the Library's perspective, the principal benefit is an arrangement whereby students provide the Library with a copy of the bibliography of their work once they have finished their studies, which is beneficial in terms of answering readers' enquiries and for collection development.

This theme of university students being identified as a distinct audience for museum libraries for whom museum librarians need to plan future service delivery is also expanded upon elsewhere. Moody (2012) discusses how developing a strong educational component for the Rock and Roll Hall of Fame Museum Library's public programming and hosting groups of students in the Library, in order to teach them about its resources, are specific future strategic aims. Likewise, Nijhoff (1999) states how facilities at art museum libraries in the Netherlands need to improve in order to

accommodate the rising number of researchers and students. And Kostanyan (2011) states that the Library of the Moscow Kremlin Museum is actively responding to student feedback in a bid to improve its facilities and resources so that more future students will use the Library.

It is also acknowledged that museum librarians need to actively target and engage other new audience groups in order to extend and broaden the user base of their libraries, and in turn consolidate their relevance and value to their parent museums (Chepesiuk, 1996; Kolmstetter, 2007; Koot, 2001; Moody, 2012; Tarrête, 1997; van der Wateren, 1999). Tarrête (1997), for example, notes that museum libraries are virtually unknown to the public at large, citing as proof a 1994 survey that was undertaken in Germany which found that 90% of the general public who were questioned were unaware that the museums they were being asked about possessed a library. This stark set of findings reflects the fact that museum libraries have very low public visibility and that museum librarians need to work hard to publicise and promote their services to change that perception.

Various strategies are mentioned in the literature for raising public awareness of museum libraries. These incorporate generic recommendations, such as public dissemination of information leaflets, acquisition lists, and thematic bibliographies (Tarrête, 1997), through to more specific recommendations. Examples include: offering public workshops on methods for collecting and researching art (Kolmstetter, 2007); provision of web-based genealogy subject resources to family historians (Chepesiuk, 1996); and building collaborative partnerships with schools and colleges in areas relating to educational digitisation initiatives and specialist collection development activities (Moody, 2012).

Unfortunately, there is no evidence provided in the literature of how these strategies have been implemented, their efficacy, or their impact on the longer term strategic direction of these museum libraries. Without this evidence it is impossible to assess whether or not the poor public awareness issue highlighted in the survey cited above is destined to change in the future.

2.5.6 Summary

The view of museum libraries in the literature is often incoherent. On the one hand, it is clear that museum libraries are recognised as having a distinct role to play within their museums, especially provision of internal support to curators and education providers. On the other hand, it is evident that museum libraries lack organisational visibility and presence. Similarly, the scope and reach of museum libraries outside their traditional internal audiences is not clear, with some embracing the opportunities that public engagement presents and others adopting more insular positions.

2.6 Libraries in the digital age

Much has been written about the role and function of libraries in the digital age⁸. This section does not intend to be exhaustive in its coverage of this literature, but instead offers a brief synopsis of the topic, highlighting issues of special relevance.

The section commences with an assessment of the main factors and challenges affecting libraries in the digital age, as well as the resultant changes being considered or implemented by libraries. An overview of some of the key opportunities for libraries in the digital age is then presented.

⁸ This is also true for synonym terms such as ‘information age’, ‘internet age’, ‘digital revolution’.

2.6.1 Factors affecting libraries in the digital age

One of the most pervasive themes in the literature relating to libraries in the digital age is that of their contemporary relevance⁹ and competitiveness given the ubiquity of alternative information resources available via the Internet. Many publications discussing this subject adopt a view that libraries need to either redefine or significantly recalibrate their roles and functions to ensure their services and resources continue to be relevant and valued and meet the ongoing and rapidly changing information needs of a new digital generation (Anderson, 2005; Bakken, 1998; Brindley, 2006, 2009; Choy, 2011; Donovan, 2008; Lewis, 2007; S. Liu, Liao, & Guo, 2009; Michalko, 2007; Plutchak, 2012; M. Robinson, 2008; Sidorko & Yang, 2009; Vine, 2008). The general consensus is that if libraries are unable to remain competitive then many people, including current active library users, will eventually forsake libraries for the vast array of alternative information options, free or otherwise, that are available via the Internet.

This view is not universally held though and others have argued that there is no need for libraries to fundamentally change. Instead, they advocate that libraries should carry on with their tried and tested approach to information work, incorporating new digital technologies into existing practices whenever it is felt necessary to do so.

Herring (2014), for example, in his book *Are Libraries Obsolete?: An Argument for Relevance in the Digital Age*, acknowledges that the digital age has transformed information access and contends that technology cannot and should not be ignored by libraries. But he also states that technology should be utilised and adopted in a careful and considered manner so as not to undermine the valued work of libraries:

⁹ This is normally discussed in the context of the relevance of libraries to their users.

We, especially those of us in libraries, are letting technology dictate our future, rather than using technology to create a proud one. Further, to the fact that as marvellous as our technology is, it still isn't ready to replace libraries, and if we let it, we will be sorely regretful later. If we continue to allow technology to dictate our future, the future for libraries is a bleak one. If we choose to use technology to create our future, we may have a more promising one ahead of us. (pp. 171-172)

Most though see this approach as being insufficient and believe a more wide-ranging redefinition of library roles and practices is required. The need to project a more visible, technologically-enabled profile is often mentioned as one way this can be achieved, with many observing that libraries are struggling to compete with the immediacy and accessibility of information on the Internet and are failing to make a case for use of their collections and resources over those that are available elsewhere online (Choy, 2011; James-Gilboe, 2010; Michalko, 2007; Terrell, 2015; Tonta, 2008).

A similar problem is that many would-be library users seem unaware what resources libraries have and how they might access these, as they are now more accustomed to relying on just searching Google or Wikipedia to discover what exists. The requirement for libraries to invest more time and effort enabling seamless online access to their collections is therefore seen by many as a critical priority.

Tonta (2008) and Terrell (2015), for example, observe that libraries are no longer the only choice for researchers and that libraries are increasingly being challenged by online information providers that offer round the clock networked information services. Choy (2011) also notes that the perception among many researchers is that information is no longer hard to get as it is everywhere and that libraries have ceased to be the dominant information provider, but are instead just one of many. Maintaining

awareness is therefore critical to the success of libraries in the digital age, and as James-Gilboe (2010) points out, lack of awareness is a significant barrier to use.

A closely related theme is that of social media uptake by libraries. The need for libraries to adopt and use these technologies, which are easily accessible and highly intuitive, is highlighted in the literature. This is seen as a key strategy for making libraries and their collections more widely available to users, especially younger users, or the 'Information Now' generation as they have been termed, who have grown up in a world dominated by social media usage (Jacobs, 2009).

This is a critical issue for libraries, with Choy (2011) asserting that this new generation has adapted to an environment dominated by technology and that the abundance of choices this has presented has flattened the profile of libraries in the online information landscape. Choy therefore argues that libraries need to be part of the new tools that users are using, including mobile devices, and "they must have a presence to take advantage of the heightened convenience that is in the hands of our users" (p.67). Z. Liu (2006) expresses similar views, noting that an entire generation is growing up with new technology and is likely to have different expectations and preferences toward the choice of digital and traditional libraries. This theme is explored in more detail later in the chapter.

Better understanding user needs is another recurrent theme, with several authors stating that the needs of contemporary library users, who are accustomed to using digital technologies in their day-to-day lives, must be explored in-depth so library services can be re-designed from their perspective (Holt, 2007; S. Liu et al., 2009; Sidorko & Yang, 2009; Torrisi-Steele, Wang, Sedivy-Benton, & Boden-McGill, 2015). Moreover, as Sidorko and Yang (2009) observe, it is imperative that libraries continually refocus and adjust their services from the users' viewpoint as technology

evolves. Similarly, S. Liu et al. (2009) argue that Google's popularity has challenged librarians to think about their users in different ways. Although as a counterweight, they also note that search engines are tools which cannot replace librarians' intelligence and professional judgement and that libraries can deliver distinctive services that search engines cannot.

But it is not just the more appropriate and relevant use of new technologies and re-defined services that are seen as important. The way that librarians and users interact is also seen as in need of changing. For example, Torrisi-Steele et al. (2015) assert that librarians should recognise that because researchers seek data from many different sources, the nature of their research has now evolved. As such, they recommend that librarians change the way they deliver support to users by familiarising themselves with digital research methods and actively engaging in their users' research as partners in the research process.

The overwhelming sense in the literature is that libraries, particularly print dominated ones such as museum libraries, are facing a critical moment in their evolution as a result of the advent of recent socio-technological developments. These are widely perceived as posing significant challenges to libraries in terms of their continued use, and perhaps even threatening their very existence. As we will see in the next section though, others see this time as one of great opportunity for libraries.

2.6.2 Opportunities for libraries in the digital age

Opportunities for libraries to expand their roles and be seen as indispensable information resources by society have arguably never been greater than now. This is evidenced by the proliferation of specialist library roles and the greater involvement of libraries in the research process, including data management and scholarly communication (Meier, 2016). A popular view is that the challenge of staying

competitive in a fast moving digital world should be grasped by librarians (Brindley, 2006), and that information technology should be embraced rather than perceived as a threat. It has been noted that technological change on this scale has given libraries powerful new tools, which can be used to provide more and better access to information that will enrich the lives of all people (Freedman, 2003).

Similarly, the digital age has offered librarians the chance to take on new job roles that are relevant for the changing information environment, such as data curation and digital preservation (Tamaro, 2016). In fact some have gone further than this by stating that libraries, in their traditional form at least, are fairly inconsequential in the digital age, and instead it is the skills and knowledge that librarians possess that are of paramount importance.

For example, Plutchak (2012) proposes that many of the needs that twentieth century libraries were designed to address, such as collection building, are now being better addressed via digital technologies and associated advances, and therefore “the great age of the libraries”, as he describes it, is now coming to an end. However, Plutchak posits the idea that whilst the role of libraries as physical entities is diminishing, the role of the librarian in the digital world is rapidly expanding. Plutchak calls this “the great age of the librarians”, with a key feature being the ability of librarians to facilitate conversations with different audiences with the express purpose of helping them create new knowledge.

Fourie (2004), Davis (2008), Ataman (2009), and Sun, Chen, Tseng, and Tsai (2011) all offer a similar view to this, with Ataman (2009) reinforcing the point further by stating that new age information professionals must evolve from simply providing assistance to those seeking information to become more sophisticated designers and creators of methods for accessing information. However, Fourie (2004), whilst

broadly reinforcing this outlook, also provides a note of caution by stating that new roles for librarians should not just centre on the Internet as there is a need for librarians to find a balance between IT focused roles and their more traditional roles.

In a museum libraries context, Koot (2000) develops this idea further by proposing that museum librarians should utilise their information management skills to design strategies that allow for the standardised and integrated management of information about all 2-D and 3-D collections held by their museums. Koot goes on to suggest that through use of collection management systems and online resources this information can be harnessed and disseminated by museum librarians at a museum-wide level, thus enabling them to position themselves as mediators between museum visitors and the knowledge stored in their museums. In turn, Koot suggests museum libraries should become museum information centres, with museum librarians given the responsibility of answering museum visitors' enquiries about museum objects.

One of the ways that librarians have developed new roles in recent years is through involvement with digital scholarship activities. Llona (2007) defines this as:

Research products, results, and tools that are either born digital, or have been converted from analog to digital format. Often this type of scholarship stems from the discovery of new knowledge as a result of using technology to gather, analyze or publish data, usually for the purpose of research or teaching. (p.153)

Much has been written in the literature on the subject of digital scholarship, and it is not the purpose of this thesis to examine this subject in-depth. It is worth noting though how digital scholarship is beginning to influence and impact upon certain types of libraries, including research libraries, and possibly, as will be explored in later chapters, some national museum libraries.

The clearest indicator of this in the literature is in relation to discussions about changing scholarly research behaviours, specifically the notion that as the historical scholarly and cultural record shifts to digital form, the ways scholars make use of these resources will also change, with a move from reading to searching and then onto more sophisticated communication, such as text mining (Lynch, 2006; Vinopal & McCormick, 2013). These authors assert that as this new form of digital scholarship evolves libraries will need to support its development. However, any support that libraries provide for digital scholarship needs to be sustainable and as the demand grows also scalable.

Vinopal and McCormick (2013) explore this issue and present a high-level four tiered model for research libraries that aims to support digital scholarship, with the most widely used and basic support tools and services at the bottom tier and more enhanced, collaborative methods at the top tier – see Figure 1.

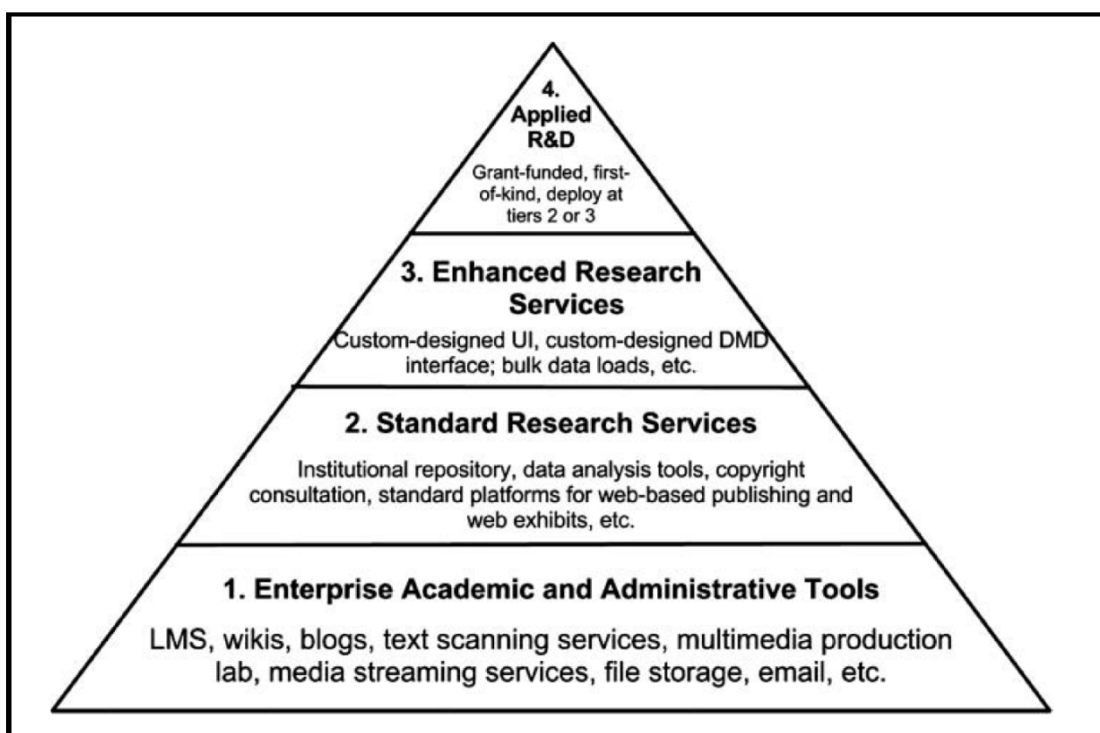


Figure 1 – Proposed model for digital scholarship services
(Vinopal & McCormick, 2013, p. 32)

As can be seen from this model, the more libraries support digital scholarship activities, the more likely it is that they will become active collaborators or participants rather than merely adopting a support role. This type of collaboration could include fairly simple activities, such as hosting scholarly research publications on a library institutional repository, through to more sophisticated activities, such as undertaking tailored project consultations or partnering with researchers to seek grants (Case, 2008; Vinopal & McCormick, 2013).

It is also acknowledged that whilst some libraries are likely to move in this direction, they do not necessarily need to deviate far from their traditional path in order to effectively engage in digital scholarship activities. As Brindley (2009) points out, activities such as the opening up of special collections through major digitisation initiatives, both individually and in collaboration with others, is in itself a critical contribution to new kinds of digital scholarship and research and will distinguish research libraries and their role in the 21st century.

There is agreement in the literature that many libraries, especially academic and research libraries, will be increasingly likely to engage in digital scholarship activities in future (Faust, 2016; Hensley & Bell, 2017; Maceviciute, 2014; Vinopal & McCormick, 2013). Clifford Lynch, in his lecture on the impact of digital scholarship on research libraries (Lynch & Carleton, 2009), makes this point clearly when he comments that research libraries will be expected to play significant data stewardship roles as their parent institutions will see them as the natural home for the management of important scholarly data outputs.

This prognosis of significant change though is tempered by a further prediction that change will probably be incremental rather than sudden, as research libraries are still preoccupied with managing large physical collections and are only gradually

transitioning to managing collections and associated data in digital form. Given the predominantly physical nature of most national museum libraries, and the fact that they have historically tended to be less technologically developed and less attuned to adopting new technologies than some other types of libraries (Branin, Groen, & Thorin, 2000; Collins, 2003; Hazen, 2011; van Boxtel, 2009), it is most likely that any library support for digital scholarship activities that emerges in national museums in future will also be a gradual process.

However, arguably the three most prolific and high profile opportunities for libraries that have emerged during the digital age, each of which has been adopted, acquired, or utilised to some extent by most libraries over the last two decades, are digitisation, electronic scholarly resources, and Web 2.0 technologies. These will not be discussed further here though as each one is explored later in the chapter, in the context of their use by and impact upon museum and research libraries.

2.6.3 Summary

The digital age is simultaneously bringing enormous challenges and opportunities for all libraries, including national museum libraries. The pace of technological change, coupled with the changing information needs of users, means libraries and librarians are having to continuously and rapidly evolve their roles in order to keep pace and maintain relevance. Conversely though, they are now able to take advantage of many new electronic tools and resources that can be used to develop innovative methods for promoting library services and collections.

It is therefore a time of transition and uncertainty, but also one of possibilities. In the next section we explore one aspect of this in more detail, namely how digital change is impacting collection development and management decisions in museum and research libraries.

2.7 Library collections in the digital age

Collection development and management activities have arguably been at the forefront of the change process that has occurred in many libraries in recent years, with a shift from a print-focused environment to one increasingly dominated by electronic resources. The purpose of this section is to explore in more detail the nature, extent, and impact of this change on the collections and collecting policies of museum libraries and of research libraries more generally.

The section commences with an assessment of the collections of museum libraries and research libraries in the digital age, and an examination of the evolving collecting approach of these libraries. Finally, the impact of digital collections on museum and research libraries is explored, focusing on issues being faced in relation to the acquisition and management of digital collections.

2.7.1 Museum library collections in the digital age

As mentioned earlier, museum library collections are often eclectic and varied, incorporating many different primary and secondary source materials. They are usually overwhelmingly print based, and collecting policies are often geared towards the acquisition of specialised or ephemeral materials that many other libraries do not collect, such as exhibition and auction catalogues, artists brochures, trade literature (Navarrete & Mackenzie Owen, 2011; van der Wateren, 1999; Weijsenfeld & Wolffe, 2009; Zamora et al., 2010). Collections of non-literary materials are also regularly acquired by many museum libraries, including photographs, prints, engravings, posters, music scores, sound recordings, and films (Kolganova, 1999; Lo et al., 2014).

Museum library collections are also developed in a number of quite distinctive ways, which sets them apart from collections in many other libraries. Firstly, they support

the documentation and research tasks associated with the object collections held by their parent museums, which in turn helps support museum exhibitions and programmes (Bierbaum, 2000, pp. 152-153; Navarrete & Mackenzie Owen, 2011; Zamora et al., 2010). They are therefore in essence collections that are developed to underpin and provide support for other collections.

Secondly, individual items or whole collections, especially archives and special collections, will often have been collected reactively, which is to say that they will have been obtained following a gift, donation, or bequest from an external source (Otiike, 1990; Wasserman, 1994). (Elgaard, 1993; Lambert, 2002; Lo et al., 2014; Uralman, 2010; van Boxtel, 2009; van der Wateren, 1999).

And thirdly, many items are often acquired in close collaboration or after consultation with curators, usually to tie in with new exhibitions, museum object acquisitions, or curatorial research interests.

The other important factor when considering the nature of museum library collections is the financial status of the libraries. In almost all cases, museum libraries, including national museum libraries, operate in an extremely financially restricted environment, with often a very limited budget available for acquisitions. This therefore impacts upon the volume and range of materials that can be acquired, and reliance on exchanges with other libraries or donations commonly occurs (Collins, 2003; Wasserman, 1994).

Another critical distinction between collection decision making in museum libraries, especially national museum libraries, and other types of libraries, is that they are often subject to restrictions in terms of their ability to dispose of collections. National museum libraries in the United Kingdom, for instance, are, as constituent parts of their parent museums, bound by the terms of various Acts of Parliament, including The

National Heritage Act 1983¹⁰ and The Museums and Galleries Act 1992¹¹. These Acts embody a presumption against disposal of accessioned museum objects, which usually includes any notable or valuable items held by the museum library, such as archives, rare books, or special collections¹², and they set out clear instructions for the undertaking of any permissible disposals. This can often have a bearing on the decision to acquire collections, as consideration needs to be given as to whether a library has sufficient resource and space to manage them on a permanent basis.

This all therefore demonstrates that museum libraries develop collections in what can best be described as a traditional yet idiosyncratic manner, which differs to that of many other types of libraries. How therefore have museum libraries reacted and adapted to the rapid rise of electronic resources, such as e-journals and e-books, which have had such a dramatic effect on the collecting approach of libraries across all sectors in recent years? The answer, as will be seen below, is beginning to emerge although is still not clear.

Acknowledgement is given in the literature to the fact some museum libraries are now actively acquiring resources in electronic formats, as well as print formats (Bierbaum, 2000, p. 8; Collins, 2003; Heinrich, 2011; Kolmstetter, 2007; Kostanyan, 2011; Lambert, 2002; van der Wateren, 1999; R. Watson, 2001; Zamora et al., 2010). There is also consensus in some quarters that the development of electronic resources is now seen as an important activity for many museum libraries and one which some, especially some national museum libraries, are beginning to prioritise. For instance,

¹⁰ The National Heritage Act 1983 - http://www.legislation.gov.uk/ukpga/1983/47/pdfs/ukpga_19830047_en.pdf

¹¹ Museums and Galleries Act 1992 - http://www.legislation.gov.uk/ukpga/1992/44/pdfs/ukpga_19920044_en.pdf

¹² Non-accessioned museum library items, e.g. textbooks and journals, are not usually covered by these Acts and so national museum libraries are often able to dispose of these items more easily.

Zamora et al. (2010) discusses how the libraries of the Spanish national museums network are in the process of creating a sophisticated cross-searchable digital library, which will provide access to both digitised collections from various institutions and electronic resources of common interest, such as full-text databases and e-journals. Likewise, Heinrich (2011) outlines a similar initiative at the Smithsonian Institution Libraries in the United States to develop an electronic library consisting of both in-house digitised materials and externally purchased or subscribed online content.

Demand for e-resources from museum library users is also discussed by Kostanyan (2011), who reports the findings of a recent survey of the Moscow Kremlin Museum Library, which states that access to electronic resources was one of the main services that visitors sought from the Library. And Collins (2003) notes that many art museum library patrons, especially curators who have recently graduated from universities, are demanding that museum libraries prioritise the purchase of electronic databases.

However, this is not the position for all museum libraries and as van Boxtel (2009) observes when examining the collection status of museum libraries in the Netherlands, most Dutch museum libraries, with the exception of the Rijksmuseum, have not yet (at the time of publication) acquired many, or sometimes any, electronic resources. Whilst van Boxtel does not elaborate on the reasoning for this, Collins (2003), whilst writing about art museum libraries, observes that many museum libraries simply do not have the financial means to purchase electronic resources, especially ones that commit a library to a long-term contract. Collins states that for many museum libraries, entering into partnerships and consortiums is usually their only hope of gaining access to e-resources and that many museum libraries are re-examining the traditional 'just in case' collecting principle and opting for more collaborative and consortial purchasing arrangements instead.

Moody (2012) provides an example of this situation working successfully in practice via a partnership between the Rock and Roll Hall of Fame Museum Library and Case Western Reserve University, both in Cleveland, Ohio, with the museum library becoming one of several affiliated libraries of the University and in turn benefiting from being a member of the OhioLINK consortium which, amongst other things, provides access rights to a significant range of research databases.

Aside from financial reasons, another reason why many museum libraries have not traditionally acquired e-resources is that the types of items they are prioritising for acquisition, and which are most needed by their users, are simply not available in electronic format, especially special collections and archival materials (R. Watson, 2001; Weijsenfeld & Wolffe, 2009). Print content is thus often prioritised over electronic content when collection building.

In many articles concerning collection development in museum libraries there is little discussion on the merits of print versus electronic collections. In fact where electronic themed issues are discussed, the emphasis is more often centred on how museum libraries can take advantage of electronic tools to enable wider access to their print collections. This is seen as a major issue for many art museum libraries in particular where print catalogues and manual finding aids are often the only way of searching and interrogating print collections, especially archives and special collections.

Enabling discoverability of these print collections via online institutional catalogues or via online union catalogues, such as OCLC WorldCat,¹³ which numerous national museum libraries contribute to, is often seen as the most important priority for these institutions, rather than purchasing and disseminating third party electronic journal or

¹³ OCLC WorldCat - <https://www.worldcat.org/>

book collections (Duff, Craig, & Cherry, 2004; Lambert, 2002; Salzmann, 2004; Weijssenfeld & Wolffe, 2009).

This issue is explored in more detail in the context of archives held in museum libraries by Bandhari and Crookham (2005) and Maxwell (2010). Both focus on techniques for improving discoverability and access to archival materials, with specific mention made of the need for collections to be presented online in a way that makes them as easy to browse and search as popular web-based academic resources like Google Books.

However, it is still not clear from the literature how museum libraries are affected by evolving supply and demand factors in relation to electronic resources as little scholarly research exists that specifically explores this or related issues, such as the impact of electronic resources availability on museum library users. This gap in knowledge will be accounted for as part of the research undertaken for this thesis.

As will be seen in the following section though, the position for research libraries is more explicitly acknowledged and defined in the literature. But, as with museum libraries, consensus is often lacking and polarised views are pervasive.

2.7.2 Research library collections in the digital age

Like museum libraries, print collections have long been the mainstay of most research libraries. However, the emergence of commercially available e-resources seems to have had a more profound effect on the way that research libraries collect materials than it has for museum libraries.

A widely espoused view is that many research libraries are rapidly changing their collection development strategies, with the aim of reducing print format acquisitions and focusing instead on the procurement of greater numbers of electronic format

alternatives (Bradford, Costello, & Lenholt, 2005; Dewan, 2012; Hazen, 2011; Juznic, 2009; King, 2009; Koehn & Hawamdeh, 2010; Lewis, 2007, 2013). According to King (2009), many research libraries are shrinking their print collections in favour of electronic access via purchase or rental arrangements with publishers.

Libraries may not be comfortable with this arrangement, given the frequent lack of security over long-term access, but many seem to be nevertheless recognising that these methods often provide better value for money, particularly for e-journal subscriptions as pricing models are often far more flexible than individual print subscriptions. And in an operating environment where funds are being increasingly stretched due to competing demands and information proliferation, demonstrating value for money is critically important to most libraries (Horava & Levine-Clark, 2016).

Hazen (2011) goes further still by predicting that the emergent electronic realm will in time relegate new print materials to a diminishing subset of resources. Furthermore, Hazen states that e-resources will increasingly define both the information and the scholarly landscapes, and that research libraries must prepare for and promote this shift. Finnemann (2014) adopts a similar position, by stating that as a result of the globalisation of knowledge and the contemporary pervasiveness of digital media all institutions involved with knowledge handling will have to redefine themselves according to the new infrastructure that has evolved around the Internet and is now extending into mobile media. According to Finnemann, we have now reached a point in the library world where “digital media undermine the historical reasons for the physical location of institutions”.

From a library user perspective, J. Brown (2007) suggests that print collections have largely ceased to be relevant in the digital age, as researchers can retrieve what information they need from the Internet, with falling visitor numbers to research

libraries being cited as proof for this. Juznic (2009) also picks up on the same theme, by observing that the transition to electronic collections is largely user driven with library users of all ages, not just younger users, having switched to electronic format items. This is particularly the case for scholarly journal titles and has led to many research libraries cancelling print format subscriptions in favour of electronic titles.

Other authors though take a more conciliatory view, stating that electronic resources do not have to supersede print resources as the two can easily co-exist as complementary formats as users recognise the convenience of e-resources, but at the same time are also familiar with and have an attachment to print (Dewan, 2012; Durant, 2015). Klugkist (2002) also suggests that striking the right balance is key as policies must not focus on one area to the detriment of others. Klugkist argues that a library that is part traditional and part digital will be partly location based and partly not. But critically, Klugkist notes that an electronically focused library does not make a physical library redundant.

Pritchard (2008), whilst also stating that neither digital nor print formats should dominate and that research libraries need to deliver a suite of print and digital resources that meet a range of needs, nevertheless points out that format is essentially irrelevant as collections, be they print or digital, are not a goal for research libraries but merely a means for matching information content with users in the most effective and timely manner.

This user-centric perspective is also picked up by Horava (2010), who states that collecting practices need to be re-defined so that users can engage with scholarly collections regardless of format. Horava also points out that libraries need to be agile in collection building so that they can develop collections that fully meet their users' needs and that are properly integrated into their workflows and made discoverable

though use of technologies, such as discovery systems and federated search engines. This last point is important as it has been observed that many scholars are concerned about the ability to easily find and use the electronic texts they need given the wide variety of different platforms and sites that host them and the associated difficulty of locating and accessing these (Chassanoff, 2013; Levine-Clark, 2014).

The continuing role of print collections in research libraries is though vigorously defended by some. In the opinion of Heath (2009) and Durant (2015), print resources will continue to be a defining aspect of the research library, with Durant noting that there is plenty of data to indicate that print still retains substantial popularity amongst readers, particularly when they are undertaking extended or in-depth reading. Goetsch (2008) also cautions librarians against believing that electronic collections are a suitable long-term replacement for print collections, given that electronic content is increasingly licensed rather than purchased and as such does not have the stability or the permanence of print.

Likewise, Bahr (2000) points out that despite the lure of technology, the barriers of cost, politics, and technology will ensure that electronic collections will never wholly usurp print collections¹⁴. Storey (2011) is even more vociferous, claiming that if libraries do not conserve print holdings then they will be repudiating the public trust that has been put into them to undertake this role.

A more pragmatic view though is provided by Wilson (2012), who states that the future of research libraries will be technology enabled but not defined by technology and that

¹⁴ Bahr's position is now slightly outdated as since her article was published the availability and use of e-resources has increased and the cost has, in real terms, decreased.

the physical and the virtual library will both have value with users able to “gracefully glide between the two entities”.

As with museum libraries, the one collection area where research libraries are least likely to succumb to the changes brought about by the digital revolution is special collections. There is acknowledgement in the literature that special collections, which are almost invariably print based, play a unique role in research libraries and that these cannot be easily replicated by commercially available databases or e-books¹⁵. Furthermore, there is recognition that printed special collections are essential components of any important research library and therefore need to be afforded high priority status (Levine-Clark, 2014; Pedraza & Manuel, 2014; Stevens, 2006).

Taking this further, Schmidt, Shelburne, and Vess (2008) state that research libraries should continue to actively collect printed special collections and also ephemera, not only because these items offer libraries the ability to differentiate their collections from other libraries but also because of the future value these items may hold. They highlight this point by suggesting that research libraries need only look to the printed items in their collections that might well have seemed frivolous at the time of acquisition, such as the penny novels of the 1800s, to understand the rich future research value of publications that exist on the fringe at the time they were published.

2.7.3 Impact of digital collections in museum and research libraries

As has been seen, the position regarding the transition from print to digital collections in museum and research libraries is still not clear with many conflicting views about the status and value of this change. However, for those libraries making this

¹⁵ This doesn't include digitisation, which is a key feature of many research libraries' special collections.

transition, an important question for consideration is what impact is this change having on library management and usage?

Many of the ensuing discussions offer views on the changing degrees of control that libraries have over their collections as they shift from print to digital. With traditional themes relating to the management of print materials, such as ownership, place, and permanence, beginning to be eroded and replaced by new activities associated with the maintenance of digital resources (Jian & Pribyl, 2007), a change process is occurring in terms of the ways libraries are able to maintain collections. This poses significant challenges, especially with regards to issues such as rights permissions, storage, and access (Lidogoster & Puccio, 2016), and has implications for museum and research libraries, particularly those with few staff and/or limited budgets.

Amongst the foremost of these challenges is the non-ownership of collections brought about by the licensing of electronic resources, and it is clear that the lack of guarantee over long-term access to e-resources is a concern for all libraries, including museum and research libraries. The nub of this concern, as Koehn and Hawamdeh (2010) and Lougee (2002) observe, is that libraries are no longer able to physically own the material in the way they did in the past, and as a result they cannot preserve it for long-term use.

This trend towards access rather than ownership raises serious questions about the sustainability and preservation of library collections and means that acquisition is increasingly a 'just in time', as opposed to a 'just in case', activity led by users or patrons (Fieldhouse, 2012). This places libraries in a position where they are wholly reliant on publishers or suppliers for long-term access, which may be fine, but as Jackson (2000) asks, what happens if the publisher with whom a license has been agreed in good faith later goes out of business?

The future is undeniably digital though and recognition is given to the fact that libraries need to deal with the impact of this change in the most pragmatic and effective way possible as reverting to a print only environment is not an option. As Campbell (2006) points out, published academic knowledge of all types will likely be issued digitally with paper publishing limited to mass-market titles, textbooks, and other areas that make economic sense. This circumstance will gradually eliminate much of what remains of libraries' collection development processes and will shift librarians' roles much more towards negotiating and managing licenses.

Hazen (2010) offers a similar prognosis, forecasting that research libraries will in some areas continue to build enduring collections of record whilst in others they will settle for use-driven electronic holdings, which offer neither comprehensive coverage nor long-term retention. Hazen holds out hope though that collectively research libraries will seek to ensure that at least one institution provides ongoing preservation and care for everything they hold. Some evidence that this is beginning to happen is offered though the emergence of collaborative activities, such as the UK Research Reserve¹⁶, which is a collaborative distributed national research collection initiative that seeks to safeguard the long-term future of printed research collections in UK higher education and research institutions.

The cost of acquiring and managing electronic collections, including associated on-costs, such as supporting electronic resource management systems, is also an important topic. As King (2009) observes, for libraries the high cost of e-resources, embargo restrictions, and the cost and inconvenience of supporting electronic access are all significant barriers. The result of this, according to King, is that despite seeing the benefits of e-resources, many libraries, for reasons of expediency, still have to collect print materials. Resnick, Ugaz, Burford, and Carrigan (2008) and Bailey, Scott,

¹⁶ UK Research Reserve - <https://www.ukrr.ac.uk/>

and Best (2015) offer a similar view, noting that it takes more monetary resources to acquire and maintain electronic resources and that the significantly higher price differential between electronic items and their print equivalents has the effect of decreasing the purchasing power of libraries. Furthermore, libraries are devoting ever greater proportions of their budgets to hiring and retaining suitably skilled staff with the right skills needed to manage e-resources.

The lack of visibility and recognition afforded by information consumers to the libraries that purchase, administer, and make available e-resources is also an increasingly common negatively perceived factor. This is seen as being, in part at least, because e-resources are invariably accessed via a publisher's online platform or third-party website. A library's role in the delivery chain is thus frequently invisible to end-users, meaning they run the risk of becoming marginalised and overlooked by researchers, which potentially lessens their value (Frumkin & Reese, 2011; Gherman, 2005).

One possible solution to this problem is for research libraries to shift their role in the scholarly communications process by changing the collection development emphasis away from scholarly materials as finished products, and central to legacy collections, and instead focus on materials that are mostly born digital and are not currently part of the scholarly communication process, such as digital image collections or web-based government information (Gherman, 2005). This "up-stream content", as Gherman refers to it, would allow libraries to step back and examine their roles regarding the curation of new forms of information, especially information which would otherwise likely be lost shortly after it is created, and thus allow them to carve out new, unique, and valuable roles for themselves.

However, the impact of electronic collections on museum and research libraries has also had positive implications. In the opinion of Corral (2012), this shift from

predominantly print-based materials to increasingly electronically delivered content is seen as radically changing the character of not just library collections but also the nature of libraries themselves, with a shift from local collection managers to networked information harvesters. This change, which Corral sees as mirroring the emergence of social media and notions of user-generated content, opens up more options for libraries and highlights their ability to significantly expand their reach and influence.

2.7.4 Summary

The picture is mixed in relation to the development of digital collections and the transition from print to digital formats by museum and research libraries. Museum libraries seem to be adapting to digital more slowly than research libraries, although, as has been noted, issues relating to staff and financial resources may well have a bearing on this. Both types of libraries also seem to have identified that whilst some collection areas, such as journals, are suited to a change from print to digital formats, other areas, notably special collections, are currently still ostensibly print based.

In the next section we explore the broader theme of if and how museum and research libraries are taking advantage of other digital technologies to engage in new activities and how they are adapting services in an increasingly digitally dominated world.

2.8 Digital projects and activities

In previous sections, the focus has mainly been on how museum and research libraries are evolving traditional services and resources to adapt to changes brought about by the digital age. In this section, we examine the extent to which they are engaging in new digital activities, particularly digitisation projects and Web 2.0 usage, in order to raise their profile, widen access to their collections, or increase their relevance.

This commences with an overview of digitisation projects and digital preservation programmes in museum and research libraries, focusing upon the rationale for these activities, the intended outcomes, and the benefits and problems they bring. A similar overview is then provided in the context of Web 2.0 and mobile technology usage.

2.8.1 Digitisation and digital preservation

Much has been written about the uptake and impact of digitisation in libraries. Most observers broadly agree that digitisation is a positive activity for libraries to engage in, and that it delivers value and brings many benefits to libraries and library users alike. This is particularly the case when digitisation helps make accessible rare or distinctive print collections that were previously only consulted by specialist scholars. Likewise, digitisation aids the preservation of rare or fragile materials, and it can also support new forms of research through activities, such as data mining and textual analysis (Brindley, 2009; Hughes, 2004, pp. 9-16; Lee, 2001).

However, there is also acknowledgement that there are barriers to entry for libraries wishing to undertake digitisation projects, as digitisation is a time consuming, resource intensive, and expensive process. As Riley-Reid (2015, p. 89) points out, “the long arm of digitization can turn out to be a chokehold and not the warm embrace we have all been lead to believe”, and consequently, he notes that it is incumbent upon libraries to analyse and understand their motives for embarking on these activities and to plan comprehensively for them.

And in addition to digitisation itself, there are also many associated tasks that libraries must consider and fulfil, such as planning realistic digitisation workflows, adopting appropriate technical standards, and implementing robust discovery platforms (Smith, 2016), all of which can be difficult, especially for small museum or research libraries. Skekel (2008) comments that before librarians can add digitised collections to their

libraries' holdings, they must fill the roles of developer, grant writer, researcher, metadata specialist, appraiser, editor, project manager, publisher, technologist, copyright specialist, advertiser – and so on.

There is also the question for libraries of whether they should pursue a digitisation project alone, assuming this is possible from a resourcing standpoint, or in partnership with other libraries or commercial providers, e.g. Google. However, this then brings into question many problematic and thorny issues, such as content ownership, copyright, and long-term access arrangements (Lackie, 2008).

In the context of museum libraries specifically, a limited number of articles have been published, which provide largely descriptive overviews of digitisation projects that are either in the process of being undertaken (at the time of publication) or that have already been delivered.

Some notable examples of these include: the digitisation of the Tate Library's archive collections (Bandhari & Crookham, 2005); the Biodiversity Heritage Library digitisation project at the Natural History Museum Library and other partner libraries (Gwinn & Rinaldo, 2008); the digitisation of exhibition catalogues at the National Gallery of Canada Library and Archives (Franklin, 2009); a project at the Victoria and Albert Museum to digitise objects in the Library's prints, drawings, paintings, and photographs collections (Dodds & Ravilious, 2009); a series of digitisation projects at the Prado Museum Library in Madrid aimed at creating a Spanish digital library of art history (Docampo, 2010); the creation of a digital archive of textual and visual resources at the Musashino Art Museum and Library in Tokyo (Honjo, 2013); and the creation of a multi-faceted digital resource, incorporating digitised collections, at the Smithsonian Institute Libraries (Kalfatovic, Kapsalis, Spiess, Camp, & Edson, 2008).

Why though are museum libraries engaging in digitisation activities? Walsh (2013) comments that for most museums, and by extension museum libraries, bringing in new audiences to engage with collections is a key motivator. But Walsh also points out that this is not the only motivator, as the desire to open up obscure or underutilised parts of the collections, streamline the work of curators, enhance academic research, and generate revenue streams are all equally valid reasons.

From a different standpoint, Navarette & Mackenzie Owen (2011) see digitisation primarily as a converging activity. They contend that it should be undertaken by museum libraries to help integrate and enhance seamless access, through use of a unified system, between museum objects and the information about these objects held by museum libraries.

This mixed view is also reflected elsewhere, with some articles focusing on audience development as the main rationale for digitising collections and others pinpointing different reasons. For example, at the Tate Gallery, which in 1998 initiated a long-term programme to develop online access to its library and archive collections through digitisation, the main aim of the project is stated as being to attract new audiences both within and beyond its galleries (Bandhari & Crookham, 2005). This is also the position at the V&A Museum, where Dodds and Ravilious (2009) note that the Museum is under pressure (although it is not stated from whom) to make its collections as accessible to the public as possible.

Dorner, Liew, and Yeo (2007) though, in their 2002 study of cultural heritage organisations that have undertaken digitisation projects in New Zealand, report a broader set of drivers with three main factors being reported. The first and most important of these also relates to organisations increasing access to their resources.

However, other commonly cited factors include better meeting the needs or demands of users, and preservation of the original materials.

An almost identical set of results is reported in a 2006 survey of UK research libraries (Bültmann, Hardy, Muir, & Wictor, 2006), the purpose of which was to ascertain reasons why libraries undertake digitisation projects. As seen in Figure 2, improved access to the original collections was selected most frequently, but several other reasons were also given.

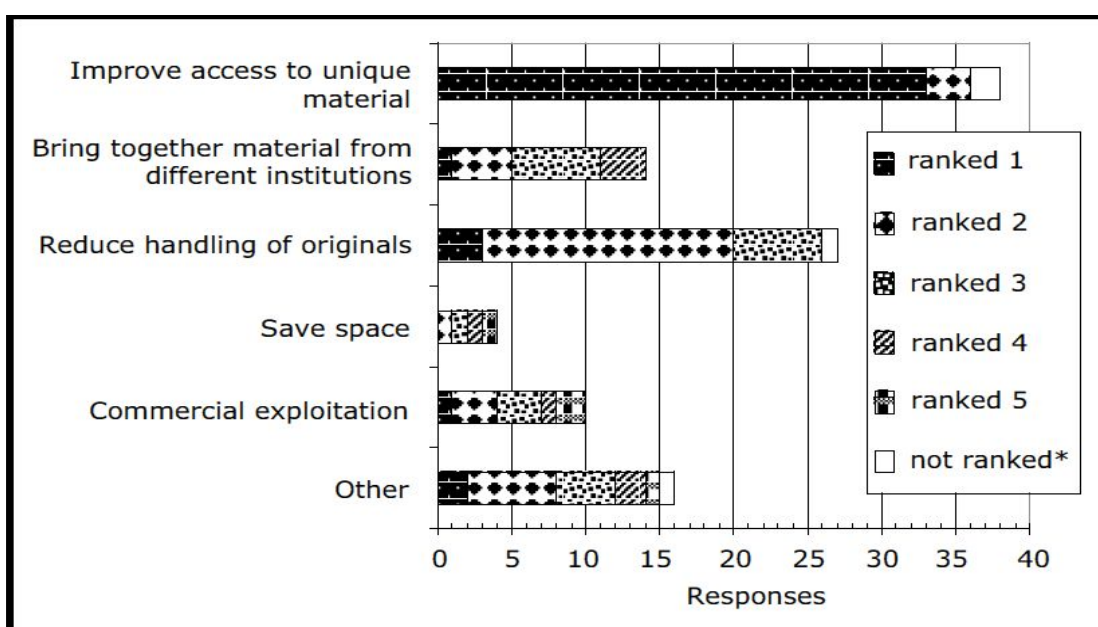


Figure 2 – Reasons for digitisation (ranked) at UK research libraries

(Bültmann et al., 2006, p. 107)

Looking at accessibility from another angle, digitisation is also seen as being particularly beneficial to libraries if the material they are seeking to digitise is unique or rare, which is often the case for museum libraries. This is because exposure of these digitised items to a global academic audience, who would probably be the main beneficiaries, can potentially help libraries to significantly enhance their scholarly

reputation and research value and thus help them create a new defining characteristic with researchers worldwide (Navarrete & Mackenzie Owen, 2011; Sutton, 2004).

However, it is not always the case that rare or unique materials are the main focus of library digitisation projects. Dahlström, Hansson, and Kjellman (2012) observe that many libraries in fact prioritise the digitisation of commonly published texts over rare or unique materials, especially where mass digitisation projects are concerned. The authors also note that this is at odds with museums, which almost exclusively emphasise the digitisation of unique objects, e.g. art works or artefacts. And whilst the authors do not refer to museum libraries per se, it is reasonable to conclude that museum libraries are also more akin to museums in this respect.

However, these are mainly supply rather than demand-led reasons for digitisation and as such they omit a crucial component when evaluating the reasons for digitising library collections, namely the needs and opinions of the end user.

The Discmap Project¹⁷ undertaken in 2009, and funded by the UK's Joint Information Systems Committee (JISC), addresses this issue (Birrell et al., 2011). The core part of the project consisted of a series of interviews with over 1,200 users of special collections held by research libraries across the UK. One of the main purposes of these interviews was to find out users' opinions about issues relating to the digitisation of resources. This included a question about the users own criteria for digitising special collections.

The outcomes were interestingly very similar to the reasons articulated by many librarians, with the need to improve access and increased frequency of use being considered as the two most important reasons (see Figure 3). This seems to indicate

¹⁷ Digitisation of Special Collections: Mapping, Assessment, Prioritisation.

that with respect to the digitisation of research library collections, and possibly museum library collections too, the rationale for digitisation is typically similar on both the supply and demand side.

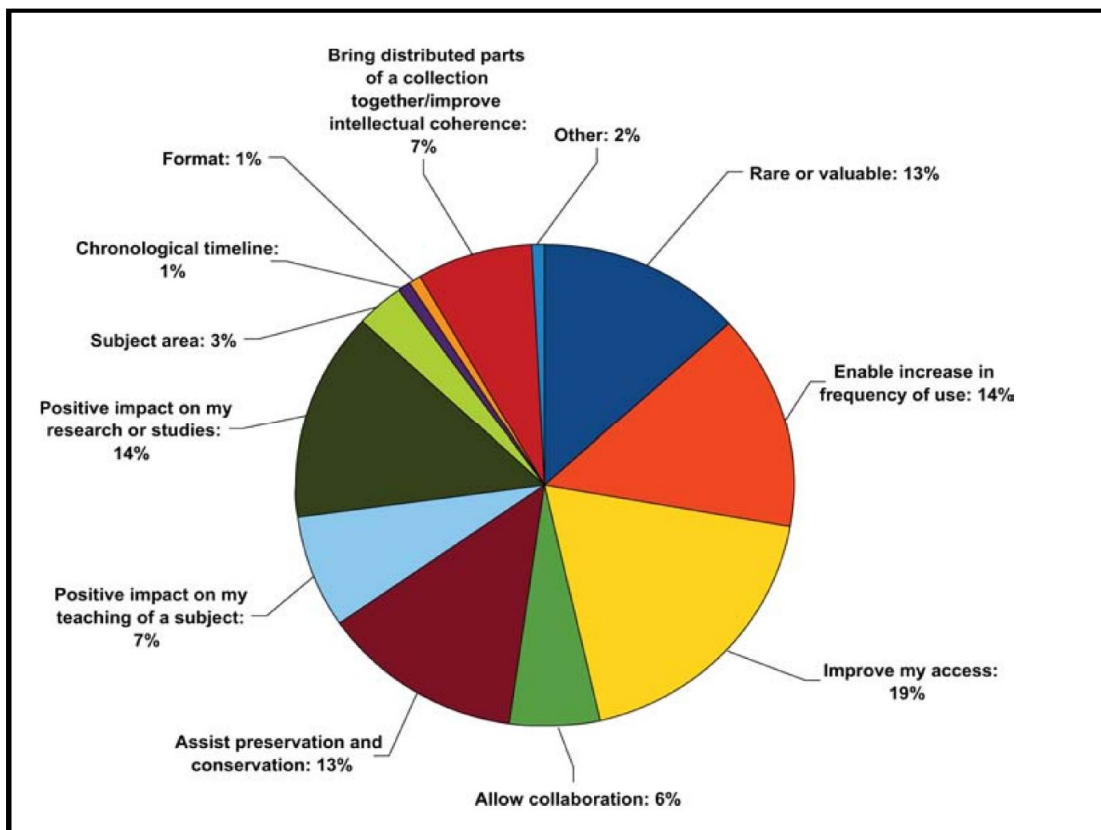


Figure 3 – End users' views on digitisation criteria (Birrell et al., 2011, p. 33)

Ensuring digital continuity is another driver for digitisation, and it is increasingly recognised that digitisation can be an important preservation tool, albeit one that is fraught with technological, economic, and policy challenges and that is still relatively unproven in terms of its long-term effectiveness (Conway, 2010; Harvey, 2015).

Additionally, digitising materials for preservation purposes also has other potential problems. For example, it has the potential to create tensions with researchers in terms of their ability to access and use the original print format materials once items have been digitised (Correa, 2017). And if digitisation is linked with print collection

weeding or space rationalisation, as is sometimes the case, then digital preservation can arguably be said to be counterproductive in terms of its primary aim of safeguarding the scholarly record of the future as print materials, which as a format is relatively stable, will be sacrificed for digital materials, which is an inherently unstable format (Silverman, 2016).

However, these issues notwithstanding, many librarians believe that digitisation has a positive role to play in preserving library collections, particularly archives and special collections, and that creating digital alternatives is a valuable supplement to physical preservation of printed items (Breeding, 2014; Sheehan, 2009). Furthermore, it is not just printed materials that libraries are seeking to digitise for preservation purposes but also other formats such as photographs, artefacts, and recordings (Cain, 2003).

And whilst the discourse about preservation in the literature still focuses strongly on paper materials, given that that is the media librarians and archivists traditionally identify with (Seadle, 2009), increasingly born digital materials are also being brought into the purview of library preservation plans, with digital preservation¹⁸ becoming a technique that many libraries are now having to acquaint themselves with and adopt in order to ensure the long-term safeguarding of digital cultural heritage materials (Chowdhury, 2010; Conway, 2010; Evens & Hauttekeete, 2011; Kirchhoff, 2008; Payne & McAlpine, 2006).

As previously indicated though, digitisation for preservation and digital preservation are both difficult activities for many libraries, including most museum libraries, to undertake given the enormous volume of data that needs to be preserved and the

¹⁸ It is worth noting the distinction between *digitisation for preservation* and *digital preservation*. The two are intimately related but at the same time are distinct processes. As Conway (2010) notes, "*digitization for preservation** creates valuable new digital products, whereas *digital preservation** protects the value of those products, regardless of whether the original source is a tangible artefact or data that were born and live digitally." (p. 65). *Italics inserted.

significant technological, financial, and human resources required. In the context of UK research libraries, Bültmann et al. (2006) observe that lack of resources, mainly funding but also equipment and expertise, is the main reason why many libraries do not digitise materials for preservation purposes. They also note that librarians often feel they have insufficient knowledge of preservation issues and require further help and guidance in relation to the long-term management of digitised items.

For those libraries that are digitising collections on a more frequent basis, a high degree of selectivity is often required, with decisions having to be taken regarding which items are worth preserving and which do not warrant preservation (Teper, 2005). This is not always an easy decision for libraries to make and in the eyes of library users they can often make the wrong decision, as Rimmer, Warwick, Blandford, Gow, and Buchanan (2008) observe in their discussion of digitisation in humanities focused libraries. They point out that the selection for digitisation of certain editions of texts or manuscripts is sometimes at odds with the scholarly needs of researchers, who may become frustrated that the most suitable edition for research purposes had not been digitised.

The difficulty for libraries in digitally preserving collections is often compounded when born digital content is the focus of the preservation project. As Breeding (2010) observes, this type of activity is an enormous challenge for libraries given the temporary nature of digital content and, as alluded to above, the fact that digital media needs to be constantly migrated forward onto new media in order to prevent the content quickly becoming corrupted or inaccessible. Breeding worryingly observes that “the cultural heritage of the future might be defined as much by those who followed better backup practices as by those with the most interesting and important content”. (p. 33).

This issue is seen in some quarters as a crisis in the making, not only for libraries but for society at large, with Manoff (2001) equating the position as a critical race to develop systems to archive, organise, and provide access to the growing body of material available only in electronic form before the content is lost forever. Manoff also states that there is a need for someone to emerge to inspire sufficient outrage to build support for library initiatives in this area.

However, the fact that libraries are still waiting for this to happen more than fifteen years after Manoff wrote his article does not inspire confidence. As King (2009) points out, when it comes to born digital material many libraries are struggling to be convinced of the value of preserving this type of material and they are frequently assuming that other services will keep electronic back-up copies instead.

Perhaps therefore it is not that surprising that few research libraries, and also museum libraries, have tended to think of the digital preservation of their original items, particularly born digital items, as a separate strategic objective to that of enabling or widening access to collections via digitisation. Instead, they have often seen preservation as a beneficial by-product of access driven digitisation initiatives (Ayanbode, 2011; Spence, 2005). In fact, according to Hazen (2011), many research libraries are approaching digitisation solely from the perspective of improving access to resources rather than for preservation, which is seen as a less immediate concern.

Others though see this issue with an eye on the bigger picture, viewing digitisation for preservation and digital preservation as critical activities for libraries. Dame Lynne Brindley, former Chief Executive of the British Library, is a notable advocate of this approach, stating that digitisation for the purposes of preservation is something that all research libraries should be taking responsibility for precisely for the purpose of ensuring perpetual access to the same content (Brindley, 2009).

One further issue, which underpins the long-term success of many library digitisation activities, regardless of whether they are undertaken for preservation purposes or for widening access to original materials, is the degree to which the digitisation is embedded within a robust, properly defined, and agreed strategic framework.

As Ayanbode (2011) remarks, digitisation is central to building the libraries of tomorrow and to bridging information and knowledge divides, but to achieve this effective strategies are needed to ensure focus and structure. However, the reality on the ground is often somewhat different. Bültmann et al. (2006) reinforce this point by stating that most libraries do not have such a plan in place and do not even have a meaningful idea of obvious gaps or priority areas for digitisation.

The necessity for adopting a strategic approach to digitisation becomes even more important when multiple libraries collaborate on a digitisation project or when libraries digitise content in partnership with commercial organisations. However, as Manzuch (2011) points out, collaboration practices are still often narrowly focused and are not being developed at a general strategic level.

This lack of strategic co-ordination and direction has led some research library professionals to call for the adoption of national strategies for digitisation. Bültmann et al. (2006), for example, report the findings of a survey of 34 UK institutions with digitisation experience and highlight the fact that many respondents offered positive views about the creation of a national digitisation strategy that focuses on the priorities of researchers, with many suggesting areas that the strategy could cover, including information on coordination, standards, selection criteria, and funding allocations.

With the above in mind, to what extent can museum and research libraries be said to be actively engaging in digitisation or digital preservation activities? In relation to

national museum libraries, this is one of the areas that this thesis seeks to answer. But it would seem from the literature that digitisation and digital preservation is occurring sporadically at best. At a more general level, Reilly, Lefferts, and Moyle (2012) provide a useful snapshot of the actual level of activity in their article, which reports the results of a 2010 NUMERIC Project¹⁹ study of cultural heritage institutions.

They observe that the study found only 1% of the surveyed library collections, which were spread across Europe, have so far been digitised, although a further 30% were scheduled to be digitised. As the authors note, this planned digitisation activity, assuming it is delivered, represents a huge investment in digitisation. However, to ensure the full benefits of these digitisation activities are realised libraries must maximise the visibility of these collections, not just to the general public but also to those in the education system, and must make it possible for individuals to interact with the content in new and innovative ways.

2.8.2 Web 2.0 and social media activities

The arrival of Web 2.0 has created many opportunities but also thrown up considerable challenges for museum and research libraries, given that most still operate in a policy environment that is geared to Web 1.0 (Kelly, Bevan, Akerman, Alcock, & Fraser, 2009). The proliferation of Web 2.0 technologies in recent years has been pronounced and the uptake of these within libraries in general has rapidly grown. Yet the literature is sparse in relation to the uptake and implementation of Web 2.0 in museum libraries.

One of the most prominent examples in the literature relates to the Smithsonian Institution Libraries, with a description given by Heinrich (2011) of work undertaken to

¹⁹ Numeric Project – <http://www.numeric.ws/>

link the Smithsonian Libraries' website with their Facebook page,²⁰ Twitter account,²¹ You Tube channel,²² and Flickr site.²³ Besides this though, there is almost no mention of Web 2.0 usage in museum libraries in the literature, save for a few broad acknowledgements of its usefulness as a communication or marketing tool.

Weijsenfeld and Wolffe (2009), for example, discuss how use of Twitter and other social networking tools can act as a means by which librarians in art museum libraries can respond immediately to questions from museum visitors. However, they do not elaborate on how this can be achieved or provide examples of where it has been successfully implemented. Similarly, Falls (2009) discusses how many art museum librarians are already engaged with Web 2.0, which the author views as offering natural ways to visually connect user groups to art library resources and create communities of users. Again though, little detail is provided as to how these tools are being used or what impact they are having.

Information about Web 2.0 uptake and implementation in the broader category of research libraries is more common in the literature. However, the conclusions drawn from these publications are mixed with some noting that Web 2.0 is playing, or has the potential to play, a significant role within the research libraries sector whilst others are more circumspect about its significance, value, and impact.

Those with a favourable outlook generally acknowledge that Web 2.0 provides libraries with a remarkable set of tools that can be utilised to transform service

²⁰ Smithsonian Facebook – <http://www.facebook.com/Smithsonian>

²¹ Smithsonian Twitter – <http://www.twitter.com/smithsonian>

²² Smithsonian You Tube – <http://www.youtube.com/user/smithsonianchannel>

²³ Smithsonian Flickr – <http://www.flickr.com/photos/smithsonian/albums>

delivery. To some, this transformation is simply an extension of the existing service offering of most libraries, with Web 2.0 providing libraries with the opportunity to be more proactive in their user outreach activities (Fernandez, 2009). Whilst to others, it underpins a far more expansive function with the potential to address significant long-standing knowledge management issues (Kelly et al., 2009).

Most though see Web 2.0 usage in libraries as part of an ongoing evolutionary process in the library information technology landscape. As O'Dell (2010) points out, access to information is becoming intertwined with communication technologies; therefore it is essential that libraries understand these emerging technologies and how they relate to the dissemination of research and collaboration with researchers. The ability to continuously incorporate Web 2.0 and any future technological developments into services is thus seen as an ongoing activity for many libraries.

Web 2.0 use is not without its challenges though. This is reflected by the fact that just as many libraries are coming to terms with Web 2.0, the information landscape is set to change again in coming years with the advent of Web 3.0, otherwise known as the 'Semantic Web', which is likely to bring an integrated web experience where the computer will be able to understand data in a manner similar to humans (Rudman & Bruwer, 2016). In fact, in some areas this is already having an impact with technology such as linked data beginning to influence and shape the direction of the scholarly communication process (Gradmann, 2014). However, it is fairly safe to say that in general few, if any, libraries have yet started to consider, let alone plan for, Web 3.0.

In some cases Web 2.0 has dramatically changed the relationship between libraries and their users, with more control now being placed in the hands of users. As Kim and Abbas (2010) note, the capabilities of Web 2.0 enables users to engage libraries in a two-way communication and knowledge exchange, with users now able to

participate in activities that were once the sole purview of libraries, such as cataloguing via folksonomy or providing comments on books in blogs.

It is no coincidence therefore that engagement with users and marketing of services are the most highly cited reasons why libraries adopt Web 2.0 tools, especially social media. This is notably the case in relation to use of Facebook and Twitter, with many libraries primarily using these as a means to market their services, promote events or activities, or communicate directly with users via announcements, photographs, or chat reference services (Aharony, 2012; Hager, 2015; Loudon & Hall, 2010).

This is true too for the use of web apps, particularly apps for mobile devices, with many libraries now beginning to extensively utilise these in order to communicate with or deliver information and services to their users (Adrakatti & Mulla, 2017; Johnson, 2015; Mueller & Shamel, 2017; Van Ullen & Kesler, 2016). This topic is discussed at greater length in the next section.

And as with libraries generally, enabling users to interact via social media and generate their own content also appears to be an increasingly strong motivating factor for research libraries, with many using image sharing sites such as Flickr, Pinterest, and Tumblr to post photographs of items held in collections and then inviting users to add tags or contextual comments. This is often seen as an excellent way of promoting underutilised collections or collections that libraries are seeking further information about (De Jager-Loftus & Moore, 2013; Vaughan, 2010; Welch, 2014).

Vaughan (2010) elaborates on this in his report of the findings of a survey of international research libraries, archives, and museums that have joined The Commons on Flickr, which is a project that seeks to broaden exposure to a range of cultural heritage photographs and to bring together communities of engagement via

Flickr. He notes that many libraries, archives, and museums use this resource because it allows them to reach new audiences and reveal connections between the content they hold and content held by other organisations and individuals.

A survey respondent from the Australian War Memorial provided an interesting example of this by explaining how they had used The Commons on Flickr to highlight sets of images and portraits from their Korean War series in order to discover stories about the people in the photographs. And as seen in Table 2, it is exposure of collections and facilitating discovery of collections that are the main reasons why almost all of the organisations joined The Commons on Flickr (Vaughan, 2010).

| Factors Ranked as Important for Joining the Commons | |
|---|------|
| • Expose collections to a broader audience / Facilitate discovery of our materials | 100% |
| • Utilize Web 2.0 features to engage user involvement / discussion | 94% |
| • It would help advertise / provide a link to our institution | 63% |
| • Desire to join the company of other prestigious institutions that were already a part of the commons | 30% |
| • We didn't already have these photos online and Flickr was a good system to initially publish them | 6% |

**Table 2 – Factors ranked as important for joining The Commons on Flickr
(Vaughan, 2010, p. 190)**

Using Web 2.0 tools to help enhance access to collections and content is also especially pertinent for libraries that hold significant research collections, especially rare or unique materials, as these technologies can be used to promote their print collections whilst simultaneously enabling access to their digital content in an open, co-operative, and engaging way (Duff et al., 2004; Lewis, 2007; Senécal, 2005).

The effectiveness of Web 2.0 resources, particularly social media, as a means of rapidly communicating and engaging with large and disparate groups of library users is thus becoming clear, and is reflected in their increased uptake by many libraries in recent years. As Gardois, Colombi, Grillo, and Villanacci (2012) observe in their review of the literature on Web 2.0 usage in academic and research libraries from the years 2007 to 2012, each of the libraries they studied used all the main Web 2.0 tools to deliver services to users in different service contexts – see Table 3.

| Specific category | No. of articles | Percentage | Cumulative percentage |
|---|-----------------|------------|-----------------------|
| Collab – conferencing/chat/IM | 70 | 24.7 | 24.7 |
| Comm – blogging | 38 | 13.4 | 38.2 |
| Uncat – podcast/screencast | 29 | 10.2 | 48.4 |
| Multiple | 28 | 9.9 | 58.3 |
| Comm – social networking | 24 | 8.5 | 66.8 |
| Collab – wikis | 23 | 8.1 | 74.9 |
| Comm – aggregators | 21 | 7.4 | 82.3 |
| Other | 13 | 4.6 | 86.9 |
| Multi – virtual worlds | 11 | 3.9 | 90.8 |
| Collab – social bookmarking | 8 | 2.8 | 93.6 |
| Multi – photographs | 7 | 2.5 | 96.1 |
| Comm – microblogging | 6 | 2.1 | 98.2 |
| Multi – video | 3 | 1.1 | 99.3 |
| Collab – social bibliography | 1 | 0.4 | 99.6 |
| Collab – social docs/collab writing tools | 1 | 0.4 | 100.0 |
| Total number | 283* | | |

**Table 3 – Web 2.0 usage in academic and research libraries,
(Gardois, Colombi, Grillo, and Villanacci, 2012, p. 97)**

However, as with digitisation, there is a sense that this is still largely an opportunistic and unplanned activity for many libraries as opposed to a planned strategic objective. This seems to be notably true for dialogue based social media, such as Twitter, with many libraries using this as a broadcasting tool to push information out to their user-base but not yet utilising its full potential in terms of increased user engagement (Loudon & Hall, 2010).

Furthermore, the social media marketing and communication activities undertaken by some libraries frequently lack structure and focus, thereby lessening the motivation

and likelihood of them being used in a sustained and effective manner over a period of time (Chern Li, Wellington, Oliver, & Perkins, 2015). According to Romero (2011), this unplanned and uncoordinated approach is problematic for libraries as it means that despite their best efforts they are not close to obtaining the greatest possible profitability from social media usage.

Lack of impact is another commonly cited criticism of social media use by libraries. One problem that is often reported is that the vision many librarians have for the use and impact of social media before they start using these tools does not transform into reality once they are being used. As indicated above, lack of strategic direction is one reason for this.

Another related observation is that because of concerns about lack of control many libraries are reluctant to embrace the full functionality of social media, using them for unidirectional communication only rather than for interactive, two-way dialogue. This position consequently means that libraries may be perceived by their users as developing social media sites that are either largely irrelevant to their interests and needs or that offer a poor visitor experience (Bodnar & Doshi, 2011; Jacobson, 2011; Kim & Abbas, 2010; Loudon & Hall, 2010). The net result of this is that visits to and participation with these resources by library users may often be very infrequent (Gerolimos & Konsta, 2011).

Part of the problem that many museum libraries face in this respect is that maintaining a social media presence is an ongoing activity that takes time and effort, which is particularly problematic for libraries with few staff. As Jacobson (2011) notes in relation to Facebook, although the point also resonates with other social media resources, librarians need to be aware that using Facebook effectively requires a lot of attention, and if a library cannot commit to updating its Facebook page at least once

a week it may not be seen as useful or successful. Jacobson also states that in order to gain the attention of users it is important for libraries to understand that they need to post interesting content. He reinforces this by stating that these tools are often better suited to libraries that host regular events, exhibits, activities, etc.

There is also a related question of whether library users actually want to visit and use library generated social media sites in the first place. There is perhaps a general presumption amongst librarians that library users want libraries to have a Facebook page, a Twitter account, a YouTube channel, etc., but little evidence exists to substantiate this. And in some cases the contrary view might in fact be true for some library users, with these resources seen as either being irrelevant to researchers' needs or at the very least limited in terms of their research value (J. Brown, 2007; Halper, 2008; Stuart, 2009).

One final issue that can adversely impact upon libraries considering use of social media is the seemingly transient nature of social media. This is borne out by several articles from the mid-to-late 2000s that reference MySpace as a core social media resource for libraries to use (Chu & Meulemans, 2008; Topper, 2007; Webb, 2007). Several years later, it is clear that MySpace, whilst still in use, has been usurped by Facebook, Twitter, Tumblr, and Instagram as the popular social media resources of choice. Librarians are therefore aware that sites can and perhaps will inevitably be replaced by the next trending social networking phenomenon (Jacobson, 2011).

2.8.3 Mobile technology usage

Arguably, mobile technology is the one area that will have the greatest impact on the operational services of libraries over the next decade given the proliferation of mobile devices that have come to market in recent years and which are now a ubiquitous form of communication. In fact, this trend is already causing a huge shift in the ways

librarians are planning to deliver their services and resources and the ways that library users expect to be able to access and use information (Jacobs, 2009; Malathy & Kantha, 2013; Murphy, 2012, pp. 1-2). Many librarians have begun to realise the potential of mobile devices in recent years, seeing them as powerful, convenient, and accessible information tools that enable connectivity in ways that were not possible previously (Griffey, 2010, pp. 1-5).

The convenience factor in particular is important because, as Connaway, Dickey, and Radford (2011) observe in their investigation of the information seeking behaviours of researchers, many library users will readily sacrifice content for convenience. They note that across all demographic categories of researchers convenience is one of the primary criteria used for making choices during the information seeking process.

Krishnan (2011) elaborates further by stating that librarians are aware of the fact that mobile devices have effectively become an extension of their users and that libraries need to respond to the assumptions and expectations many library users will have about accessing library resources, especially full-text e-resources, via their devices. Krishnan also states that this realisation has encouraged many libraries to develop services that can be used on mobile devices, with a mobile optimised online catalogue often being seen as a minimum service offering.

The opportunities that mobile technologies present to museum and research libraries are similarly numerous, not just in terms of delivery of the core services outlined above, but also in terms of development of new service areas. Barnhart and Pierce (2011) highlight this point when discussing how mobile technologies can be used to support delivery of roving and embedded reference librarian services. They see this combination of users and librarians with mobile devices, together with mobile enabled content, as offering reference librarians new ways to be present in their patrons'

research lives. Furthermore, they observe that as increasingly sophisticated portable tablet devices become available then the ability of libraries to offer an even greater variety of mobile electronic services and resources will grow.

Even though it is vital that librarians prepare for the challenges and opportunities that will derive from the combination of mobile reliant patrons and electronic library content, the reality is that this is not an easy transition for many libraries, especially those with few staff. As both Lippincott (2008) and Canuel and Crichton (2011) observe in relation to academic libraries, although the point is also valid for museum libraries, many librarians are acutely aware that delivery of mobile enabled services and content is an important topic but it is not yet an issue that is top of their agenda.

Lippincott goes on to note that this attitude is frequently reflected in the reality of mobile content delivery because (at the time her article was written) few libraries are actually offering any licensed content specifically for mobile devices. This is confirmed by Bomhold (2015), who undertook a recent study which revealed that whilst many American academic libraries have embraced the notion of mobile-enabled library services, few have fully implemented this in practice, with almost one-third of the surveyed libraries only offering a bare minimum mobile service offering.

However, the main barrier to libraries in terms of mobile technology use is again cost. Barnhart and Pierce (2011) state that the costs of integrating new technology into services can become burdensome for libraries and not all libraries have been able to afford this, even via consortium arrangements. They also point out that some institutions have been hesitant to apply funds and staff time to unproven technologies or to services that may end up failing. There is also the related fact that mobile technologies are provided by commercial organisations and their interests are not

always compatible with those of the library community, which means libraries may have to work hard to leverage mobile technologies with their services (Fox, 2010).

Despite these and other difficulties though, there is general consensus in the literature that libraries do need to assimilate mobile technologies into their practices or they will risk being seen as irrelevant to the future patrons they seek to attract (Cummings, Merrill, & Borrelli, 2010; Fox, 2010). To quote Fox (2010, p. 9), “the fabric of our lives has become interwoven with mobile technology as our day-to-day means of operating have, by necessity, become more mobile.”

2.8.4 Summary

A number of museum libraries and research libraries are reported as being involved with digitisation projects. Examples of Web 2.0 and mobile technology utilisation are mentioned less often but there is acceptance these will grow in significance in future.

The need to broaden the reach of libraries to both existing and new audiences, disseminate content, and market library services and resources are all seen as the main drivers for these activities. However, it is also noted that use of these technologies is resource intensive and in some cases, notably mobile usage, they are still unproven in library settings. As such, their long-term value is unclear. It is this issue of determining and measuring the value of library outputs that is examined next.

2.9 Measuring library value

Much has been written concerning the measurement and assessment of library value, especially in relation to academic and public libraries. However, as with previously discussed topics, this is not the case for museum libraries, for which no specific published research could be found. This section therefore examines the concept of

library value from a pan-sectoral standpoint, highlighting themes that are seen as being transferable and relevant to national museum libraries. Where available, articles pertaining to value measurement in research libraries are prioritised given the previously discussed relationship between research libraries and museum libraries.

The section commences with an examination of the concept of library value by reviewing different interpretations and definitions. Methodological approaches are then discussed, with the principal measurement methodologies being reviewed and examined. Finally, the main rationale, considerations, and limitations for measuring and communicating library value are explored.

2.9.1 Defining library value

‘Library value’ is a difficult and nebulous concept to define and articulate as it is largely subjective and can be interpreted and measured in many different ways, with no single method prevailing. Possibly because of this, there is little in the literature that comes close to offering a succinct, all-encompassing definition.

However, Megan Oakleaf, in her 2010 ACRL report on the value of academic libraries (Oakleaf, 2010), offers what is undoubtedly one of the most rigorous and informative contemporary reviews of library valuation studies. She does this from a holistic standpoint, examining library value from the perspective of value measurement, assessment, communication, and service impact. This section therefore commences with a brief summary of Oakleaf’s review as this offers a useful baseline starting point.

Oakleaf explores the idea of ‘value’ in an academic library context by looking at it from two perspectives: value factors with an internal focus and value factors with an external focus. Numerous examples of both internal and external value factors are provided. However, the three principal internal value factors are described as: ‘use

or utility value, e.g. library usage statistics; *financial value*, e.g. economic value, as measured through methods such as cost-benefit analysis or return on investment; and *production of a commodity*, i.e. the quantity of a commodity produced multiplied by the price per unit. The two principal external value factors are described as: *impact value on users*, e.g. the social impact of a service; and *desired value*, e.g. user perceptions in relation to competing alternatives.

Oakleaf goes on to state that of these five factors, most academic libraries tend to opt for financial value and impact value as being their preferred methodologies, with financial value often being seen as the most important given that continuation of library funding is often directly dependent on demonstration of financial value. Some of these methodologies will be explored in more detail in the next section.

Much of the recent literature on the topic of library valuation adopts a similar position to Oakleaf's, with many highlighting financial value and impact value as being of most relevance to libraries. However, few manage to summarise this viewpoint in a concise and precise manner. Of those that do, Matthews (2015, p. 221) is one of the clearest:

In theory, the total value of the library to the residents of a community is determined by adding together the use and non-use benefits. Value can be thought of as the worth of a product or service in terms of its organizational, operational, social, and financial benefit to the customer.

Bawden et al. (2009), in a case study of two UK public library authorities, also offer a clear and focused view. They argue that value assessment of libraries has historically been approached in three ways: assessment of monetary value, assessment of impact, and assessment of the nature of the benefit provided. And Jaeger, Bertot, Kodama, Katz, and DeCoster (2011) take the idea of determining library value (again in the context of public libraries) from decisions that are made in relation to funding

and policy a stage further by providing an overview of the “range of diverse, and frequently divergent, perspectives” that influence the definition of library value. These include: economic perspectives, such as monetary worth and amount for exchange; business perspectives, such as value creation and return on investment; educational perspectives, such as standardised tests and teacher evaluations; and what is termed library science perspectives, such as benefits of use of library materials and products consumed by customers.

This last point relating to the concept of library value being defined by the needs of customers, i.e. library users, is common in the literature, and seems to be particularly pertinent in relation to public libraries. As well as the needs of individual public library users, societal value more generally is frequently highlighted as an important theme for defining the value of public libraries. As Aabo (2005, p. 209) observes:

The value of public libraries is, in one way, dependent on how well they perform their role, in other words, how well public library services meet the needs of their communities and how they and the impact they make are valued by the citizens and the communities they serve.

Hájek and Stejskal (2015) offer a similar viewpoint by stating that public library value can largely be determined by linking valuation to user needs. They discuss two approaches for this, indirect and direct methods of valuation. The former focuses on use preferences expressed by consumers and the latter focuses on questioning a sample of users.

Publications relating to library value in other library sectors share this outlook. Pung, Clarke, and Patten (2004), for example, in their paper discussing the economic impact of the British Library, observe that the value added by the Library takes many forms. They highlight four in particular – economic, cultural, social, and intellectual – and

explain that these different measurements of value are measured with specific library stakeholders in mind, i.e. “to those who make use of it, to those who may wish to use it in the future, and to those who recognise the benefits that it brings to society even though they do not use it directly.” (p.82).

However, demonstrating value is not as straightforward as simply collecting usage data as that does not always reflect the actual total value of library services and collections that are offered to the different types of users who use them (Creaser & Spezi, 2014; Tenopir, 2013). It is therefore clear that defining value for libraries is not just a case of knowing what measurements to assess but also knowing who the different audiences are, what their needs are, what questions to ask them, and what other relevant evidence to gather. This is especially true for academic libraries where there is an acknowledgement that library value is derived from and defined by the information behaviours and needs of distinct users with different needs, i.e. students (Huang, 1999) and teaching and research staff (Creaser & Spezi, 2014).

Linking closely to the issue of understanding user needs and behaviours is the ability of libraries to meet the core goals and objectives of the institutions to which they belong, both in terms of the outputs they deliver and the outcomes they contribute to. These are closely linked because user behaviours and needs and organisational goals and objectives in academic library settings are intrinsically related and dependent upon one another. The ability of libraries to easily demonstrate these in quantifiable terms is therefore widely seen as being critically important when attempting to provide evidence for academic library value (Jubb, Rowlands, & Nicholas, 2013; Oakleaf, 2010; Tenopir, 2013).

Being able to demonstrably link library activities to organisational goals is also a factor that is familiar and relevant to special libraries. As Murray (2013, p. 462) observes:

The value of a special library is no longer determined – if indeed it ever was – by gate counts, number of volumes, or circulation. User satisfaction is not enough. To survive in a climate of cost-cutting and lean, efficient organizations, special libraries and information centers must be able to demonstrate their value and show how it contributes to progress on organizational goals. The library must show it is an essential, strategic part of the organization, not just a nice thing to have.

The value of special libraries therefore must be measured in the context of organisational goals, with many of these types of libraries typically having to regularly demonstrate how they save their organisation time, effort, and money in order to guarantee their continued funding. Demonstration of value outside this immediate context is often seen by special libraries as being of secondary importance (Matthews, 2003; Murray, 2013).

Various models are presented in the literature for representing these and other concepts of library value in ways that are easily understandable and which accurately represent any inter-relationships and dependencies that exist. Two of the most interesting examples focus on two closely related aspects that are central to the definition of library value – 1) how libraries are valued by multiple stakeholders and 2) the direct correlation between different types of needs and different types of values.

The first of these models, from Nitecki and Abels (2013), graphically highlights a diverse set of stakeholders, in this instance in an academic library setting, and the value they gain from interaction with the library (see Figure 4) through use of what they term a 'Library Value Wheel'. The wheel explores the specific perceptions of various stakeholders, such as faculty, students, library staff, and the ways in which each one identifies value through different indicators. As Nitecki and Abels note,

academic libraries (although this equally applies to national museum libraries) have a variety of stakeholders “who may have a very different filter for the library’s value”.

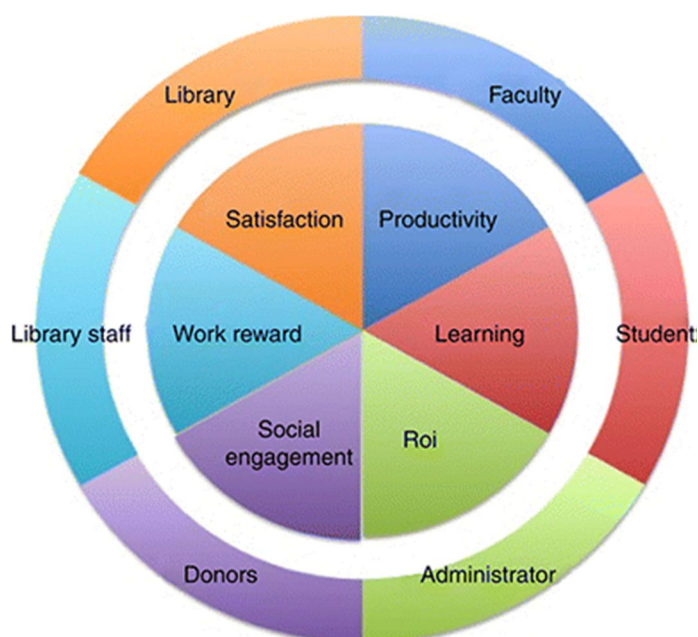


Figure 4 – Library Value Wheel (Nitecki & Abels, 2013, p. 19)

The second model, presented by Matthews (2015), is called the ‘Theory of Action Model’, and is closely derived from a similar model called ‘The Logic Model’, which, according to Matthews, is used as an “aid in developing an understanding between the desired outcomes in individuals and a community and the resources and services provided by a library”. (p. 213).

The Theory of Action Model (see Figure 5) takes this idea one step further by examining the relationship between different stakeholder needs and the intentions or purposes of the organisation (i.e. a library). It then goes on to map this relationship through the activities, services, and resources that are derived from these intentional purposes, and from the benefits that the users gain, i.e. the outcomes and different types of value that are delivered. Matthews states that this is beneficial to libraries as it helps them to acknowledge the complex environment in which they exist and the

difficulties they face in meeting the needs of different stakeholders, selecting performance measures that best meet their needs, and providing services that are relevant and of value.

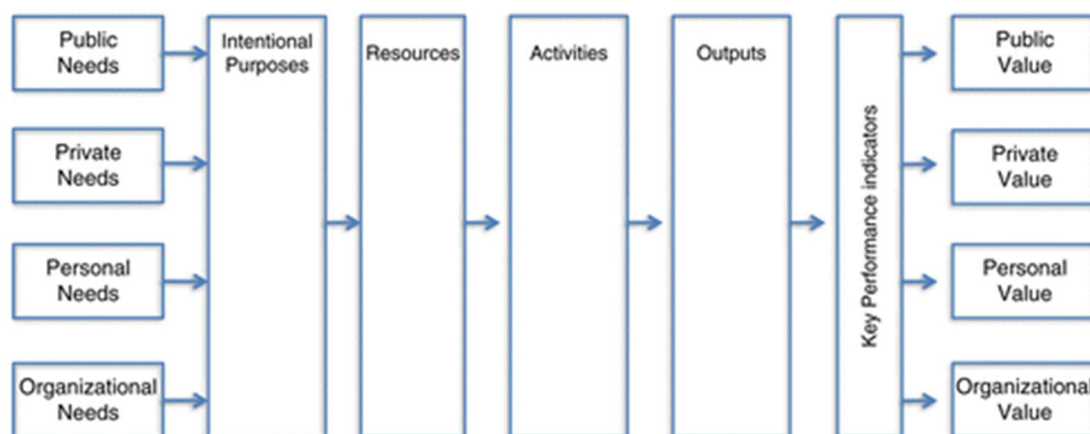


Figure 5 – Theory of Action Model (Matthews, 2015, p. 215)

Finally, given the digital focus of this thesis, it is also worth briefly considering value measurement and assessment of impact in the context of digital resources, especially digital libraries. Simon Tanner has written extensively on this topic (Tanner, 2011; Tanner, 2012; Tanner, 2016; Tanner & Deegan, 2013) and suggests that in order to accurately determine the impact and value of digital resources, which in the past have often been measured in a fairly rudimentary way through usage statistics and anecdotal evidence of impact, an evidence based system should be used by organisations. To meet this need he proposes the use of a Balanced Value Impact Model (BVI).

Tanner describes this model as “a framework in which to consider, plan, and implement impact assessment for a digital presence” (Tanner, 2016, p. 6). It is based on two principles: balancing perspectives through use of the Balanced Scorecard performance management tool and focusing on a specific digital context by considering the notion of ‘values’.

Tanner (2016) refers to four different types of impact that can be assessed: social and audience, economic, innovation, and internal process. Impact is defined as:

The measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended. (p. 2)

Likewise, 'values' is also defined by Tanner (2016, pp. 8-9). These are categorised under five thematic headings, which he suggests need to be addressed in full (others may also be considered) when using the BVI Model:

- *Utility value* – people value the utility afforded through digital resources.
- *Existence and/or prestige value* – people derive value from knowing that a digital resource is cherished by people within or outside of their community.
- *Education value* - people are aware that digital resources contribute to their culture, knowledge, education, etc., and therefore value it.
- *Community value* – people benefit from the experience of being part of a community afforded by the digital resource.
- *Inheritance / bequest value* – people derive benefit from the inheritance passed down to them and that they will pass on to others through use of a digital resource.

Tanner states that the outcomes of an impact assessment using the BVI Model are that a digital library is more effective and efficient at delivering internal change and benefits, that the organisation hosting the digital library gains strategic advantage, and that there is a strong economic and social benefit to the communities that use it.

In order to demonstrate the efficacy of the Model, Tanner provides several examples where it has been adopted and tested in recent years, including a large-scale digitisation programme at the Wellcome Library in London (Tanner, 2016). Whilst

museum libraries were not mentioned as having implemented the BVI Model, the fact that it has seemingly been successfully implemented at similar libraries, such as the Wellcome Library, does perhaps indicate its potential value and relevance for national museum libraries in the future.

2.9.2 Methodological approaches

As mentioned previously, many valuation methodologies exist, each of which can be used to measure different library value typologies. And, as also noted, the two approaches that tend to be used most frequently by libraries are economic and impact valuation measurements. As such, only these approaches are examined below.

2.9.2.1 Economic valuation

Economic valuation is the area that attracts the most attention in the literature, mainly because libraries are increasingly being asked by their funders to account for how they deliver economic impact to their users and stakeholders (Matthews, 2015).

Four of the principal methods that have traditionally been used to consider and measure the economic value of libraries are: *cost-benefit analysis*, *return on investment*, *contingent valuation*, and *multiplier analysis* (Halpin, Rankin, Chapman, & Walker, 2015; Matthews, 2015; Oakleaf, 2010; Pung et al., 2004; Tenopir, 2012; Urquhart & Turner, 2016). Each of these is briefly outlined below.

Cost-benefit analysis

This method enables values that are quantifiable, such as the costs of providing library services, to be identified and then compared against alternative options that may exist within the community that a library operates. This helps determine whether or not an investment will be profitable over a period of time or whether it is better to invest in one option over another. However, as Urquhart and Turner (2016) point out, problems

exist when applying this method to libraries as most library services do not usually expect a stream of payments, as would more often be the case in a commercial organisation. Furthermore, it is not always possible to accurately evaluate the cost of library services over a period of time.

Return on investment

Return on investment (ROI) is also a quantitative measure, which is calculated as a ratio of the value or financial benefits of a library service when compared to the cost that was spent to provide the service. This can also be thought of as the monetary amount a library receives in return for the amount it has invested in something. This method has traditionally been used by public libraries but as Aabo (2009) observes, it has not been widely used by libraries in other sectors. Amongst public libraries that have undergone ROI measurement studies though, Aabo states that typically the studies conclude that for every dollar invested in the library service citizens who use the libraries return a value of between 4 to 5 times more.

Contingent valuation

Contingent valuation is used to gauge how much money individuals would be willing to pay (WTP) to use an otherwise free to use service, such as a library, were it to start charging for use. A variant on this theme is to ask users of an existing service, e.g. a library, how much money they would accept in order to do without the service (WTA). One problem with the contingent valuation method is that users are attributing random values to hypothetical scenarios, therefore it is hard to say how realistic the method is. Nevertheless, it has been used widely in the LIS sector, with perhaps one of the most well-known examples being the economic valuation of the British Library in 2003, which revealed that the Library generated value to the UK of more than 4.4 times its annual baseline government funding (Pung et al., 2004).

Multiplier analysis

This is a method which, like ROI, has most commonly been associated with public libraries. It is used to measure the change in income in a given area as a result of the rate of investment in a particular service or resource. In library terms this translates as measuring the economic impacts of library expenditure and service provision in the community that the library serves. This can be attributed through factors such as local employment, income derived from visits to the area that the library is located, and spending on non-library related goods and services in the local area. Oakleaf (2010), notes how this tool can help librarians measure previously unmeasured benefits and can help determine the economic benefits received from library services.

2.9.2.2 Impact valuation

Impact valuation is also an area that is commonly assessed in the public library sector, as well as the special library sector, especially in health libraries. Several strategies and techniques exist for evaluating impact, with the two methods most commonly referred to in the literature being *social capital assessment*, which is typically used in public libraries to measure social impact, and *critical incident techniques*, which are commonly used in special libraries to evaluate the impact of a library on a user's area of work (Oakleaf, 2010).

Social capital assessment

This evaluation method is used to assess the social impact of the library or the effect of its outputs, i.e. services and resources, in relation to the communities they serve. Social impact in this sense could include any measurable interaction between a library and its users, such as the number of people who have found jobs as a result of using a library's careers information service or the number of businesses that have been helped to start up as a result of having access to free library facilities like meeting rooms or Wi-Fi. This evidence can be captured qualitatively and/or quantitatively

using interviews, surveys, or other relevant data collection tools, and can be useful in helping to define the social content of interactions between libraries and users and then seeing how these relate to concepts of social capital (C. A. Johnson, 2012).

Critical incident techniques

Impact valuation using critical incident techniques relies on users of a library service being surveyed or interviewed to elicit information about the impact that the use of the library, or a service or resource provided by the library, had on their work or activity. A typical use of this method is to assess the impact of a journal article provided by the library on the user that read it (Tenopir, 2012), for example in terms of its contribution to writing a research proposal or making a patient diagnosis. Users are normally asked to rate the impact or value of the service they are being asked to evaluate on a scale, which provides a useful indicator of the impact the library is having in that specific area. One criticism that has been levelled at this approach though is that 'value' and 'impact' are soft terms that are difficult to define, which in turn can hinder the application of accurate measurements by library users and librarians alike (Streatfield & Markless, 2013, pp. 25-26).

2.9.3 Rationale, considerations and limitations

In a fast changing, technologically driven world where information is widely available and alternative resources are easily obtainable that may be seen as offering better value than libraries, there is an increasing requirement for libraries to do more to justify their existence and demonstrate their economic and social value to funders and decision makers. Despite the difficulty in achieving this, it is something that is widely seen as needing to be clearly articulated by libraries, not only to senior managers within their organisations but often to society as a whole (Halpin et al., 2015; Jaeger et al., 2011; Sidorko, 2010; Urquhart & Turner, 2016). Or, as Price and Fleming-May

(2011, p. 199) succinctly put it, libraries in today's economic climate have to be able to "communicate their irrefutable worth".

This is particularly true for publicly funded libraries, including national museum libraries, many of which have experienced budgetary cuts in recent years and some of which have been targeted for closure due to a lack of funding. In the United Kingdom alone, two major national museum libraries have experienced the threat of closure since 2011 as a result of their museums receiving a reduction in Grant-In-Aid funding from the UK Government. These were the Paul Hamlyn Library at the British Museum²⁴, which was closed in 2011, and the Imperial War Museum Library²⁵, which in 2014 managed to stave off a threat of closure following a vocal public campaign to save the facility.

However, that is not to say that value should be thought of as a homogeneous commodity to be communicated to all stakeholders in the same way. As was noted earlier, different stakeholders will value library services in different ways and, as has been argued in the literature, it therefore behoves libraries to undertake valuation studies and to convey the results of these studies with different stakeholders' needs in mind. Or to put it another way, libraries need to consider the fact that a measurement of value that might be of interest to one stakeholder, e.g. a museum curator, may not resonate at all with another, e.g. a museum finance director, even though they both have a vested interest in the same library.

By being mindful of this fact, libraries will be able to approach the issue of measuring and communicating the value of their services in ways that different users will

²⁴ http://www.britishmuseum.org/about_us/news_and_press/statements/paul_hamlyn_library.aspx

²⁵ <http://www.museumsassociation.org/museums-journal/news/04022015-iwm-library-remain-open-with-reduced-access>

understand. And conversely, the libraries themselves will be better able to understand what it is that their customers and other stakeholders value and need to know about their services. (Albert, 2014; Holt, 2007; Nitecki & Abels, 2013).

Knowing the best approach for measuring and communicating value is not always easy for libraries though, especially those with limited experience in this area. Selecting the right methodology is therefore critical. In relation to economic value, which as previously noted is one of the most popular library valuation methodologies, it has been observed that a limitation of all of the main economic valuation methods, i.e. return on investment, cost-benefit analysis, and contingent valuation, is that they are all equally abstract and that the measures can appear to be distant from the actual services that are provided to users and so need to be adapted to their particular environments (Marshall, 2007).

Furthermore, as Tenopir (2012) notes, whilst return on investment and other similar measures are useful in terms of measuring current values of a library to its institution and in helping librarians to guide and set priorities for the future, they are nevertheless essentially just numbers and these alone do not tell the whole story about what it is a library does or what value it brings to the institution to which it belongs or to the individuals who use it. In addition to this, Murray (2013) argues that return on investment and cost-benefit analysis can at best only demonstrate how much money or time is being saved, both of which are reactive rather than proactive measures.

These and other related criticisms of economic valuation methods, such as the previously mentioned fact that contingent valuation studies can be prone to what Urquhart and Turner (2016) refer to as the 'warm glow effect' whereby satisfied library users may exhibit bias by over inflating a library's perceived worth, have led to these methods being treated with caution by some LIS academics and practitioners.

Several have therefore championed the idea of a mixed-methods approach to evaluating library services, combining these mainly quantitative methods with other qualitative methods, such as narrative style feedback, which they argue would lead to a more realistic assessment of value (Calvert & Goulding, 2015; Matthews, 2015).

Demonstration and communication of library value is undoubtedly still an emerging and contentious discipline, which has been adopted more readily and extensively in some library sectors, e.g. public libraries, than in others, e.g. research libraries. Most scholarly papers are generally favourable about the need to measure and communicate library value, with some strongly advocating the merits of doing so, as demonstrated by the following quote from Hider (2008, p. 456) when summing up the benefits of the contingent valuation method for financially evaluating libraries:

They may strengthen librarians' claims for adequate funding, demonstrate the value of existing services to the communities they aim to serve, and produce concrete evidence of the potential benefit that new services would produce through relatively modest additional investment.

Others though see the practice as only useful in certain situations. For example, Murray (2013), when discussing economic valuation methods in the context of special libraries, states that valuation results are unlikely to have much effect on already satisfied users and similarly are unlikely to have any impact if library administrators have to ask librarians to submit them, as by that stage a decision regarding library funding, most likely negative, will have already been taken.

And to demonstrate further the lack of consensus around this topic, it is finally worth considering another valid criticism of economic valuation methodologies, in this instance contingent valuation, as articulated by McMenemy (2007), who states that he is sad to see the growth in popularity of this methodology as to him "it seems to go

against everything that libraries seem to exist to do, and reduces a service that aims to provide a social and educational benefit into pounds, shillings and pence.” (p. 275)

2.9.4 Summary

Defining the concept of ‘library value’ is difficult given that numerous interpretations exist and that value is a fairly abstract term. Measuring and communicating library value is also fraught with difficulties for libraries as many methodologies exist, each one focusing on a different aspect of library service use and provision. The most commonly applied methodologies though are those which focus on the measurement of the economic and social value of libraries to users and other relevant stakeholders.

The efficacy, benefits, and limitations of value measurement are also widely discussed in the literature. Most commentators agree this is a beneficial exercise for libraries to undertake, particularly when justifying their service or seeking internal funding. Others are more cautious though, stating it can only be successful if undertaken and communicated in relation to a specific audience and certain situations.

2.10 Conclusion

This chapter provides an overview of the extent of the recent published literature relating to national museum libraries. However, due to the limited range of suitable publications on this subject, or about museum libraries generally, it has been necessary to broaden the literature review’s scope to encompass research libraries.

Research libraries were selected as they are considered to share numerous similar traits and characteristics with national museum libraries and, in their broadest sense, can be said to fulfil comparable information support and collection development roles.

It was thus considered that sufficient transferable conclusions for national museum libraries could be drawn by extending the scope of the review in this way.

Five main fields emerged from the literature search that were of relevance to the initial research questions, and these were taken forwards for consideration during the literature review. These were: museum libraries, libraries in the digital age, library collections in the digital age, digitally focused activities, and measuring library value.

Aspects that were considered less relevant or irrelevant to the research questions, and which were thus not included in the literature review, included information pertaining to the role and function of museums generally, and themes concerning museology and the study of museum practice.

In the first section, museum libraries are assessed from the perspective of their role, their organisational position and status, and their main users. A brief overview of national museum libraries and art museum libraries is also provided. The concept of the digital age in relation to museum and research libraries is then provided. The development and evolution of museum and research library collections is addressed next, including an evaluation of contemporary collecting policies and approaches and the impact of digital collections. The fourth section is devoted to digital projects and activities in museum and research libraries, focusing on an assessment of digitisation activities, Web 2.0 usage, and mobile technology implementation. Finally, aspects relating to the measurement of library value are considered, with an examination of interpretations of 'library value', an analysis of the more commonly adopted evaluation methodologies, and an exploration of value measurement rationale and limitations.

The literature review shows that in the digital age national museum libraries, as well as museum and research libraries generally, are being exposed to a rapidly changing

landscape. This is largely driven by three inter-connected factors: the development of new technologies, the growth in the availability of information via the Internet, and an increase in user demands and expectations with regards to information access and use. As a result of these, and other associated factors, national museum libraries now have to respond to a range of challenging situations to maintain relevance, drive usage, and demonstrate value to both their internal patrons and the general public.

Some national museum libraries are actively responding to these challenges, often by broadening the scope of their service offering, extending their collection range, or utilising new technological tools and resources to disseminate information to their users in different ways. Conversely, some are focusing on promoting and widening access to their unique attributes, such as special collections, especially through use of digitisation and digital media.

The research shows there is no simple or consistent answer to the question of how national museum libraries are demonstrating their role and value in the digital age. There are two main reasons for this. Firstly, because there is insufficient literature on this topic to form any valid conclusions. And secondly, because what literature does exist shows that no single clear, linear approach is being adopted.

In addition to the areas referred to above, the review highlights further research questions that have not been adequately addressed in the literature. These need to be examined during this research to form a more holistic and accurate view of the position of national museum libraries in the digital age.

These areas relate to: the policy and strategy decisions of national museum libraries; the extent to which they are experiencing a digital transition; their ability to meet the information needs of different users; their utilisation and management of e-resources;

and the nature and extent of collaborations and partnerships, especially for digitally focused activities.

The main conclusion that is therefore drawn from this review is that this is a research area that contains more unanswered than answered questions. The lack of directly relevant published material indicates there is scope for further research in order to understand the evolving role and value of these institutions more fully.

The next chapter describes the methodology used to address the research questions.

Chapter 3 – METHODOLOGY

3.1 Introduction

This chapter outlines and explains the research approach and design and explores issues arising from these. The underlying philosophical assumptions are reviewed and the research methods are examined. The respective roles performed by and the relationships that exist between the two main data collection techniques, the Delphi survey and the case studies, are also explained. Finally, the data analysis techniques are described and the methods used for the presentation of the results are discussed.

3.2 Research approach

The selection of an appropriate methodological approach for the research, i.e. a strategy that guides it, is a critical part of the research process. The first question to be considered therefore was what procedures for the inquiry would be the most suitable and beneficial to adopt, given the nature and scope of the research questions outlined in Chapter 1. In this context, the two principal research designs, quantitative and qualitative, are briefly explored.

Quantitative research is a method closely associated with a 'scientific' approach to data collection and analysis and falls within what is known as the *positivist paradigm*, which views the world as a collection of observable events and facts that can be collected in the form of data and then measured. This compares to the qualitative research method, which falls within what is known as the *interpretivist or constructivist paradigm*. This predominantly concerns constructing the meanings of research and centres on the fact that the social realm may not be subject to the same methods of investigation as the natural world, and holds that researchers should focus on understanding the interpretations that social actions have for the people being studied (Gorman & Clayton, 2005, pp. 3-4; Teddlie & Tashakkori, 2009, pp. 5-7).

Within LIS, the quantitative research method has traditionally been dominant as much of the research has been deductive and fact based and has involved the analysis of quantifiable data, usually via surveys or statistics (Gorman & Clayton, 2005, p. 16). However, more recently a research design that combines elements of quantitative and qualitative research, mixed-methods research (see sections 3.2.2 and 3.2.3), has begun to be used within LIS (Gorman & Clayton, 2005, p. 16; Pickard, 2013, p. 18), mirroring a trend in the wider social sciences (Teddlie & Tashakkori, 2009, pp. 79-80). However, whilst this is recognised as a potentially attractive model for LIS researchers, particularly when no single approach can adequately deal with the phenomenon being investigated, as is often the case in LIS research (Pashaeizad, 2010, p. 16), it is nevertheless interesting to note that relatively limited use of mixed-methods research has been made by LIS researchers in recent years (Fidel, 2008).

For the purposes of this research, which requires the identification of both quantifiable trends and patterns as well as the analysis of descriptive views and opinions, it was felt that a mixed-methods approach would be the most appropriate methodological framework to adopt. The other reason for a mixed-methods approach was because of the inherently pragmatic nature of the research being undertaken. And, as will be seen in the following sections, pragmatism, when adopted as a philosophical set of beliefs, is closely connected to mixed-methods research.

3.2.1 Pragmatism as a philosophical approach

The research approach and the strategy of inquiry is also guided by the philosophical assumptions and worldviews that are brought to the study by the researcher (Cresswell, 2014, p. 5). As this research is rooted in a practice-oriented environment, it was decided that *pragmatism* would be the most relevant and suitable philosophical approach to adopt. This decision is reinforced by a quote from Tashakkori and Teddlie (1998, p. 12), who state that “instead of searching for metaphysical truths,

pragmatists consider truth to be what works”. The notion of basing the research around the concept of ‘what works’ is important to this research as it is hoped the outcomes of the study can be utilised by LIS practitioners and academics.

In addition to being a term used to define a succinct philosophical approach, pragmatism is of course also a term used in everyday parlance. These two interpretations are quite closely linked for, as Johannisson and Sundin (2005) observe, the common definition of the term, implying as it does the connection between actions and practical outcomes, also broadly applies to the philosophical definition. And whilst it is the philosophical definition that provides the foundation for this research and guides its development throughout, the relationship it has with the ordinary definition is also recognised as having an influence, notably for the development of the three future scenarios that are presented at the end of the thesis.

In the philosophical sense of the word, pragmatism is now recognised as a distinct and well established approach to research. It traces its origins to the late nineteenth and early twentieth centuries through the work of three American philosophers, Charles Sanders Peirce, William James, and John Dewey, with Peirce and James in particular being recognised as the originators of classical pragmatism (Cherryholmes, 1992; Johannisson & Sundin, 2005). Initially these scholars approached the concept of pragmatism from a largely analytical standpoint. As Cherryholmes (1992, p. 13) observes, “pragmatists sought to clarify meanings of intellectual concepts by tracing out their ‘conceivable practical consequences’.” This position later shifted to focusing on “the importance of the consequences of actions based upon particular conceptions.” (ibid).

Pragmatism as a research paradigm later became closely associated with, and was recognised as the philosophical partner for, mixed-methods research. According to

Denscombe (2008), this partnership either offers researchers a fusion of approaches to their research or offers a distinct third alternative approach to the traditional quantitative and qualitative approaches.

There are in fact many forms of this philosophy, but pragmatism in its overarching sense can be best summarised as a worldview that “arises out of actions, situations, and consequences, rather than antecedent conditions” (Cresswell & Plano Clark, 2011, pp. 42-44). The principal emphasis is on understanding and seeking workable solutions to actual problems, or put another way solving real problems in the real world. The selection of a pragmatic approach to research is also consistent with the view that not all questions for social research are driven by paradigm considerations, and that different sorts of questions require different methods for answering them (Punch, 2014, p. 3). Punch, in common with other pragmatists, points out that to choose the pragmatic approach is to start by focusing on what we are trying to find out in research and to ascertain what research questions need to be asked, and then to attempt to fit the most appropriate methods in with that.

Cresswell (2014, pp. 10-11) further develops the notion of pragmatism as a philosophical basis for research by attributing pragmatism and pragmatic researchers with the following characteristics and attributes:

- Pragmatism is not committed to any one system of philosophy and reality.
- Individual researchers have a freedom of choice and can choose the methods, techniques, and procedures of research that best meet their needs and purposes.
- Pragmatists do not see the world as an absolute unity.
- Pragmatist researchers look to the *what* and *how* to research, based on intended consequences – where they want to go with it.
- Pragmatists agree that research always occurs in social, historical, political, and other contexts.

- Pragmatists have believed in an external world independent of the mind as well as that lodged in the mind.
- Pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.

As alluded to earlier, the worldview of pragmatism arising out of actions, situations, and solutions to problems is particularly suited to the academic discipline of LIS, which largely involves understanding the nature of real world issues. As Johannisson and Sundin (2005) point out, LIS has traditionally been oriented towards problem solving and applied research, and pragmatism's orientation towards professional practice and social relevance is therefore regarded as a strength. Pragmatism is thus seen as an ideal philosophical foundation for this study, given its focus on answering practical questions of professional and social relevance to national museum libraries.

3.2.2 Mixed-methods research methodology

As highlighted in the previous section, a clear link exists between the adoption of a pragmatic philosophical approach and the selection of a mixed-methods research design. This is reflected in the literature, with Johnson and Onwuegbuzie (2004, p. 17) referring to pragmatism as “an attractive philosophical partner for mixed-methods research”; Greene (2008, p. 8) observing that pragmatism is a “leading contender for the philosophical champion of mixed-methods research”; and Pickard (2013, p. 10) stating that mixed-methods research “is clearly a pragmatic approach to exploring research questions”.

What characteristics should be applied to a research design for it to be understood and recognised as a mixed-methods study though? This is perhaps best summed up in the following quote:

An approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus, it is more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research. (Cresswell, 2014, p. 4)

It is therefore seen as a flexible and adaptable methodology, which is a natural complement to the traditional qualitative and quantitative research methods. But it is also a distinct research methodology in its own right, often referred to as ‘the third research paradigm’. As Johnson & Onwuegbuzie (2004) observe, the goal of mixed-methods research is not to replace qualitative or quantitative research but to maximise the strengths of each, whilst simultaneously minimising their weaknesses.

Mixed-methods research as a distinct research paradigm is however a relatively recent phenomenon. It evolved from what became known as *the paradigm wars*, which pitted supporters of the quantitative, positivist approach to research with those of the qualitative, interpretivist approach. Mixed-methods research presented a third way, which neither advocated one paradigm nor the other but instead recognised virtues in both. It was thus born out of an implicit recognition that it was possible, and indeed beneficial, to make compatible and utilise both types of research methodology (Denscombe, 2008; Onwuegbuzie & Leech, 2005; Punch, 2014, pp. 15-16).

This third way, otherwise known as the *Compatibility Thesis*, in reaction to the notion of the *Incompatibility Thesis*, which advocated that quantitative and qualitative research paradigms and methodologies could not be mixed (Howe, 1988), became increasingly popular from the 1990s onwards as advocates of the approach, such as Cresswell (2003); Cresswell and Plano Clark (2007); Tashakkori and Teddlie (1998),

wrote extensively about the core ideas and practices upon which the mixed-methods approach stands and championed its position as a distinct research tradition.

The flexibility offered by mixed-methods research is widely seen as being beneficial to those researchers seeking a less formulaic approach to their research investigations. Other beneficial structural characteristics include:

- The adoption of differing logics of enquiry within the same research investigation. Mixed-methods research permits either inductive techniques, i.e. discovery of patterns based on facts or observations, or deductive techniques, i.e. testing of theories or hypotheses and then generating general inferences to use to conduct research on questions that need to be answered (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 1998).
- Testing the validity of the research being undertaken, otherwise known as triangulation. When carrying out certain types of research, e.g. organisational research, use of triangulation is particularly useful for examining the same dimension of a research problem through use of different methods, such as interviews, observation, and data collection (Fidel, 2008; Jick, 1979; Tashakkori & Teddlie, 1998).
- Improving the quality and richness of a research project as issues have the potential to be investigated more completely and more widely than would be the case with just one research enquiry method. This is most often achieved through developing a main method of study and supporting it by applying another method (Fidel, 2008; Cresswell and Plano Clark, 2011, pp. 12-13).

3.2.3 Mixed-methods research designs

Mixed-methods research is not a singular concept. It can represent research along a continuum from partially to fully mixed-methods. Partially mixed-methods typically involves conducting quantitative and qualitative research, either concurrently or sequentially, across at least one stage of the research. Conversely, fully mixed-methods involves the use of qualitative and quantitative research methods, again in either a concurrent or sequential fashion, across all stages of the research (Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Leech, 2005).

Determining where and how mixing should occur is another important factor as it can occur at any stage of the research, e.g. research design, data collection, data analysis, or data interpretation. And related to this is deciding if and where weighting should be given in relation to the quantitative or qualitative research strands, i.e. dominant status versus equal status. Deciding whether or not to employ theorising perspectives, in other words whether or not a specific theory underpins the study, is another aspect that also needs to be considered (Cresswell, 2014, p. 207; Cresswell & Plano Clark, 2011; Leech & Onwuegbuzie, 2009).

This combination of factors has predictably led to a plethora of different mixed-methods approaches being promoted in the literature, with numerous scholars having designed and advanced varying typologies for mixed-method designs, all of which classify ranges of mixing strategies for different types of studies. As Leech and Onwuegbuzie (2009) observe, these typologies are needed because they assist in providing an organisational structure, they help to advance a common language for the mixed-methods field, they provide guidance and direction for researchers, and they help provide more credibility to subject fields that tend to use mixed-methods approaches. It is the case therefore that some of these typologies have been

designed with specific academic disciplines in mind, whereas others have been designed for use in interdisciplinary studies.

Cresswell and Plano Clark (2011, pp. 56-58) identify fifteen mixed-method design typologies, each published by various authors between 1989 and 2009. These emphasise different features of mixed-methods designs, use different terminology, and vary considerably in terms of the scope and complexity of the classifications proposed. Other classifications have also been published. For example, Leech & Onwuegbuzie (2009) created a typology that incorporates eight possible mixed-method research designs (see Figure 6).

Whilst the existence of these typologies is intended to assist and guide researchers, the sheer number in use also presents challenges as it is often not immediately apparent which one should be selected for a given study. Unlike some subject disciplines where specific mixed-methods design typologies exist, no typology could be found that is specifically intended for LIS studies. As such, an interdisciplinary or general evaluative design typology was deemed to be the most suitable for this thesis.

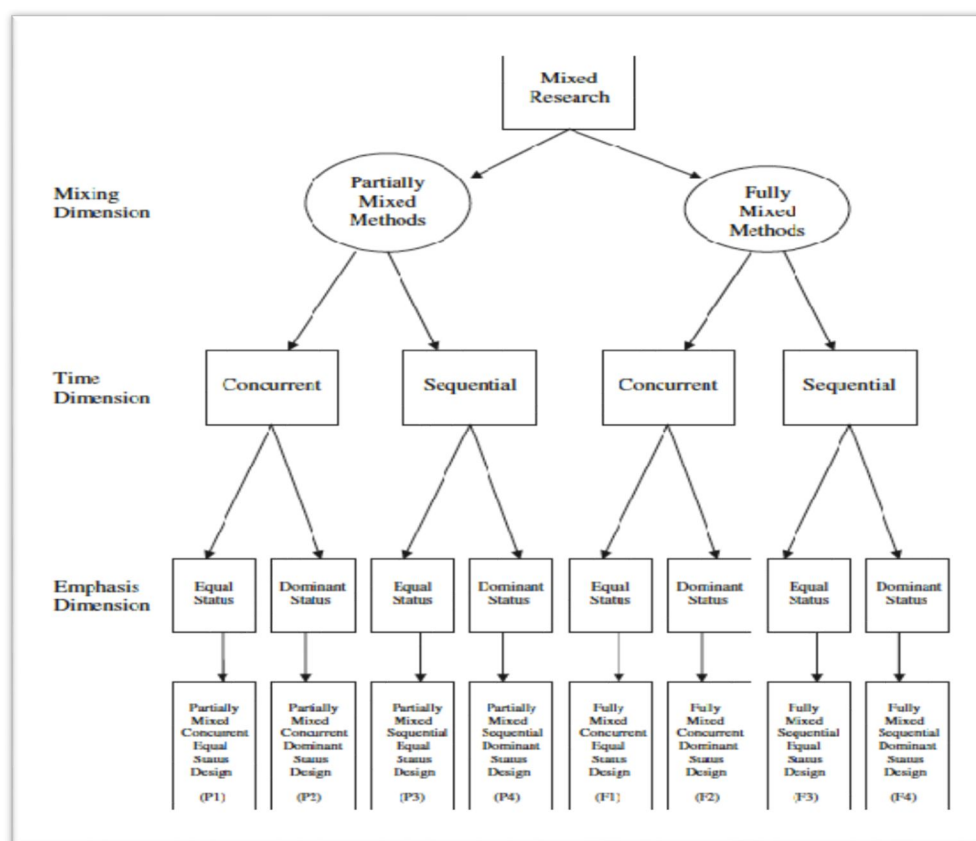


Figure 6 – Typology of mixed-research designs

(Leech and Onwuegbuzie, 2009, p. 269)

Several interdisciplinary or general design typologies exist in the literature (Greene, 2007; Greene & Caracelli, 1997; Patton, 2015), and each was assessed as being relevant for consideration for this study. However, the typology proposed by Creswell & Plano Clark (2011, pp. 68-72) was considered to be the most appropriate given that it was published fairly recently and therefore draws from and improves upon previous examples and it also includes design options most commonly used in practice. Creswell and Plano Clark's typology consists of six specific mixed-method designs, which are shown in Figure 7 along with the sequencing and data interpretation points.

Ensuring the correct research design is selected is a critical aspect of any mixed-methods study and is largely driven by the characteristics of each investigation. As Creswell & Plano Clark (2011, p. 68) observe, a design needs to be selected that

“best matches the research problem and reasons for mixing in order to make the study manageable and simple to implement and describe.” It was decided that Cresswell & Plano Clark’s *explanatory sequential design* (see Figure 7) was the most suitable design for this study due to its clarity and relevance to the nature of the investigation.

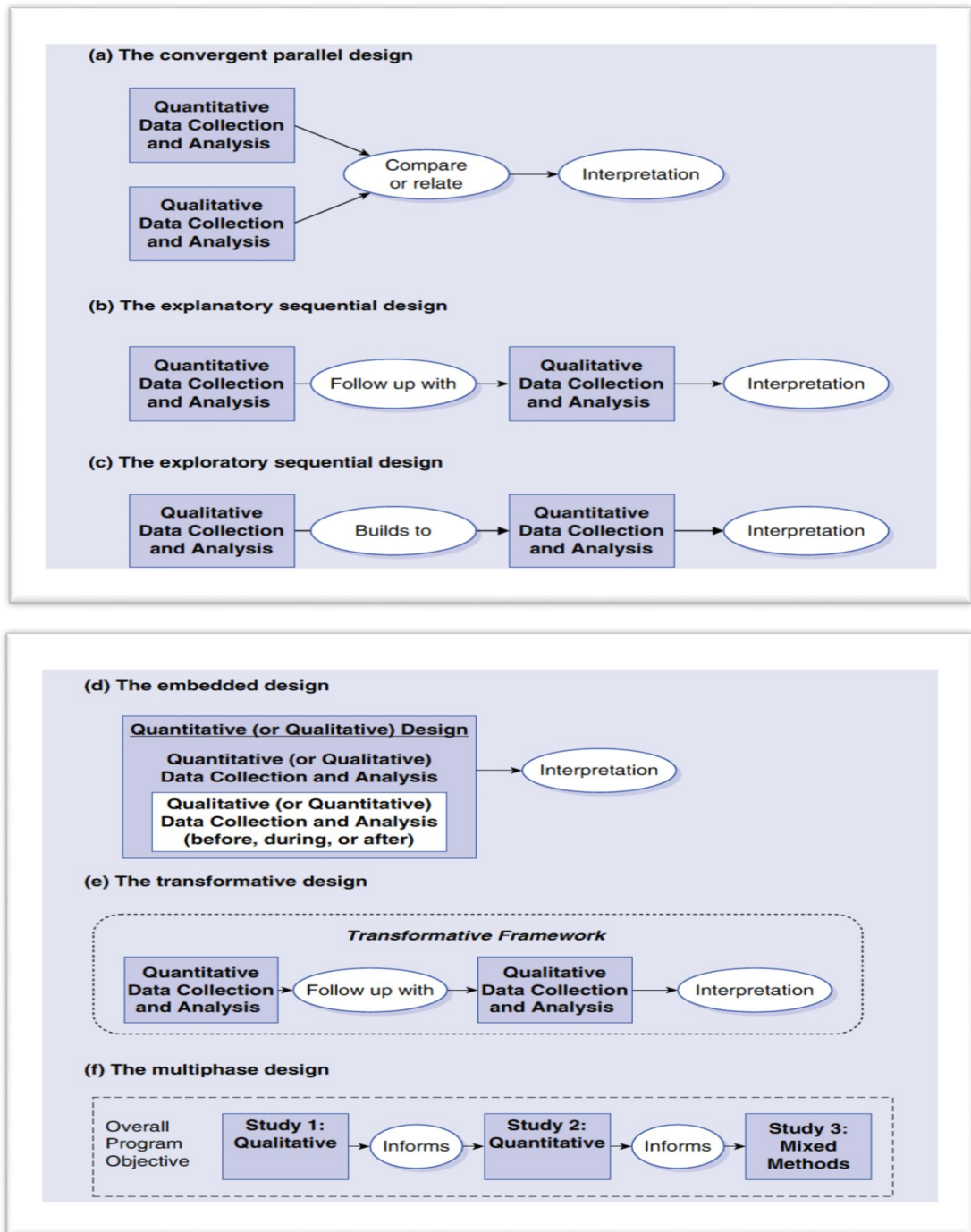
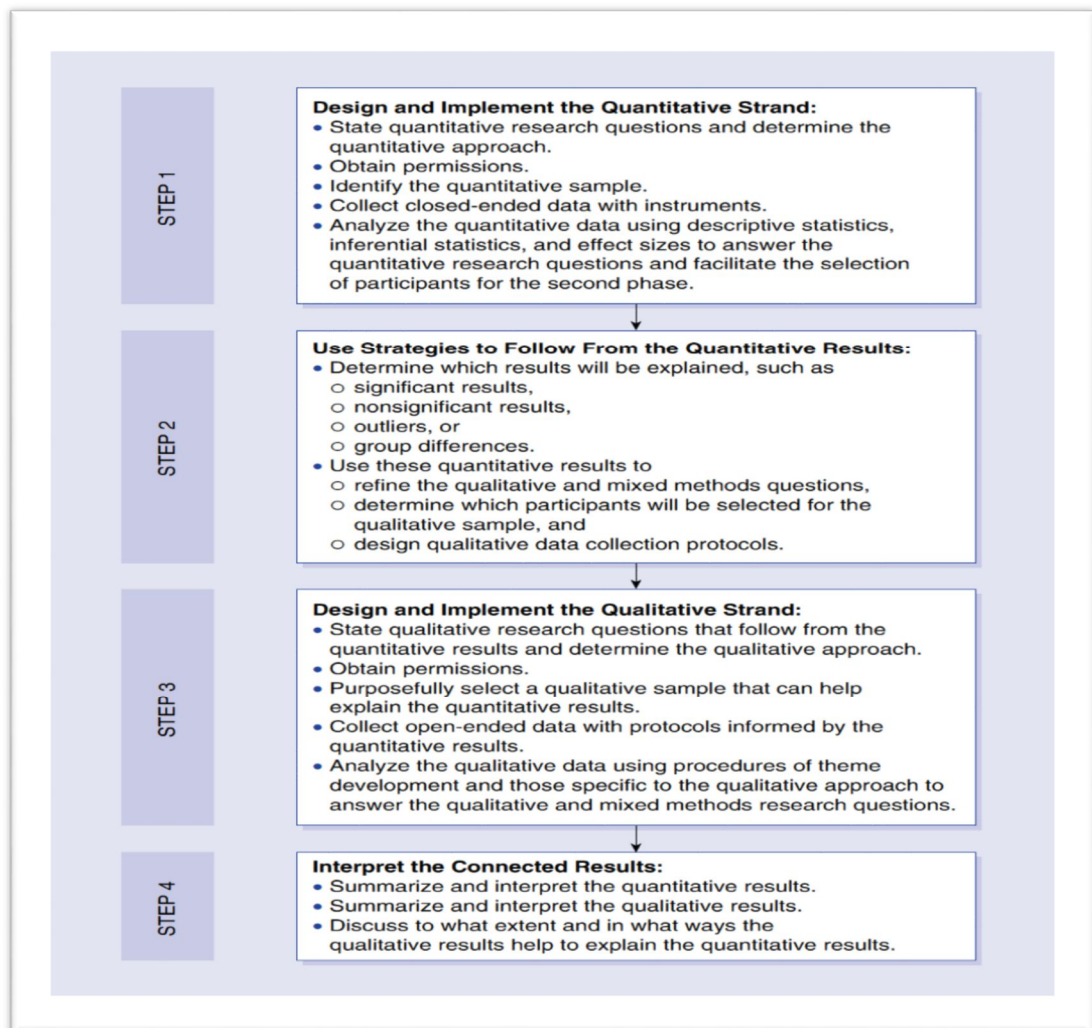


Figure 7 – Prototypical versions of six major mixed-methods research designs (Cresswell and Plano Clark 2011, p. 68-69)

The explanatory sequential design commences with a quantitative phase, the results from which are used to define the questions and guide the structure of the second qualitative phase. This second phase is used to explain and/or assess trends and relationships drawn out from the quantitative results. Weighting is typically given to the quantitative data. Mixing occurs following the completion of the qualitative phase. The two phases of research and the two data sets derived from these phases are thus separate but also connected (Cresswell, 2014, pp. 224-225; Cresswell & Plano Clark, 2011, pp. 81-82; Tashakkori & Teddlie, 1998). Figure 8 shows Cresswell & Plano Clark's (2011) flowchart of procedures for conducting an explanatory design.



**Figure 8 – Basic procedures in implementing an explanatory design
(Cresswell and Plano Clark 2010, p. 84)**

3.3 Research process

The research process commenced with a literature review (see previous chapter), which was undertaken to identify published research relating to the initial research questions and to identify new or emerging themes that could be used to refine the questions or identify new questions.

Following the literature review, data collection and analysis were undertaken in two distinct yet connected phases. The first quantitative phase involved undertaking a two round Delphi survey of head librarians working in 200 different national museum libraries across 40 countries. The purpose of the Delphi survey was to obtain a general overview of and investigate the generic issues impacting upon the role and value of national museum libraries in the digital age across a range of countries.

The Delphi survey results then informed and directed the following qualitative phase of research, which consisted of seven case studies undertaken at different national museum libraries. Each case study involved semi-structured interviews with head librarians, other library or museum managers, and library users. These interviews sought to explore in detail the issues, trends, and questions identified during the Delphi survey. The interviews also sought information that could not be easily solicited from the survey instrument.

Data were also collected during the case studies via document analysis of available strategy, policy, and planning documents. The purpose of this exercise was to elicit information about the organisational approach to the delivery and management of current and future services in national museum libraries, and to gain a fuller understanding of the opportunities and challenges that exist.

A chronological overview of the timeline for the research process, i.e. the research design and methods used, is presented in Figure 9.

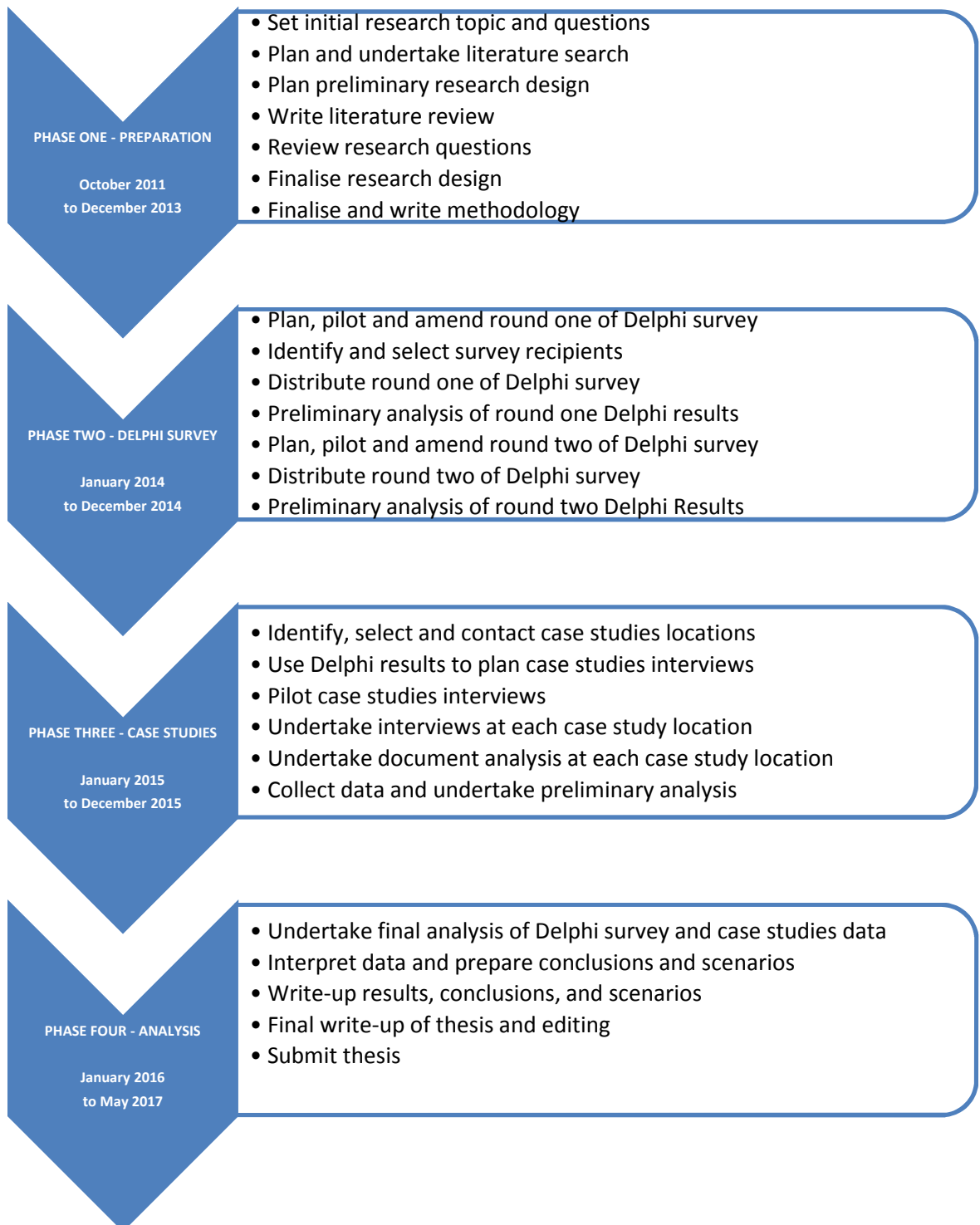


Figure 9 – Research design and methods timeline

3.3.1 Research bias and validity

Given that I had previously worked in a national museum library, it was recognised from the outset that there was a risk that the *a priori* knowledge I brought to the research might unintentionally introduce bias during the data analysis and interpretation phases, which in turn could compromise the validity of the research findings. As such, a methodological approach was adopted throughout the research process that was intended to minimise this risk.

At a general level, this was achieved through use of triangulation of the research data, which ensured that all data were collected, analysed, and cross-checked using several different methods and multiple sources.

At a detailed level, several specific approaches were adopted. The most significant of these involved ensuring that any stated opinions or assumptions were at all times directly supported by evidence from the literature or research data. Closely related to this was a process of systematic and constant referral back to primary data sources throughout the analysis and writing up of the results and conclusions, for example during the coding of the case studies interviews. Regular checking and discussions with my PhD supervisors also took place at each research stage during which any prior assumptions were critically evaluated and/or challenged.

It is important to acknowledge though that *a priori* knowledge did influence the development of the three initial research objectives, from which the literature review search strategy was developed and which in turn contributed to the development of the final research questions. However, this was seen as unavoidable given the limited amount of published literature on the topic. It was also felt that this knowledge would help to pinpoint the key issues from the outset, thereby minimising the investigation of less important topics which may have weakened the effectiveness of the research.

3.4 Research methods used

The research methods selected for this thesis were a literature review, a Delphi survey, and case studies. The following sections provide further details about each of these, with the exception of the literature review, which is outlined in section 2.1.

3.4.1 Delphi survey

The Delphi survey, otherwise known as the Delphi method or Delphi technique, is a research tool that is commonly used to aid forecasting, decision making, and problem solving activities across numerous disciplines. It first originated in the United States in the 1950s as a result of a study undertaken at the RAND Corporation for the U.S. Air Force, which aimed to obtain the most reliable consensus from a group of experts concerning the atomic bomb capacity required by the Soviet Union to destroy key American targets (Linstone & Turoff, 1975, pp. 10-11).

In the 1960s, use of Delphi surveys spread beyond the defence industry, initially being developed for the purposes of market research and sales forecasting (Goldfisher, 1993), and subsequently evolving to become a highly flexible and multi-disciplinary research tool, used in areas extending from the prediction of long-range trends in science and technology to applications in policy formation (Rowe & Wright, 1999).

Delphi survey usage allows an iterative and structured group communication process to take place, which enables a group of individuals, usually a pre-defined group of experts within a specific domain, to contribute as a whole in order to deal with a complex issue or problem (Linstone & Turoff, 1975, pp. 5-7). A Delphi survey is conducted over a number of stages, referred to as rounds, with a minimum of two and typically a maximum of four rounds, although in theory there is no maximum limit to the number of rounds (C. A. Brown, 2007; Grisham, 2009).

The overall aim of a Delphi survey is to reach a degree of consensus or obtain a stable set of answers, and so each round should show gradual movement towards a consensus or stable position (Okoli & Pawlowski, 2004; Rowe & Wright, 1999). Whilst the technique adopted for the implementation of a Delphi survey can and does vary from study to study, with different single or combination uses of qualitative and quantitative questioning and analysis, a Delphi normally consists of a hybrid of qualitative and quantitative methods.

Open-ended questions or statements requiring qualitative responses are typically sent in the first round to a purposively selected group of participants, usually at least fifteen, who are almost always geographically separate from and anonymous to one another. The returned data are then normally subject to statistical analyses and reformulated into opinion statements. These statements are usually presented back anonymously to the participants during a second round, who are then asked to assign each statement an opinion rating, most often on a Likert scale ranging from 'strongly agree' to 'strongly disagree', or similar. The iterative process then continues with the formation, analysis, and opinion rating of statements being repeated until a degree of consensus is reached.

There are several variations on this theme, including most commonly a summary of all participants' responses together with an individual's own responses being sent back to participants after the first round, with participants being asked to reconsider or comment upon their first round responses. However, the overall aim of reaching consensus or stability is almost always the same (C. A. Brown, 2007; Grisham, 2009; Kochtanek & Hein, 1999; Rowe & Wright, 1999).

Certain properties though need to be in place for a study to be characterised as a Delphi. Opinions vary in the literature as to the precise number and exact nature of

these properties but most recent authors adopt a similar view to Rowe & Wright (1999), who state that four features need to be present in order for a procedure to be described as a Delphi. These are: anonymity, iteration, controlled feedback, and statistical aggregation of group responses.

They observe that anonymity is achieved via use of questionnaires, through which participants express their views privately, and that iteration is provided in the form of repeated questionnaire rounds. Controlled feedback is achieved by presenting a summary of the results received to all the participants after each round so they are kept informed of the anonymous views of the group.

Often this is presented as a simple statistical summary of all the results received, although additional information is sometimes provided, for example the responses of those participants whose judgements fell outside of pre-defined limits, such as the upper or lower quartiles on a scale. Participants may then be asked to explain why their responses fell outside of these pre-defined limits.

Finally, the authors state that statistical aggregation of group responses is achieved by taking the statistical average of responses at the end of the polling of the participants, i.e. when all the rounds are complete.

As well as noting the essential characteristics of a Delphi survey, it is also important for a researcher when deciding whether or not to employ a Delphi to be aware of how it differs from a more conventional survey method. Okoli & Pawlowski (2004) offer a useful comparison in relation to this in Table 4.

| Evaluation Criteria | Traditional Survey | Delphi Survey |
|--|--|---|
| Representative sample | Statistical sampling techniques are used to select a representative sample of the population of interest. | Questions normally investigated are those with high uncertainty. A general population or subset of one might not have sufficient knowledge to answer the Delphi question properly. Delphi is a group decision technique that is used to overcome this by consulting expert opinion. |
| Sample size for statistical power and significant findings | A statistically significant sample size is required to detect statistically significant effects in the population. Power analysis is required to determine appropriate sample size | The size of the Delphi panel is not dependant on statistical power but rather on group dynamics for arriving at consensus among experts. The literature recommends between 7 and 20 experts on a Delphi panel. |
| Individual vs group response | Researchers use the average of the individual's responses to determine the average response for the sample which is then generalised to the general population. | Studies have consistently shown that when questions require expert judgement, the average group response produces a better result than the average individual response. Research has shown that the Delphi method bears this out. |
| Reliability and response revision | An important criterion for the evaluation of surveys is the reliability of the measures. This is usually assured by pretesting and retesting to insure test-retest reliability | Pretesting is also an important reliability assurance for the Delphi method. However, test-retest reliability is not relevant, since the method is based on that participants will revise their responses. |
| Construct validity | Construct validity is assured by careful survey design and pretesting | Construct validation can be employed by asking participants to validate the researcher's interpretation and categorisation of the variables. |
| Anonymity | Respondents are always anonymous to each other and often to the researcher. | Respondents are always anonymous to each other but not necessarily to the researcher. This presents the researcher with the opportunity to follow up with the respondent for clarification and further qualitative data. |
| Non-response issues | Researchers need to investigate the possibility of non-response bias to ensure that the sample remains representative of the population. | Non-response is typically low if respondents are personally contacted and encouraged to participate. |
| Attrition effects | Only applicable to multi-step surveys. Attrition should be investigated to ensure it is random and non-systematic. | Attrition tends to be low in Delphi studies and the cause can easily be ascertained by contacting drop-outs. |

**Table 4 – Comparison of traditional survey with Delphi survey
(adapted from Okoli & Pawlowski, 2004, pp. 19-20)**

It is also necessary for researchers to decide when a Delphi survey should and should not be employed. This is important as the criteria for employing a Delphi may vary considerably from those required for other survey types. Linstone and Turoff (1975, p. 4) list the following seven properties, one or more of which may characterise the need for a researcher to employ a Delphi.

- The problem does not lend itself to precise analytical techniques but can benefit from subjective judgements on a collective basis.
- The individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication and may represent diverse background with respect to experience or expertise.
- More individuals are needed than can effectively interact in a face-to-face exchange.
- Time and cost make frequent group meetings infeasible.
- The efficiency of face-to-face meetings can be increased by a supplemental group communication process.
- Disagreements among individuals are so severe or politically unpalatable that the communication process must be refereed and/or anonymity assured.
- The heterogeneity of the participants must be preserved to assure validity of the results, i.e. avoidance of domination by quantity or by strength of personality (“bandwagon effect”).

The Delphi method is advantageous in several respects to researchers who are seeking to undertake group studies or investigations. Landeta (2006) observes that it is a flexible tool that is simple to execute, which overcomes many of the problems associated with studies based on direct interaction and which, because of the repetitive nature of the method, allows researchers to more easily identify and extensively consider the relevant information that has been gathered. Delbecq, Van de Ven, and Gustafson (1975) also indicate other advantages. They point out that as

the Delphi is a largely text-based process that is undertaken in isolation, it enables participants to think through problems and submit specific, high quality responses. They also state that the anonymous nature of a Delphi means participants are able to independently form their own point of view. And lastly, and possibly most importantly from a group study perspective, the technique is effective in developing consensus in relation to the solving of complex problems.

However, this is not to say that the Delphi method is without its weaknesses and a number of authors have highlighted these in the literature. A common criticism is not so much of the Delphi method itself but of its execution by practitioners. For example, Hill and Fowles (1975) observe that Delphi questionnaires are often poorly worded and ambiguous and Linstone and Turoff (1975) highlight the fact that the analysis of responses provided by Delphi participants is frequently superficial and lacks rigour.

Most criticisms of the Delphi method itself though tend to focus on two core issues, namely the reliability of participant feedback and the difficulty checking the method's accuracy. Criticisms in relation to reliability of feedback mainly relate to the fact that judgements or conclusions obtained from participants may have derived from indirect group pressure placed on the participants to conform to a consensus view.

Woudenberg (1991) indicates that this is due to participants being repeatedly, i.e. over several rounds, given the opportunity to reflect on their judgements and/or because any differences of opinion between an individual's response and that of the rest of the group are highlighted after each round. Woudenberg goes on to state that this may give rise to a situation where participants whose views have fallen outside of the overall consensus feel a strong group pressure to change or modify their viewpoint in order to conform to this consensus view.

Criticisms concerning accuracy checking are often cited because of the difficulties associated with the verification of judgements provided by participants, especially those who are not experts in the field being investigated and/or where long-range forecasts are attempted.

Sackman (1974), is one of the most prominent critics of the accuracy of the Delphi method, stating that Delphi results are “typically broad, morphous classes of events, not precisely defined empirical occurrences” (p. 58) and that “Delphi forecasts are opinions about such broad classes of events, not systematic, documented predictions of such events. These opinions are typically snap judgements frequently based on free-association stereotypes.” (ibid). Sackman also criticises several other aspects of the method, particularly the lack of commonly agreed and validated standards associated with the selection of Delphi expert panels, the development of questions, and the analysis of results.

Other commentators dispute this view though and point to some of the advantages outlined earlier, whilst also noting that the Delphi method is no more or less reliable than many other methods. Ziglio (1996, p. 13), for example, states there is no reason why the Delphi method should be perceived as any “less methodologically robust than techniques, such as interviewing, case analysis, or behavioural simulations”.

3.4.1.1 Online survey tool

As will be discussed later, the first phase of this research was comprised of a two round modified and truncated Delphi survey, the data collection instrument for which was an online, i.e. web-based, survey tool. This was considered to be the most suitable method for data collection as the sample being surveyed was distributed across many countries and this, together with time and resource constraints, would have made undertaking the survey in paper format or via telephone too difficult.

The decision to carry out an online survey is also based on the growing importance of this method for collecting and analysing both quantitative and qualitative research data. This can be seen from the documented increase in recent years in the number of research surveys that are being solely administered in an online environment (Bryman, 2012, p. 670).

Bryman (2012, p. 671) observes that these types of surveys have a distinct advantage over physical surveys as there are far more options for configuring online surveys in terms of their design and structure, and they can be quickly and easily sent out to and received from respondents irrespective of their geographical location. This issue in particular is clearly beneficial for studies such as this one where an international audience is the focus of the research investigation.

Additionally, Yun and Trumbo (2000), in a comparative study of a survey executed by post, email, and via the web, highlight other advantages of online surveys, including: their relatively low set-up and administration costs, faster response rates compared to other survey methods, and easier data collection processes due to automatic storage of results.

There are though some disadvantages associated with online survey usage. The most obvious of these is that in order to take part a respondent must have access to the Internet (Bryman, 2012, p. 677; Burke & James, 2006). This factor alone may exclude many people from participating, especially in developing countries. However, in academic and professional arenas, such as LIS, where online communication is far more common this issue is less problematic.

The web survey tool selected to create the survey for this research was *Opinio*²⁶. The primary reason for using this was that it is the survey tool provided by University College London for use by staff and students. However, the decision to use *Opinio* instead of other web survey tools, such as *Survey Monkey*²⁷, was also based on the recommendations of several independent online survey software reviews, the most extensive of which²⁸ highlighted several positive features of *Opinio* that were of direct relevance to the survey being conducted for this research.

The most relevant of these were the ability of *Opinio* to create flexible ‘matrix’ type questions, which allows multiple questions to be placed on a line. This was a core requirement for this research where responses relating to both the likelihood and the desirability of a range of scenario statements occurring were sought. Furthermore, *Opinio* provides integrated systems for dealing with multiple language surveys, which was necessary for a global study such as this. Finally, *Opinio* is equipped with a reporting engine that replaces the need to examine results in another data package.

3.4.1.2 Delphi survey aims and objectives

The principal aim of the Delphi survey undertaken for this research was to establish a broad understanding of the main socio-technological issues and the strategic and operational factors that librarians working within national museum libraries feel are most likely to impact upon their libraries over the ten year period from 2014 (when the survey was conducted) to 2024, and to gauge the perceived likelihood and desirability of these issues and factors occurring during this timeframe.

²⁶ *Opinio* - <http://www.objectplanet.com/opinio/>

²⁷ *Survey Monkey* - <http://www.surveymonkey.com>

²⁸ Mark Kupferman’s Blog - <http://kupferman.com/opinio-objectplanet-survey-software-review>
(Accessed 18th August 2014)

The underlying purpose of this exercise was to develop, as far as possible, a consensus view from national museum librarians of the likely internal and external environments they believe their libraries will be operating within as the digital age evolves and matures over the next decade. In turn, this information would be used to help inform the development of three future scenarios for national museum libraries, which is one of the key outcomes of this research. The main objectives of the Delphi survey were thus:

- To investigate the ways in which services may be provided by national museum libraries and how e-resources and technologies will be used in their delivery.
- To gain a better understanding of different future users of national museum libraries and find out why and how they will be using these libraries.
- To examine the future strategic plans and priorities for national museum libraries and assess their contributions to the strategic plans of their parent museums.
- To analyse the future collecting plans of national museum libraries and gauge if and how these will change in response to external socio-technological issues.
- To assess future digital access and engagement activities by national museum libraries and ascertain if, how, and why these will be incorporated into services.

A further overarching and critical objective of the Delphi survey was to identify the main questions that would need to be asked and the main issues that would need to be explored in greater depth during the case studies phase of the research investigation, which followed the Delphi survey.

3.4.1.3 Delphi survey instrument

Use of Delphi surveys is becoming gradually more popular in LIS research, with numerous papers having been published since the 1980s where Delphi surveys have been used to gather expert opinions about a topic or to investigate problems or issues.

A literature search was undertaken in the *Library and Information Science Abstracts* database using the subject heading *Delphi Method* to find all LIS themed Delphi surveys that had been published in English and indexed during the last twenty-five years. Fifty-seven publications were retrieved from this search and from these six were selected as examples of Delphi surveys that broadly matched the overarching aims and objectives of this research, i.e. they were either studies aimed at forecasting trends and developments relating to aspects of future library service provision or assessing likely future changes within the librarianship profession (Baruchson-Arbib & Bronstein, 2002; Dwyer, 1999; Feret & Marcinek, 1999; Keller, 2001; Koskiala & Huhtanen, 1989; Trier, 1992).

Whilst none of these six publications related to the study of museum libraries, they nevertheless contained sufficient similarities in terms of their overall aims and objectives to act as useful comparators for the Delphi survey intended for this research. Two papers were examined in detail (Baruchson-Arbib & Bronstein, 2002; Trier, 1992) as these were considered to most closely match the aims and objectives of this research.

The Baruchson-Arbib & Bronstein (2002) Delphi survey was undertaken as part of a study conducted in Israel between 1998 and 2000, which examined the views of LIS experts on the future of the LIS profession in light of changes in information technology. The study focused on three broad aspects: the transition from the traditional to the virtual library, the transition from the technical to the user-centred

approach, and the skills and roles of LIS professionals. The Delphi survey was undertaken over two rounds, with forty experts participating in the study. The first round, which was undertaken as an online questionnaire, consisted of forty-seven future scenario statements reflecting the main issues and trends under investigation.

The Delphi survey undertaken for this study was a modified and truncated version of a traditional Delphi, consisting of just two rounds and with a quantitative methodology being adopted for the first round and a qualitative methodology in the second round. This is atypical as normally a Delphi would follow the process outlined in section 3.4.1, i.e. qualitative questions and answers in the first round leading to the formulation of opinion statements, with quantitative opinion ratings from these statements being gathered in several subsequent rounds. However, it is not uncommon to tailor a Delphi survey to meet a particular research need and it has been noted in the literature that modifying one to accommodate local requirements is acceptable so long as the study is based on Delphi principles (Pickard, 2013, p. 153).

Baruchson-Arbib & Bronstein's study asked participants to gauge the probability and the desirability of a number of future scenario statements occurring within their libraries, with response options based upon a Likert scale of 1 to 5. The second round of the survey invited participants whose answers fell outside of the first round group consensus to give brief responses in writing to explain their choice of value.

The authors reported three main reasons for selecting the Delphi technique for this study. Firstly, because it was "an efficient and effective group communication process that avoids many of the psychological distractions inherent to roundtable discussions". Secondly, because it is a technique that is "particularly well suited for investigation of areas where no real models exist, and for which hard data are either insufficient or inconclusive". And thirdly, because even though the technique cannot itself produce

a consensus, it “can help discover areas of consensus” (p. 399). This last point was borne out by the results from the study, which revealed broad areas of consensus amongst the panel of experts after the first round and which revealed explanatory information from those experts whose views fell outside of the general consensus in the second round.

The other Delphi survey that was examined was a Dutch study undertaken in 1992 (Trier, 1992), which sought to forecast the future logistics, supply of, and demand for information technology services and products in the information chain from libraries to researchers, e.g. the use of online information services. 200 experts were consulted as part of the study, with 94 results from the first round questionnaire taken forward for analysis in the second round. Two types of questions were asked for the first round – estimations of the increase or decrease in the use and supply of different kinds of information, and the likely occurrence of certain situations in the future.

As the methodological approach and rationale for the Baruchson-Arbib & Bronstein study was broadly analogous to that of the research undertaken for this thesis, a decision was taken to model the Delphi survey for this research on the modified and truncated Baruchson-Arbib & Bronstein Delphi survey. Thus, a series of themed, closed-ended questions were distributed in the first round to elicit quantitative information about the likelihood and desirability of specific future situations occurring. And qualitative explanations were then sought in the second round from participants who had provided the most divergent first round non-consensus responses.

This approach was seen as offering the best chance of quickly reaching a broadly stable set of conclusions and potentially an overall general consensus. This was important given the time, resource, and logistical constraints associated with this survey, which was being conducted internationally over a short timeframe.

3.4.1.4 Delphi survey pilot

During May 2014 a pilot was undertaken for round one of the Delphi survey. The pilot was sent to six museum libraries in the United Kingdom – two national museum libraries and four non-government funded museum libraries. These were selected to ensure adequate representation across different specialism areas, e.g. art, science, history, and across different sized libraries.

The head librarian at each of these six libraries was contacted by email and asked to participate in the pilot. The purpose of the research project generally, and of the Delphi survey specifically, were outlined in the email, together with an explanation of the requirements of the pilot, i.e. to complete the online survey in full and then provide critical feedback about its content and design. Respondents were also asked to provide commentary about any questions or statements that they felt needed to be amended or re-written, and to suggest any additional questions or statements for inclusion in the survey. A web link to the survey was also provided.

Four of the six librarians completed the online survey and provided comments within two weeks of it being sent to them. Reminder emails were sent to the two non-respondents after two weeks. One of these subsequently completed the survey and responded with comments. However, no response was received from the sixth librarian. In total therefore responses were received from five of the six pilot sites.

Overall, the feedback was positive and no major changes were suggested. Three respondents suggested minor modifications to the wording of several scenario statements in order to make them easier to interpret. Two respondents suggested several statements be re-worded altogether and that two additional statements should be included to cover topics of relevance to museum libraries that had not been

sufficiently highlighted in the survey. All the suggestions received were implemented and a revised version of the online survey was subsequently created.

3.4.1.5 Delphi survey sampling strategy

Sampling of a target population is frequently an important aspect of quantitative and qualitative research. In quantitative research, researchers usually sample a group that represents the whole target population under investigation. The data collected from that group will then be analysed to make a statement or draw a conclusion about the population from which the sample is drawn (Bryman, 2012, pp. 186-188; Daniel, 2012, p. 14; Punch, 2014, pp. 243-245).

In qualitative research, sampling is far less likely to be used to infer general conclusions from a representative sample to a general population. Instead, it is a more deliberate process, which is usually guided by the specific focus of the study. Sampling in qualitative research is also more varied than quantitative research, with many different sampling strategies and techniques available that can be used for a wide range of purposes (Bryman, 2012, pp. 186-188; Daniel, 2012, p. 14; Punch, 2014, pp. 160-163).

In mixed-methods studies, researchers are able to combine both quantitative and qualitative procedures and use them in a single study (Daniel, 2012, pp. 214-216; Teddlie & Tashakkori, 2009, pp. 169-171). The combination of sampling techniques to be used is not prescribed but is rather driven by the study in question. Teddlie and Tashakkori (2009, pp. 190-191) demonstrate this by showing how quantitative probability sampling can be mixed with qualitative purposive sampling strategies by citing the example of a research study where a number of schools were selected in a purposive manner, with students then being randomly selected from each school to be interviewed.

As this research examines a specific type of organisation, i.e. national museum libraries, which globally speaking are relatively small in number (see section 3.4.1.6), it was therefore felt that a random or other probability based sampling technique would not necessarily ensure that the right mix of libraries were selected as Delphi survey participants, i.e. libraries from different countries and types of national museums.

As such, a purposive sampling technique was considered to be the most appropriate and relevant technique to use. Purposive sampling is a non-probability, subjective sampling technique that relies on the researcher's judgement to select the people, places, organisations, or events that are most suitable for the research investigation. As Cresswell (2013, p. 156) states, "the inquirer selects individuals and sites for study because they can purposefully inform an understanding of the research problem and central phenomenon in the study".

It is therefore not intended for use by researchers who wish to make random sample selections with a view to forming statistical inferences, but rather by those who prefer to choose specific targets in order to identify particular traits or characteristics of interest, which can be used to help answer the research questions (Cresswell, 2013, pp. 156-157; Punch, 2014, pp. 160-162).

However, there are a number of purposive sampling techniques, each of which has a particular research focus ranging from those that seek to sample the entire population(s) under investigation to those sampling just a few selected experts.

Teddlie and Yu (2007) identify a typology of three categories of purposive sampling techniques, each encompassing several specific strategies – see Table 5.

| A Typology of Purposive Sampling Strategies |
|--|
| <p>A. Sampling to Achieve Representativeness or Comparability</p> <ol style="list-style-type: none"> 1. Typical Case Sampling 2. Extreme or Deviant Case Sampling (also known as Outlier Sampling) 3. Intensity Sampling 4. Maximum Variation Sampling 5. Homogeneous Sampling 6. Reputational Case Sampling <p>B. Sampling Special or Unique Cases</p> <ol style="list-style-type: none"> 7. Revelatory Case Sampling 8. Critical Case Sampling 9. Sampling Politically Important Cases 10. Complete Collection (also known as Criterion Sampling) <p>C. Sequential Sampling</p> <ol style="list-style-type: none"> 11. Theoretical sampling (also known as Theory-Based Sampling) 12. Confirming and Disconfirming Cases 13. Opportunistic Sampling (also known as Emergent Sampling) 14. Snowball Sampling (also known as Chain Sampling) <p>D. Sampling Using Combinations of Purposive Techniques</p> |

Table 5 – Purposive sampling strategies typology (Teddlie and Yu, 2007, p. 81)

The sampling strategy that was considered the most appropriate for the first round of the Delphi survey to be undertaken for this study was Teddlie and Yu's *Sampling to Achieve Representativeness or Comparability*. This strategy enables researchers to

find instances that are representative or typical of a particular type of case on a dimension of interest, and/or it allows sampling to achieve comparability across different types of cases on a dimension of interest (Teddlie & Yu, 2007).

Of the specific strategies outlined within this category, the *Maximum Variation Sampling* strategy was selected as the most relevant as it ensured that a diverse cross-section of different types of national museum libraries could be included in the sample, which was paramount to the aims of the research. It also allowed for research questions to be examined from several different angles and perspectives, opening up the possibility of exposure to different opinions, situations, and experiences.

At a macro level though, it could justifiably be argued that this sample is actually a homogeneous group as the population being surveyed is comprised entirely of head librarians of national museum libraries, all of whom have a great deal in common in terms of their work roles and organisational issues. A number of research studies have shown that when a homogeneous group is surveyed, particularly one that shares occupational characteristics such as this, then any non-response bias that may occur is largely eliminated due to an individual respondent's strong group identity, which leads to subjects usually providing responses on the basis of their role perception rather than their own personal defining features (Becker & Iliff, 1983; Jones, 1996; Leslie, 1972). This therefore suggests that the responses received for this survey are broadly similar to those that might have been received from non-respondents and from the wider population of national museum librarians not included in the survey.

Whilst general representativeness was sought for the study, as the population was selected using a non-probability sampling technique it was therefore not possible, nor indeed necessary, to determine whether or not the sample was a *statistically* representative figure. That notwithstanding though, it was considered useful, for the

purposes of building a wider picture of the national museum libraries landscape, to be able to generally gauge what proportion of the total number of national museum libraries worldwide were represented in the sample selected for inclusion in the Delphi survey. This process is outlined below.

3.4.1.6 Delphi survey sampling process

In order to ascertain the proportion of national museum libraries in the sample, it was necessary to discover how many national museum libraries currently exist globally and where they are located. Identifying this information was not easy though as no single publication could be found that lists accurate and up to date information and contact details for national museum libraries. Consequently, it was necessary to search for this information from a variety of more generic sources.

This process commenced with an in-depth search of several international museum directories in order to discover which national museums possessed a library and, where possible, to obtain contact details for these libraries. The museum directories list provided on the *International Council of Museums (ICOM)* website²⁹ was consulted for this purpose as this organisation is widely recognised as being an important and well established international museums organisation.

Of the various directories listed on the ICOM website, two proved to be the most useful in terms of providing museum contact information, namely *Museums of the World* (Lochar, Meinhold, & Syring, 2014a, 2014b) and *International Directory of the Arts* (International Directory of the Arts, 2014), so these were used as the main reference

²⁹ International Council of Museums (ICOM) Museum Directories - http://archives.icom.museum/museum_directories.html

resources. This process resulted in the identification of 415 national museum libraries currently in existence around the world.

In a few cases it was possible to obtain specific information from these museum directories concerning the contact details of library staff. In most cases though this information was not available. It was therefore necessary to broaden the search beyond museum directories by undertaking web searches to find information about and contact details for individual national museum libraries. This was conducted as part of the Delphi survey shortlisting process presented below.

The next step was to draw up a preliminary list of national museum libraries worldwide that could be considered as potential Delphi survey participants. As a precursor to this though, two factors had to be considered to ensure the principles of a maximum variation sampling strategy were adequately adhered to.

Firstly, to be a valid international study it was imperative that national museum libraries from all areas of the world were included. Associated with this was the need to avoid over-representation from Europe or North America, although this was difficult as a disproportionate number of national museums are located in these two regions.

Secondly, it was important to ensure that the libraries approached to participate in the survey were not just from English speaking countries, as it was felt that libraries in countries that do not have an Anglo-centric culture and tradition needed to be equally represented. A caveat to this though was that national museum libraries located in countries where the library websites were not typically available in either English or other Western European languages, e.g. China, were excluded as possible participants. This was due to the difficulty of translating information written in these languages. Issues pertaining to languages are also covered in the next section.

Once these conditions were applied, a preliminary shortlist of 290 national museum libraries in 52 countries was created. From this list a second shortlist was drawn up. The critical factor that determined whether a library would be considered for inclusion on the second shortlist was the availability of a contact email address. This was fundamentally important given that the Delphi survey was being conducted as an online survey, for which a recipient email would be required.

National museum libraries that publicised the name and email address details of the head librarian on their websites were sought in the first instance. Where this information was not available, contact details for other named individuals within the library or a general library email address were sought. If no email contact details could be found then the national museum library was discounted from participation in the survey.

Following this process, the number of national museum libraries eligible for inclusion in the Delphi survey was reduced from 290 libraries in 52 countries to 253 libraries in 47 countries. These were then taken forwards for the final shortlisting phase, the criterion for which was based upon the language spoken at each national museum library, as outlined below.

3.4.1.7 Delphi survey language

As the primary language for the survey was English, the survey was initially designated for distribution to national museum libraries with a publicised contact email address that were located in English speaking countries ($n = 90$ libraries in 12 countries). Furthermore, contactable libraries that were located in countries where English was considered to be widely spoken as a second language, e.g. Scandinavian countries, or where the museum library website was primarily in English were also selected as recipients of an English language survey ($n = 38$ libraries in 16 countries).

However, as indicated previously, it was important to ensure that the survey target population was truly representative of national museum libraries around the world, which meant also including non-English language speaking countries. This required translation of the survey and covering email into other Western European languages.

After English, national museum library websites were most frequently published in Spanish, French, German, Portuguese, and Italian languages. Ideally, the survey would have been translated into all these languages as this would have ensured that the coverage was comprehensive. However, constraints imposed by lack of time, resources, and available translators prevented this from occurring. It was therefore decided that the survey would be translated into Spanish, French, and German only, which ensured it would be distributed to national museum libraries across a sufficiently wide range of non-English speaking countries around the world ($n = 72$ libraries in 12 countries) to guarantee diverse representation.

This therefore resulted in a final shortlist of 200 national museum libraries from 40 countries across 6 continents. When compared to the figures referred to earlier, the first round Delphi survey sample therefore represents approximately 48% of the total number of national museum libraries worldwide. This figure is significant enough to be confident of identifying meaningful characteristics, trends, and patterns from the data, which can be used to build an overall contextual picture to help answer the research questions and objectives.

These 200 libraries were all contacted via email, with emails sent to named library contacts where possible between the 26th and 28th June 2014, with invitations to participate sent in English (see Appendix 1), Spanish, French, or German, depending on the library location. A web link to either the English or a translated version of the online survey was also provided in the covering email.

Following the distribution of the initial email, two reminder emails were sent to non-respondents. The first was distributed three weeks after the initial email had been sent and the second five weeks after. The survey remained open for six and a half weeks before closing on 13th August 2014.

3.4.1.8 Delphi survey content – round one

The first round of the Delphi survey was split into two separate parts, labelled A and B. Part A consisted of eight closed questions, which were included in order to gather background demographic and contextual information about each national museum library. These questions related to issues about: the geographic location of the libraries; the category of museums they belonged to; their age; the number of staff employed; the number of print, electronic, and other format items in their collections; the management of archive collections; the museum department to which they belonged; and access and service provision for the public.

The Part A questions helped formulate an overarching picture of the socio-cultural, economic, and technological landscapes within which these national museum libraries were operating. Additionally, they helped provide a clearer understanding of how the libraries fitted into the organisational structure of their parent museums.

Part B consisted of sixty separate statements, which were divided across five themed sections. Each of these statements outlined a possible future scenario or situation that national museum libraries may or may not face. These five sections and the sixty scenario statements were all derived from, and designed in accordance with, two related criteria – firstly, relevance to the research questions under investigation, and secondly, the results of the literature review.

Following the application of this methodology, five section headings were developed: 1) *Future Library Users and Usage*, 2) *Future Library Service Provision*, 3) *Future Library Strategy and Management*, 4) *Future Library Collections*, and 5) *Future Digital Access and Engagement*.

For each scenario statement, respondents were asked to rate *both* the likelihood and the desirability of the statement occurring within their own national museum library during the time period 2014 to 2024. Respondents were asked to predict the *likelihood* of each statement occurring during this ten year timespan by selecting a pre-defined response from a five point Likert scale, with the five response options ranging from *Highly Likely* at one end of the scale to *Highly Unlikely* at the other end. For each statement, respondents were also asked to predict the *desirability* of the statement occurring by selecting a pre-defined response from a separate five point Likert scale, with the five response options ranging from *Highly Desirable* at one end of the scale to *Highly Undesirable* at the other end (see Appendix 2).

If respondents answered just the likelihood statement but not the desirability statement, or vice versa, then automated prompts were built into the online survey instructing respondents to select responses for both.

3.4.1.9 Delphi survey content – round two

The purpose of round two of the Delphi survey was to follow-up on those responses retrieved from the first round that fell significantly outside of the overall consensus of all responses received. This was achieved by contacting respondents who submitted the most divergent non-consensus responses (see section 3.5.1) by email (see Appendix 3) to invite them to provide qualitative feedback explaining their reasons for the answers they provided. Reminder emails were sent after three weeks to those respondents who did not reply to this initial email.

The rationale for this exercise was twofold – to either eliminate these responses if they were deemed to be of very little or no significance to the research questions, or to elicit more detailed information about any specific phenomena of significance that may have been overlooked or not identified by other survey respondents, or which was unique to a particular library.

3.4.2 Case studies

Using case studies as an investigative instrument was considered to be both appropriate and beneficial for the phase of research that followed the Delphi survey as the principal aim of this phase was to explore in more detail the key trends and patterns that emerged from the survey responses. This was achieved through the elicitation of rich contextual or explanatory information from a small sample of the participating libraries.

This is congruent with definitions in the literature regarding the primary function of case studies. Thomas (2011, p. 513), for example, states:

Case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame—an object—within which the study is conducted and which the case illuminates and explicates.

Similarly, Yin (2014, p. 16) reports:

A case study is an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.

Yin goes on to explain that if questions need to be asked that seek an explanation for a present circumstance, such as how or why something works, then case study research will be a relevant methodology to adopt. Yin also states that the method is relevant the more a question requires an extensive and ‘in-depth’ description of a social phenomenon. Gerring (2007, p. 20), also views the drawing out of explanatory reasons as a primary driver for undertaking a case study, seeing it as “the intensive study of a single case where the purpose of that study is – at least in part – to shed light on a larger class of cases (a population)”.

The unstated implication of these descriptions though is that case study research is undertaken within a single unit only. Whilst this is true in many situations, it is not applicable to this research where multiple case studies were undertaken in order to garner feedback from a cross-section of national museum libraries. There is however a more subtle distinction between a single case study and multiple case studies than the number of units being studied, which relates to the primary basis for the research being undertaken. As Thomas (2016, p. 141) observes:

With only one case being studied, there is still interest in the case itself, with the multiple case study, the focus is unequivocally on the phenomenon of which the case is the example: the focus is on the object.

Multiple case studies, also commonly referred to as cross-case or collective case studies, are often considered to produce more compelling evidence than single case studies as analytic conclusions that independently arise from two or more case studies tend to be seen as more powerful (Yin, 2014, pp. 63-64).

Multiple case studies are also especially suited to research investigations where certain characteristics are evident. Gerring (2007, pp. 37-38) refers to eight characteristics where multiple studies have a particular affinity, namely: hypothesis

testing, prioritisation of external validity, insight into causal effects being more valuable, a broad scope of causal inference, a homogeneous population of cases under study, a weak causal relationship of interest, common useful variation on key parameters within the population, and dispersed available data.

Whilst this research does not conform to all these traits, it does correlate in terms of half of them, namely: (1) offering insight into and estimating causal effect, i.e. examining how and to what extent various future scenarios will impact upon different national museum libraries; (2) the broad nature of the analysis being undertaken, i.e. investigating a wide range of possible future scenarios across many national museum libraries; (3) the relatively homogenous nature of the cases being studied, i.e. these are all examples of libraries located within and serving national museums, although this must be treated with some caution as it is recognised that each of these cases will differ in terms of other factors, such as subject coverage, size, location; and (4) the widespread availability and case-comparable nature of data, i.e. information, in the form of respondents' opinions pertaining to the scenarios being investigated, is not confined to a single library but is available from all the libraries in the sample.

A final consideration for using case studies as an instrument for this research is their suitability for integration within a mixed-methods research design, particularly those that use surveys to elicit quantitative data. Yin (2014, p. 66) refers to two nested arrangements where case studies can be easily mixed with survey instruments – the case study that is within or follows a survey and the survey that is within or follows a case study. It is the first of these that is applicable to this research. Yin describes this as a situation where “the main investigation may rely on a survey or other quantitative techniques, and your case study may help to investigate the conditions within one of the entities being surveyed”.

3.4.2.1 Selection of case studies

The case studies were purposively selected as typical cases according to a certain pre-defined list of criteria (see below). In broad terms, the working definition of a typical case was taken from Gerring's definition, which is a case that "exemplifies what is considered to be a typical set of values, given some general understanding of a phenomenon." (Gerring, 2007, p.91). Gerring also describes typical cases as being 'representative cases', which is to say they must be representative of "a broader set of cases" (ibid).

Taking this definition as a general point of reference, the case studies were then selected according to certain criteria. Firstly, potential case study participants had to have participated in the Delphi survey so the overall investigation could remain connected, thus maintaining congruence with the mixed-methods sequential explanatory research design. This was also imperative as the interview questions to be asked during the case studies were directly derived from the survey answers provided by Delphi survey respondents.

Secondly, all case study participants needed to be from English speaking countries or from countries where English was commonly spoken as a second language. The rationale for this was that unlike the Delphi Survey, where translators were employed to enable French, German, and Spanish speakers to participate, it was not considered feasible to use translators to translate questions and answers whilst conducting one-to-one interviews, particularly in situations where interviews were being conducted remotely rather than in-person.

Once these criteria had been applied, it was possible to draw up a shortlist of libraries that could be considered as suitable case study venues. This resulted in a shortlist of 53 libraries across 17 countries – see Table 6.

| Country | Frequency of Libraries |
|----------------|------------------------|
| United Kingdom | 16 |
| United States | 12 |
| Canada | 5 |
| Australia | 4 |
| Sweden | 3 |
| Netherlands | 2 |
| Denmark | 1 |
| Finland | 1 |
| India | 1 |
| Israel | 1 |
| Jamaica | 1 |
| Jordan | 1 |
| Kenya | 1 |
| New Zealand | 1 |
| Qatar | 1 |
| Singapore | 1 |
| South Africa | 1 |
| TOTAL | 53 |

Table 6 – Initial shortlist of suitable case study venues

However, 53 libraries was considered to be too many so to reduce this to a more manageable final shortlist two further filters were applied. The first of these took into consideration the location of the libraries. It was initially hoped that all the case studies could be undertaken in person rather than via Skype or telephone, as this would be more effective for carrying out interviews (see section 3.4.2.3). However, financial and time constraints meant that travel to countries outside of Europe or the Middle East (where I was residing at the time) was too difficult and so it was decided that half the case study venues should be in these two regions so they could be conducted in person. But as the research was international in nature, restricting the case studies to just two regions was felt to be too limiting. It was therefore considered a requirement that the remaining case studies should be located in other global locations so adequate international representation could be guaranteed. These case studies were therefore undertaken remotely.

Additionally, in order to conform to Gerring’s notion of ‘representative cases’, it was important to ensure that a cross-section of different types of national museum libraries were included in the case studies so that a diverse range of views and opinions could be identified. This in turn would help validate the case studies in terms of their representativeness of national museum libraries more broadly.

Therefore, the responses provided by these 53 libraries to the contextual information questions in Part A of the first round of the Delphi survey were analysed to identify a varied sample of suitable libraries. This was based upon characteristics such as collection size and format, subject coverage, staff numbers, and establishment date.

Following the application of these criteria, a final shortlist of 20 libraries was drawn up. The initial intention was that case studies would be undertaken at six of these libraries, which was considered to be a manageable sample size given the time and resource limitations faced during the research. The six libraries that most closely conformed to all of the criteria set-out above were therefore selected, with a further four being retained as back-up libraries – see Table 7 (six selected libraries denoted in bold type and country locations anonymised).

| Quantity | Museum Category | Region |
|----------|------------------------|----------------------|
| 1 | Main National | Australasia |
| 1 | Natural History | Europe |
| 1 | Transport | Europe |
| 1 | Art | Middle East |
| 1 | Art | North America |
| 1 | History | North America |
| 1 | Science | Australasia |
| 1 | Art | Europe |
| 1 | History | North America |
| 1 | Art | North America |

Table 7 – Final shortlist of suitable case study venues

The head librarian at each of the six selected libraries was contacted via email and was asked if their library could participate as a case study venue. An overview of the format of the case studies was provided (see next section) and an offer was made to contact the museum director if a formal request was required, which was needed on two occasions – see Appendix 4.

The process of contacting the selected case study venues was undertaken in February and March 2015, although reminder emails were sent to two institutions at later dates. Four of these six libraries agreed to participate straight away. Another initially expressed reservations based on availability of staff time but eventually agreed to participate. The final library responded saying they were unable to participate due to a restructuring process that was taking place across their museum at the time. One of the reserve libraries was therefore contacted instead and they subsequently agreed to take part.

However, at a later date the library that had initially stated they could not participate made contact to indicate that participation was now possible, albeit in a limited way, i.e. with only library staff being interviewed and not library users. Despite this, it was felt it would be useful to include this library as their Delphi survey responses had indicated they were involved in several interesting projects and activities, which were relevant to the research being undertaken.

Consequently, it was decided that the final number of case studies should increase from six to seven. The first case study took place in April 2015, with the other six taking place every five weeks thereafter, concluding in December 2015.

3.4.2.2 Case study data collection methods

Two data collection methods were undertaken during the case studies: semi-structured interviews and document analysis. Interviews were undertaken with head librarians, senior library or museum staff, and library users. Document analysis was carried out on relevant policy and strategy documents. Further details about these methods are provided below.

3.4.2.3 Interviews

The research interview is a qualitative data collection strategy entailing a specific conversation, most usually in the form of open or closed-ended questions, that are asked by an interviewer and answered by one or more interviewees, the main outcomes of which are typically the generation of new information and knowledge and the ability to understand the meaning of central themes of the subjects' views or experiences (Kvale, 2007, p. 11; Teddlie & Tashakkori, 2009, p. 229). Over the last few decades interviews have increasingly been utilised by researchers in the social sciences as a research method of choice (Kvale, 2007, p. 6).

There are many interview approaches that can be adopted in social sciences research, each with a different focus and method. Patton (2015, pp. 432-436) sets out twelve contrasting approaches that are grounded in qualitative enquiry traditions and frameworks, ranging from context specific interactions, e.g. ethnographic interviews, to in-depth analytical techniques, e.g. investigative interviewing. Whilst this research does not fit exactly into any one of Patton's twelve categories, it does conform very closely to the interview technique Patton calls 'pragmatic interviewing', which he describes as "straightforward questions about real-world issues aimed at getting straightforward answers that can yield practical and useful insights" (Patton, 2015, p. 436). This method is particularly suited to this research as it ties in with the overall philosophical approach of pragmatism, which means that circumstances and

situations of practical relevance to national museum libraries can be investigated, and real-world examples relating to the research questions can be sought.

The type of interview design that was felt to be most appropriate for a more pragmatically focused interview approach such as this was the semi-structured interview, otherwise known as the guided interview. This is a type of interview that involves the prior development of an interview guide to list the general set and sequence of the questions to be asked during the course of the interviews.

A crucial difference between semi-structured and structured interviews is that semi-structured interviews are far more flexible so these questions do not necessarily need to be adhered to rigidly. Instead, the questions to be asked and the issues to be explored, together with any supplementary questions or discussion points, can be decided upon and adjusted as the interviews progress, depending on the flow and direction that each interview takes, thereby providing opportunities for the probing of particular topics or to build up conversations and explore insights around areas of interest (Bryman, 2012, p. 470; Lichtman, 2014, p. 248; Patton, 2015, pp. 438-439).

Interview guide

The main objective of the interviews was to investigate the reasons why responses to scenario statements in the Delphi survey with the highest levels of consensus had been provided and to better understand and further explore the potential future impact of these statements on the libraries participating in the case studies. The purpose of the interviews was therefore to examine how these scenarios might affect, influence, or change these particular libraries over the next decade in terms of their strategy planning and prioritisation, policy development, operational service delivery, user demographics, user behaviours and expectations, technology uptake and implementation, and collection development and management.

The interview guides for library staff and library users participating in the case studies (see Appendix 5 and 6) were therefore constructed by identifying the three scenario statement responses with the highest degree of consensus from each of the five sections of Part B of the first round of the Delphi survey, and then formulating questions from each of these. This should have resulted in the creation of fifteen questions but several of the scenario statements covered similar topics so these were combined to avoid repetition.

This resulted in the production of a final interview guide comprised of twelve questions. These were grouped into five categories in order to simplify the analysis and cross-comparison of answers received from the interviewees, namely: service provision, usage trends and behaviours, strategic aims and objectives, collection development priorities, digital access and engagement.

Interview process

Once the seven case study libraries had been finalised, the head librarian at each library was contacted to confirm interview arrangements. In addition to undertaking an interview with each head librarian, it was also considered useful to obtain feedback from other library managers or senior museum managers with overall responsibility for library matters. The head librarian was therefore asked if s/he could seek a second member of staff to participate in the interview process.

Furthermore, each of the head librarians (except one who had already stated this was not possible) was also asked if s/he could suggest two regular library users who would be willing to be interviewed. It was requested that if possible these should comprise one internal user, i.e. a member of museum staff, and one external user, i.e. a member of the public, so that a cross-section of views and opinions could be obtained and any issues of particular relevance to one type of user or the other could be

explored. However, this was not a core requirement as it was the generic user experience rather than the subtle differences in usage experienced by museum staff and the public that was the most important factor for the research.

Following this process, a total of twenty-three potential interviewees were identified. Seven were the head librarians at each case study library, three were other senior librarians, three were senior museum managers with library responsibilities, and ten were library users. The ten library users were comprised of five internal users and five external users.

As mentioned previously, it was felt that face-to-face rather than Skype or telephone interviews would be preferable. This was because even though it has been observed that face-to-face and remote interviews tend to yield the same quality and similar levels of responses, it is nevertheless also acknowledged that face-to-face interviews often produce a deeper level of interaction with the interviewees, especially as regards use of body language and other unspoken signals (Sturges & Hanrahan, 2004).

However, remote interviews are a convenient way to reach people who are not easy to contact in person due to geographical limitations and therefore use of this approach can help to broaden the range of potential interviewees, which for research that is international in scope is valuable.

Staff and users at four of the seven case study libraries were interviewed in person, with remote interviews taking place at the other three case study libraries. Skype, which was preferred due to the ability of the interviewer and interviewees to see one another, was used at two of these three libraries but the third library did not use Skype so telephone interviews were conducted there instead.

The interviewees were all informed in advance of the main purpose of the research and of the interviews. Interviewees were also informed that their responses, together with their case study locations, would be anonymised so as to ensure confidentiality and to encourage respondents to speak freely. In several cases, potential interviewees asked to see the interview guide in advance but most interviewees were happy to be interviewed without prior knowledge of the questions. Interviews were scheduled to last 45 minutes and this timeframe was mostly met. In several cases though interviews lasted longer due to deviation into related topics.

All of the interviews were recorded using a portable digital recorder, consent for which was obtained prior to each interview, as it was important to capture every facet of the interview and obtain a complete account of the interview exchanges. Furthermore, by recording the interviews, it was possible to concentrate fully on the interview process itself, especially aspects that are central to the success of the semi-structured interview, such as probing of interesting points, asking supplementary questions, and drawing attention to any inconsistencies (Bryman, 2012, p. 482).

3.4.2.4 Document analysis

The examination of written documentation by means of qualitative content analysis in order to identify relevant research information is a widely used technique in the social sciences. It emphasises the use of discovery and description processes to search for underlying themes, contexts, meanings, and patterns, as well as revealing any relationships that might exist between two or more of these variables (Bryman, 2012, p. 557; Denzin & Lincoln, 2011, p. 592). Document analysis carried out in this way can produce extremely rich and detailed data of relevance to the research questions, although the process can often be protracted and time consuming to undertake (Bryman, 2012, p.543).

Despite these potential drawbacks, it was decided that the case studies should also involve analysis of relevant strategy or policy documents produced by each library. This was considered potentially beneficial to the research as it was expected that these documents would clearly reveal the agreed strategic direction and operational plans of the libraries and would help to identify objectives that were being prioritised. Following the completion of the interviews, the main strategy and policy documents of each library were therefore requested from the head librarians, as well as any other relevant materials.

Whilst at least one example of the above types of documentation was obtained from each of the case study venues, the availability of documents varied considerably (see section 5.5). The main reason for non-availability, especially of strategy and policy documents, was that these were often designated as being for internal use only. In two cases, the documentation was intended for public release but at the time the request was made to view these documents they were in a draft or unapproved state of development and therefore could not be made available.

The web pages of each of the case study libraries were also examined, together with any blogs or social media accounts, e.g. Facebook and Twitter. Due to the constantly evolving nature of these resources, only a snapshot view could be obtained, but it was felt that this offered a reasonably clear picture of current and planned future activities.

3.5 Data analysis

Data analysis is a critically important part of the research process for qualitative, quantitative, and mixed-methods studies. In qualitative research, data analysis is fundamentally concerned with the analysis of narrative data, key characteristics of which include the reduction of data into ordered categories, the visual display of data,

drawing and verifying general themes or conclusions, or developing a hypothesis (Miles & Huberman, 1994, pp. 10-11; Punch, 2014, pp. 197-199).

In quantitative research, data analysis is fundamentally concerned with the analysis of numeric data, key characteristics of which include statistical measurements, usually of a number of variables across a sample, and the identification and description of patterns in data, which are undertaken in order to summarise the results, discover trends, test a hypothesis, and/or prove or disprove results from the study (Chambliss & Shutt, 2010, pp. 191-192; Punch, 2014, p. 35).

Data analysis in mixed-methods research involves a process of combining, connecting, and/or integrating both qualitative and quantitative data analysis strategies in two or more phases. These are usually undertaken in a specified order at a certain point during the analysis process, and may have emphasis placed on certain aspects of the analysis, depending on the purpose and nature of the research (Punch, 2014, p. 241; Teddlie & Tashakkori, 2009, pp. 263-265).

As outlined earlier, the research design employed for this thesis is a mixed-methods sequential explanatory design (Cresswell & Plano Clark, 2011, p. 84), with a predominantly quantitative research phase being undertaken for the Delphi survey followed by a qualitative phase for the case studies, with the connected results from these two phases being summarised and interpreted as conclusions to the research. As such, the data analysis for this research is split into three strands with each relating to the other.

However, the basic model proposed by Cresswell & Plano Clark has been slightly modified for this study because the data collected and analysed from the Delphi survey were not purely quantitative, as the second round of the survey contained

qualitative responses. Data analysis for the Delphi survey is therefore split into two parts to reflect the separate methodological approaches of each round.

3.5.1 Delphi survey data analysis – round one

There is no single set method for the analysis of Delphi survey data as the analytical technique is largely driven by and dependent upon the types of questions used in each individual Delphi study (Skulmoski, Hartman, & Krahn, 2007). Therefore, for this research, the data collected following the first round of the Delphi survey were analysed and summarized using descriptive statistical analysis as this seemed the most appropriate methodology for identifying the type of information that was sought from the survey responses, i.e. identification of patterns, trends, or phenomena.

The descriptive statistical analysis principally entailed the use of univariate analysis to analyse single variables from the returned survey data. The main method used to present the univariate data was frequency distribution tables, which allowed for the analysis and graphical representation of the distribution of the survey responses received in both numerical and percentage terms.

Measurements of dispersion were also used for Part B of the survey. These were calculated to define the range between the largest and smallest data values for each set of data received from the responses. These data were used to identify the most divergent outlier responses received within each of the five sections that comprised Part B. These were required to inform the design of the questions to be included in the second round of the Delphi survey.

These analytical techniques are consistent with those discussed in the literature for the statistical analysis of quantitative data in Delphi studies, where such methods are frequently used to present information concerning the collective judgements of Delphi

respondents (Dietz, 1987; Grisham, 2009; Hasson & Keeney, 2011; Hsu & Sandford, 2007).

As indicated above, the most divergent outliers from the Part B responses needed to be identified. It was therefore necessary to define what constituted an outlier response. For the purposes of this research, a consensus of responses was assumed to have been met when 80% or more of the responses for each survey statement fell into either the upper or the lower quartile response categories on the Likert scale. 80% was selected as the consensus figure for the Delphi responses as this has been cited in the literature as a suitable percentage of the vote for determining consensus in a Delphi study (Ulschak, 1983)³⁰.

Accordingly, the 20% or less of responses in the opposite quartile categories to these consensus responses were considered to be non-consensus responses and thus were identified as outliers. To identify the most divergent outliers the relative difference between each of the consensus and non-consensus responses was calculated. The non-consensus responses calculated as having the greatest relative difference, expressed as a relative percentage difference, were therefore deemed to be the most divergent outliers.

3.5.2 Delphi survey data analysis – round two

Analysis of the qualitative data retrieved from the second round of the Delphi survey closely followed the approach recommended by Cape (2004), as this seemed particularly suited to the type and range of responses retrieved. The process Cape

³⁰ Other views also exist concerning the appropriate methodology for determining a consensus in a Delphi study.

suggests is undertaken in two phases, with the first phase focusing on data analysis and reduction and the second phase focusing on data synthesis and interpretation.

The first phase involves the categorisation and coding of the responses received according to the criteria that the Delphi respondents have identified. Cape utilised a paper based, colour coded system for his categorisation and coding, but for this research it was felt an Excel spreadsheet would be more appropriate. Areas of agreement and disagreement and any interrelationships between the categories are then identified and listed.

Cape, quoting Maykut and Morehouse (1994, p. 127), emphasises the importance of ensuring that categories listed during the data analysis process are always derived from the data rather than trying to force the data into pre-existing categories, and this was kept in mind during the data analysis process for this research to ensure the data retained an emergent focus at all times. This phase provided a systematic and consistent approach to the reduction of the qualitative responses, resulting in the production of a readily identifiable and meaningful set of categories, which could be easily analysed to show any anomalies, trends, or patterns.

The second data analysis phase adopted by Cape focuses on “putting the data back together and interpreting them” in order to better understand the issues raised by respondents. The methodology Cape employed for this process involved comparison via a matrix spreadsheet of the contributions submitted by each survey respondent with the answers they had provided in the previous round of the survey, although this is based on a Delphi model of more than two rounds. This enabled the two sets of data to be effectively synthesized and analysed so a more complete sense could be gained of the “larger, consolidated picture” (Cresswell, 2014, p. 154).

However, for the purposes of this Delphi survey, which was conducted over two rounds only, a modified version of this approach was adopted with the second round responses being compared against the research questions in order to identify any interesting themes or unique issues that may have emerged.

3.5.3 Case studies data analysis

Analysis of data from the case studies was split into two parts, reflecting the methodology adopted for the case studies, with one part relating to analysis of the semi-structured interviews and the other relating to the document analysis.

Interview analysis

The data from the semi-structured interviews were analysed and summarised through the use of recursive abstraction to create a concise and accurate overview of the issues discussed. This method is similar to the method recommended by Cape (2004), which was adopted for the analysis of the round two Delphi survey feedback, but the iterative structure of this method was felt to be better suited to the analysis of large volumes of interview data.

Recursive abstraction entails the use of a step-by-step process of interview data summarisation whereby the data are focused and compacted through the use of paraphrases, themes, and codes in order to enable the identification of accurate and distinct patterns within the data (Oun & Bach, 2014; Polkinghorne & Arnold, 2014).

Polkinghorne and Arnold (2014) recommend that researchers follow a six step process when undertaking recursive abstraction for the qualitative analysis of interview data. Each of the interviews undertaken during the seven case studies for this research were therefore analysed following this process:

1. Interviews transcribed in full from the tape recording into an Excel spreadsheet table.
2. Statements or phrases of interest from each interview are highlighted in the table.
3. Highlighted statements or phrases paraphrased to make the data more manageable.
4. Where possible questions on similar topics are combined to form themes.
5. Paraphrased data coded using single or multiple words to assist cross-comparison.
6. The coded data column of the spreadsheet is sorted alphabetically so that codes are grouped together, thereby revealing quantitative patterns and trends.

Polkinghorne and Arnold point out one notable drawback to the recursive abstraction method, which is that the repeated summarisation process can cause the final coded data to become quite distant from the original data. They therefore recommend that a final validity check is carried out to ensure that the coded data makes sense against the original data.

For this research, the validity check was undertaken by cross-linking the coded data with the original interview data through use of direct quotations from the interviews. This meant that any interesting and relevant patterns or trends that emerged from the coded data could be verified against the original quotations.

Document analysis

The data from the document analysis phase of the case studies were analysed using open coding so they could be easily broken down into segments, thereby enabling key terms and phrases of significance to the research questions to be identified.

Once these had been identified, they were grouped together as conceptual categories from which cross-comparisons could be undertaken and any notable commonalities or differences identified. The process was undertaken using an Excel spreadsheet.

The concept of open coding derives from the work of Anselm Strauss and Juliet Corbin and relates closely to the Grounded Theory approach to qualitative research, whereby theory is generated through the analysis of data. Straus and Corbin state that the initial phase of data analysis in the grounded theory approach involves the ‘opening up’ of the text to uncover the ideas and meanings that the text holds, hence the concept of ‘open’ coding (Benaquisto, 2008, pp. 582-583). As a research process, coding plays an important transitional role in transforming the raw research data into applied knowledge.

Whilst Grounded Theory as a research approach was not adopted for this thesis, the concept of open coding was utilised for this stage of the research because of its suitability for allowing categories and themes to emerge from the data itself.

As Charmaz (2014, p. 113) explains, “Coding is the pivotal link between collecting data and developing an emergent theory to explain these data. Through coding, you *define* what is happening in the data and begin to grapple with what it means”. This is particularly important for a study such as this where there is little relevant published literature and where no prior theory is being tested.

3.5.4 Combined data analysis

The final phase of the data analysis process involved bringing together and connecting the analysed data from the Delphi survey and the case studies. Connecting the data in this way is a fundamental aspect of mixed-methods research and of the sequential explanatory mixed-methods research design in particular.

The central feature of this process is the integration of the analysed quantitative and qualitative data from the research study, which involves mapping trends, patterns, and themes from each of the preceding strands of research and formulating overall conclusions in relation to the research questions.

For this research, the case study interview questions were designed directly from the Delphi survey results, so it could be argued that some degree of data integration had already taken place prior to reaching this stage. However, the final integration of the quantitative and qualitative data is more all-encompassing than this as it brings together the holistic research results for the sole purpose of interpreting and drawing conclusions from them. This can therefore be seen as the last part of the research journey rather than as a link from one stage to another.

There is no single agreed procedure in the literature for undertaking this final stage of data integration and it has been acknowledged that this is “the most uncharted area” of mixed-methods research (Teddlie & Tashakkori, 2009, p. 327). This is largely due to the fact that the variable nature of mixed-methods research means that it does not easily conform to a standardised approach, but it is also reflective of the relatively recent development of mixed-methods as a defined research methodology. However, there are some reliable pointers in the literature as to how this procedure can be undertaken. Caracelli and Greene (2008, pp. 234-242) discuss several integrative strategies that can be used. One of these, *data consolidation / merging*, involves the joint review of both data types to create new or consolidated variables or data sets.

Caracelli and Greene explain that these data sets can be expressed in either quantitative or qualitative form and that this strategy is particularly suited to mixed-methods designs with “initiation intents”, which they describe as being the use of mixed-methods to uncover fresh insights or new perspectives. The essence of this

strategy is that the qualitative and quantitative data sets are jointly reviewed and then consolidated into either numerical codes or narrative for further analysis.

The qualitative data can be 'transformed' into quantitative form through the identification of patterns, which can be categorised through coding and then rated. Alternatively, the quantitative data can be 'transformed' by applying a narrative interpretation to the results, which is then included with the qualitative data for thematic or pattern analysis. The inter-connected and synthesized nature of this strategy thereby opens up the possibility of discovering important factors or patterns that may not have been identified in the initial analysis of each single set of data.

As the primary aim of this thesis is to utilise both sets of data to uncover new insights and perspectives relating to the future role and value of national museum libraries, it was felt that maximising the scope and breadth of the collected data in this way would be a useful approach for the final stage of data analysis.

Accordingly, the qualitative data transformation strategy outlined by Caracelli and Greene was adopted for the final stage of integration of the case studies data, with the qualitative data being transformed into quantitative form in order to further inform and augment the quantitative data.

This strategy was selected as it conforms to the explanatory sequential design strategy approach whereby weighting is given to the quantitative data. The results from this final stage of data integration are then used as the empirical basis for the creation of the three future scenarios for national museum libraries that are presented in the Conclusions chapter.

3.6 Presentation of research results

One of the drawbacks of undertaking research using a mixed-methods design is that there is, as yet, no clearly defined format that is uniquely associated with or intended for the presentation of results. There is no obvious reason for this but, as with data analysis, the fact that mixed-methods research is a relatively recent phenomenon may be a factor. As Bryman (2012, p. 699) observes, “partly because interest in and the practice of mixed-methods research has gained momentum only in relatively recent times, it has few writing conventions”.

As with the nature of the research itself, it is therefore incumbent upon the researcher when presenting mixed-methods research results to appropriately mix aspects of both qualitative and quantitative data reporting. As Bryman goes on to state, at a basic level this entails a need to “borrow some of the conventions associated with writing up quantitative and qualitative research in terms of needing to start with a research focus in the sense of a research problem and/or some research questions” (Bryman, 2012, p. 699).

Specifically though, this means ensuring that the quantitative and qualitative elements of the research are reported in such a way that they come together in a meaningful and purposeful manner. Creswell and Tashakkori (2007, pp. 108-109) attribute three features to this process. Firstly, that mixed-methods studies need to be “well-developed in both quantitative and qualitative components” with “two distinct strands, one qualitative and one quantitative, each complete with its own questions, data, analysis, and inferences”. Secondly, that mixed-methods research is “simply more than reporting two distinct strands of quantitative and qualitative research; these studies must also integrate, link, or connect these strands in some way” with the eventual conclusions being “integrated to provide a fuller understanding of the phenomenon under study”, which the authors go on to say may be achieved via

means of “comparing, contrasting, building on, or embedding one type of conclusion with another”. The third stated feature is that the reported research “includes mixed-methods components that add to the literature about mixed-methods research”.

The results of this mixed-methods research are therefore presented and discussed with these three criteria in mind, and these are used as a benchmark for evaluating the rigour and empirical strength of the results throughout the following chapters.

3.6.1 Structure of the results

In order to ensure consistency with the sequential explanatory mixed-methods model, it was decided that the results should be presented and discussed following a format that was as closely related to this model as possible.

The results from the Delphi survey are therefore presented and discussed first (see Chapter 4), commencing with the results of the first round, which is described in two parts, relating to Parts A and B. Part A offers a quantitative contextual overview of the types of national museum libraries included in the sample and Part B offers a quantitative analysis and discussion of the results from each of the five themed sections that make up Part B of the survey.

The results of the second round of the Delphi survey are then presented. These data, which summarise the reasons given for selected outlier results from the first round of the survey, were qualitative in nature. Therefore the results from this round are principally reported and discussed in a narrative format with statistical data presented to support this. The results of the second round are presented in the same order as the five themed sections from the first round.

The data collected from the seven case studies are then reported and discussed (see Chapter 5). This section commences with a brief summary of the statistical data for each of the case study venues. The results of the semi-structured interviews are then presented, in the same order as the interview guide. A quantitative summary of the coded results is provided first followed by a detailed qualitative analysis of the issues discussed. In order to protect respondent confidentiality, the case studies are reported anonymously. Finally, the second element of the case studies, the document analysis, is presented. This consists of a quantitative summary and a qualitative description and analysis of the findings.

3.6.2 Presentation of conclusions

Following the mixing of the quantitative and qualitative data from the Delphi survey and case studies described in section 3.5.4, the final set of results are presented in the Conclusions chapter.

These are structured in two ways. Firstly, as narrative conclusions, which allows for the findings from the research to be presented according to the main thematic categories that emerged from the data. And secondly, as three future scenario models for national museum libraries, each of which is also constructed from and based upon the findings of the research. The rationale for the use of scenario models is expanded upon below.

3.6.3 Scenarios

Scenarios have variously been defined as “a well-worked answer to the question: ‘What can conceivably happen?’ Or: ‘What would happen if...?’” (Lindgren & Bandhold, 2009, p. 22); as “images of the future constructed by combining possible developments in different ways” (De Ruijter, 2014, p. 56); and as “a disciplined

method for imaging possible futures in which organizational decisions may be played out” (Shoemaker, 1995).

In slightly more prosaic terms, scenarios can simply be described as planning tools that individuals or organisations can use in order to analyse and interpret trends from historic data so that possible, plausible future events or activities can be anticipated, explored, and prepared for.

There are many benefits of using scenarios as an aid for future planning for individuals and organisations. Of these, arguably the most useful is that they are effective at helping to better anticipate uncertainties and risks and prepare for possible eventualities in a structured and insightful manner (De Ruijter, 2014, pp. 58-59). Furthermore, they can open up opportunities for evaluating and considering different opinions and multiple directions and outcomes in a manageable and memorable way, without the need of worrying about whether these will be right or wrong (Lindgren & Bandhold, 2009, pp. 29-30).

Use of scenarios within library settings for the purposes of future planning and strategic decision making is both well-established and widespread (Curtis et al., 2013; Hannabuss, 2001; Iivonen, 2003; Ludwig, Giesecke, & Walton, 2010; O'Connor, Blair, & McConchie, 1997; Rea, Aldrich, & Emery, 2000; C. Robinson, Cincotta, Qualters, & Friedman, 1998), with many libraries using them to forecast new competencies that need to be developed or activities that need to be undertaken in response to a fast changing external environment. And whilst no specific examples could be found in the literature of scenarios having been used for the purposes of museum library planning activities, the fact they have been used by libraries across a variety of other sectors presents a compelling case for their use in the context of this research.

Another notable reason for the use of scenarios here is their compatibility with other complementary research techniques that are often used for forecasting and planning, particularly Delphi surveys and case studies. As Walters (2015, pp. 47-48) observes, the use of scenarios in conjunction with additional research techniques such as these “can aid in making the scenarios more rigorous as well as yielding more understanding from them”.

A variety of planning models exist in the literature, each offering a different approach and focus to the process of creating and applying scenarios. Giesecke and Pearson (2015, pp. 11-14) outline seven of the most popular and widely used models that could be considered for use by libraries, and offer views on the suitability of each to different organisational situations.

These range from a highly structured model that links scenarios with strategic thinking, and which is aimed at decision makers in organisations (Shoemaker, 1995), to a simple and more fluid model that can be used by organisations that have a good grasp of the environmental factors impacting upon the questions that are central to the planning process (Mercer, 1995).

However, the model that is considered to be most appropriate for the purposes of this research is an eight step process developed by Peter Schwartz in his book *The Art of the Long View* (Schwartz, 1998), which is one of the most frequently used scenario planning models. The reason for selecting this model is because of its adaptability to and relationship with the type of research undertaken for this thesis.

This can be demonstrated by mapping Schwartz’s eight scenario model steps to each of the main phases of the research undertaken, as outlined in the following table.

| Step | Schwartz's Eight Step Scenario Planning Process | Steps Mapped to Main Phases of Research for Thesis |
|------|--|--|
| 1. | <i>Identify the focal issue or decision.</i> | Undertake literature review to identify key issues and themes and use these to refine initial research questions. |
| 2. | <i>Identify key factors in the local environment.</i> | Use the research questions to design the Delphi survey so key themes and issues can be explored. |
| 3. | <i>Identify the driving forces.</i> | Undertake Delphi survey and analyse results to identify how key themes and issues are impacting upon national museum libraries. |
| 4. | <i>Identify which forces are the most important and the most uncertain.</i> | Use Delphi survey results to inform the design of the case studies and undertake case studies to explore themes and issues in greater depth. |
| 5. | <i>Select the most important force and the most uncertain force, to create the scenario matrix.</i> | Mix the results of the Delphi survey and case studies to reveal the final list of key findings of relevance to the research questions and use these to create the scenario matrices. |
| 6. | <i>Complete the scenarios.</i> | Use scenario matrices as a framework for the completion of three future scenario models for national museum libraries. |
| 7. | <i>Consider the implications of each scenario.</i> | Discuss opportunities, threats and robustness of each scenario and assess how each would impact upon national museum libraries. |
| 8. | <i>Select leading indicators and signposts.</i> | Identify observable and measurable indicators and any additional data that might be needed to help monitor changes brought by scenarios. |

Table 8 – Schwartz's scenario planning model and thesis research process

(Adapted from Schwartz, 1998, p. 241)

An important step in Schwartz's scenario planning process is the creation of the scenario matrix, or more specifically choosing the two axes that will form the scenario matrix. The reason this is important is because each of the quadrants that makes up the matrix will offer a different view of how the future might develop based on variable factors (Giesecke & Pearson, 2015, p. 19). This does not necessarily involve the

presentation of opposite case or best-worst case scenarios in each quadrant, but rather the identification of subtle or significant variants that will help identify the unique facets of a particular scenario. The matrices therefore form a central part of the scenarios presented for this research.

3.7 Summary

This chapter provides an account of the methods and philosophies adopted and the processes and techniques used during the research. The chapter commences with a summary of the research approach, describing the rationale for selecting a pragmatic philosophical approach and a mixed-methods research design. This is followed by a review of the research process, focusing on the use, structure, and implementation of an explanatory sequential mixed-methods design.

An examination of the research and data collection methods is then presented. This was a three-stage process, commencing with a literature review, which was undertaken in order to inform the development of the research topic and, as a recursive exercise, allowed for continuous reframing of the research questions as the research progressed.

The second stage of the research process is then described, starting with a review of the Delphi method and an assessment of its suitability to this research, highlighting its widespread use as a forecasting tool. Several examples of relevant Delphi studies in the literature are analysed and reasons are given for the selection of one particular study as a model to be adopted. The methodology selected for the design and implementation of the two-stage Delphi survey is then outlined. This includes an overview of the purposive sampling strategy used to select participants, and some of the associated issues and problems. The development of the Delphi survey questions

and scenario statements is explained and a description is given of how the first round answers link to the second round questions.

The third stage of the process, the case studies, is then described. Following a summarisation of the relevance of the case study methodology to this research, and in particular the ability of case studies to uncover detailed qualitative information, the two component parts of the case studies that were conducted, semi-structured interviews and document analysis, are examined.

The chapter concludes with a description of the data analysis methods used for both phases of the research. A summary is also provided of how the separate research phases are brought together at the end and how the data are mixed, thereby revealing patterns and themes of relevance to the research questions.

Finally, a description of the methods used to present the cumulative results of the research is provided, together with a summary of the presentation of the conclusions, including an overview of the use of scenarios as a planning tool.

Chapter 4 – RESULTS AND DISCUSSION OF DELPHI SURVEY

4.1 Introduction

The findings from the Delphi survey are presented and discussed in this chapter. These are set out sequentially in the same order as the survey questions. The round one Delphi survey results are presented first followed by the results from round two.

4.2 Delphi survey – round one

4.2.1 Response rate

The first round of the Delphi survey was sent as an online survey to the head librarians at 200 national museum libraries across 40 countries. 188 of these 200 librarians were recorded by the survey software as having clicked on the link to activate the survey. However, 93 subjects were recorded as having exited the survey before answering any of the questions or at some point during but before the end of the survey. The vast majority who exited before the end did so having only answered a few questions.

The criterion that was used to determine whether or not these subjects could be counted in the final sample was based upon the first of six definitions provided by the American Association for Public Research³¹, which states that partially completed surveys should not be counted as valid responses. Furthermore, it was felt that incomplete surveys could not be meaningfully contrasted with completed surveys as key data would be missing. Consequently, all of the null or partially completed

³¹ American Association for Public Research Standard Definitions , 2008 (Accessed 6th January 2015) www.aapor.org/AAPORKentico/AAPOR_Main/media/MainSiteFiles/Standard_Definitions_07_08_Final.pdf

responses received from these 93 librarians were discounted from the final survey results count.

The responses received from the remaining 95 librarians were completed through to the end of the survey. 88 of these answered all of the questions and statements and clicked on the 'Finish' button at the end and 7 answered everything but omitted to click the 'Finish' button. However, these were counted as completed responses as all of the questions and statements had been answered. Consequently, 95 out of the 200 librarians who were contacted completed and returned the survey, which constitutes a final response rate of 48%.

4.2.2 Part one of round one

The data reported in this section relates to demographic and contextual information about the national museum libraries that responded to the survey. This information is important as it helps place the results received in part two of the survey, i.e. the responses to the scenario statements, in a broader context and it also informs the analysis of these results.

4.2.2.1 Sample demographics

Completed responses were received from 95 national museum libraries across 29 countries (see Table 8). The five countries with the largest representation, in terms of the frequency of responses were: the United Kingdom (17% of responses)³²; the United States and Germany (both 13%), France (8%), and Switzerland (6%). In terms of representation by region, European national museum libraries featured most prominently, with 65% of all respondents. This was followed by North America,³³ with

³² All survey data reported in this chapter have been rounded up or down to the nearest whole percentage.

³³ North America was defined as also including countries in Central America and the Caribbean.

29% of respondents, and then Asia and the Middle East, with 6%. The region with the fewest respondents was South America, with 1%.

| Country of National Museum Library | Frequency | Percentage of Total |
|------------------------------------|-----------|---------------------|
| United Kingdom | 16 | 17 |
| Germany | 12 | 13 |
| United States | 12 | 13 |
| France | 8 | 8 |
| Switzerland | 6 | 6 |
| Canada | 5 | 5 |
| Spain | 5 | 5 |
| Australia | 4 | 4 |
| Sweden | 3 | 3 |
| Austria | 2 | 2 |
| Belgium | 2 | 2 |
| Estonia | 2 | 2 |
| Netherlands | 2 | 2 |
| Chile | 1 | 1 |
| Costa Rica | 1 | 1 |
| Czech Republic | 1 | 1 |
| Denmark | 1 | 1 |
| Finland | 1 | 1 |
| India | 1 | 1 |
| Israel | 1 | 1 |
| Jamaica | 1 | 1 |
| Jordan | 1 | 1 |
| Kenya | 1 | 1 |
| Luxembourg | 1 | 1 |
| New Zealand | 1 | 1 |
| Qatar | 1 | 1 |
| Singapore | 1 | 1 |
| South Africa | 1 | 1 |
| Taiwan | 1 | 1 |
| TOTAL | 95 | 100.0 |

Table 9 – Distribution of survey responses by country

The responses were also analysed in order to gauge regional representation proportionate to the total number of libraries initially invited to participate in the Delphi survey. This also revealed that the largest representation was from European

libraries, with 60%. This was followed by Australasian libraries, with 45%, and North American libraries, with 40%. As before, the region with the smallest representation was South America, with 11%.

These results therefore show that whilst each region of the world is represented in the survey, the overwhelming majority of responses are from Western countries, i.e. Europe, North America, and Australasia. This was expected though as most of the libraries that were selected to participate in the survey were from those countries.

This was largely attributable to the fact that there are fewer national museum libraries in non-Western countries, and of those that do exist many did not meet the selection criteria outlined in the Methodology chapter. The responses received from the Delphi survey, and the subsequent analysis provided, therefore need to be considered through a predominantly Western lens.

Analysis of the libraries that did not respond to the survey was also undertaken to identify any anomalies or trends. The main characteristic shared by the majority of non-responding libraries was that they did not publicise named contacts on their websites and so the surveys were sent to general library email addresses instead. It is therefore possible that these emails had either been ignored or not passed onto the head librarian.

It was also noticeable that some of the countries that submitted no or few responses were those where it had possibly been incorrectly assumed that English, or one of the other three languages that the survey was translated into, were widely spoken. For example, the survey was sent in English and German to four libraries in the Czech Republic, but only one library responded.

In terms of countries from which no responses were received, these mainly tended to be countries where only one national museum library had been identified, e.g. Kuwait, Bahamas, Iceland, Malaysia, and Zimbabwe. There were no obvious trends in terms of the geographical location of non-respondent countries, although the single highest non-response rate by region was by some distance South America. There was no reason for this though as the surveys had been distributed in Spanish to countries that, with the exception of Brazil, were Spanish speaking and in many cases the surveys had been sent to named individuals rather than general library email addresses.

4.2.2.2 Sample characteristics

The data collected from part one of the first round of the Delphi survey related to contextual background information about the libraries that responded. This fell into three broad categories: information about the parent museum each library belongs to, information about the administration and constitution of each library, and information about the nature and size of each library's collections. These data are analysed in the following sections.

Information about the parent museum

Head librarians were initially asked to classify the type of national museum that their library belonged to. Nine classification categories were provided for this question and respondents were permitted to select more than one if appropriate. A category labelled *other* was also provided for those that did not fit the pre-defined categories. This question produced 124 responses from 95 respondents, which indicated that 29 respondents believed their museums belonged to more than one category. As can be seen in Figure 10, the most frequently selected category was *art museum*, with 45 responses (36% relative frequency by choice / 47% adjusted relative frequency). This was followed by *general museum* and *history museum*, which were both selected by 19 respondents (15% relative frequency by choice / 20% adjusted relative frequency),

and then *natural history museum*, which was selected by 12 respondents (10% relative frequency by choice / 13% adjusted relative frequency).

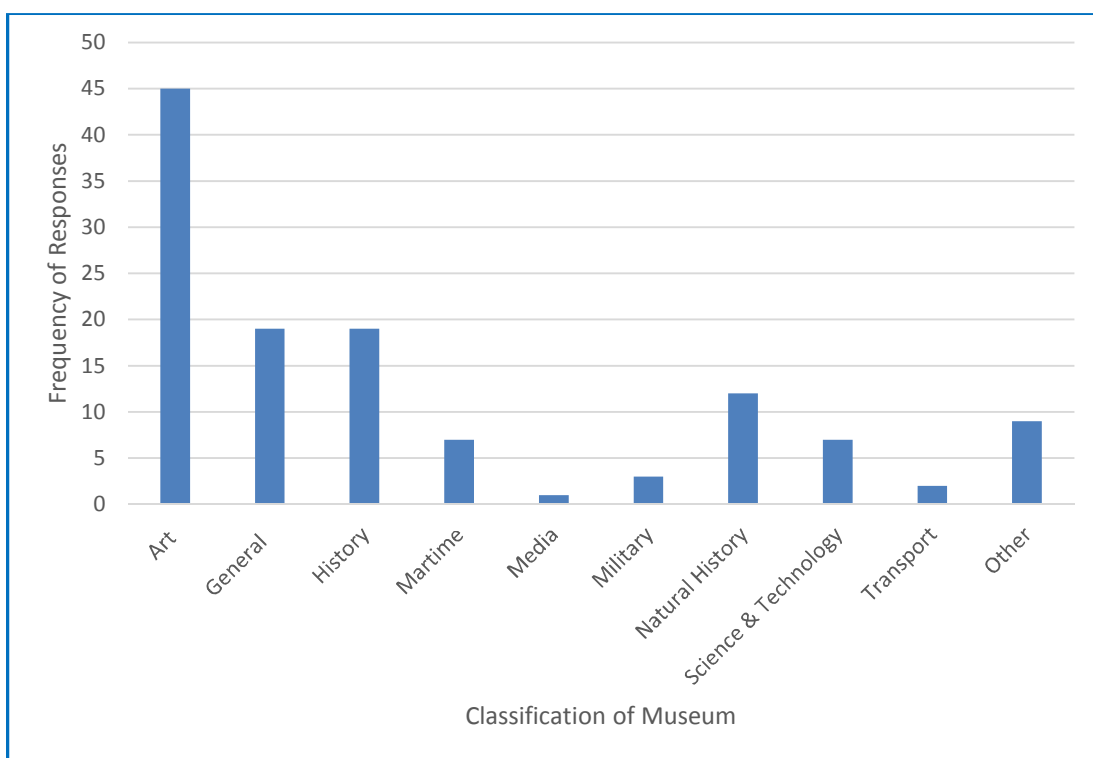


Figure 10 – Classification of parent museums

The dominance of libraries that belong to art museums in these results closely reflects the findings of the literature review, where it was observed that art museum libraries feature more prominently in the LIS literature than other types of museum libraries.

This could simply be attributable to the fact that there are more art museum libraries than any other types of museum library or, as mentioned in the literature review, it could be testament to other reasons, such as the fact that art museum libraries may be better at working closely together and communicating as a defined group through organisations such as *ARLIS*. Unfortunately this research was unable to determine the cause of this.

Information about the library

Participants were asked four questions about the characteristics and constitution of their libraries. These questions focused on the age of their library, the number of staff employed, the museum department to which their library belongs, and whether access and services to the public are provided.

The first question related to the date the library was established. The results revealed that few national museum libraries had been developed since 2000, with only 5 respondents (5%) selecting this option. However, this was not too surprising as the timeframe for this date range was recent and so it was not anticipated that many would have been established during this period.

As shown in Figure 11, there was a fairly even distribution of library establishment dates prior to 2000, with no clear pattern emerging in terms of a peak date range. However, it was interesting to note that the two most active periods for national museum libraries to be established were between 1880 and 1909 (20%) and between 1970 and 1999 (18%), coinciding perhaps with periods of relative global peace and prosperity.

Conversely, the period when the fewest libraries were established was between 1940 and 1969 (13%), which, for European institutions especially, is perhaps not surprising given that this coincided with World War Two and the post-war reconstruction period.

No overall trend or pattern could therefore be determined in relation to the establishment dates of the libraries included in the sample.



Figure 11 – Establishment dates of national museum libraries

Information was then collected about the number of staff employed in each library, in order to ascertain whether or not the libraries were similar in terms of workforce capacity. These figures also provided an indication of the ability of libraries to release staff to undertake non-core and/or resource intensive activities, such as digitisation. The results were clear, with 61 respondents (64%) only employing 1 to 5 staff. The next most frequently selected category was for 6 to 15 staff, with 15 respondents (16%). The remaining four categories (16 to 25 staff, 26 to 35 staff, 36 to 50 staff, and over 50 staff) were each selected by fewer than 10 respondents.

It can thus be seen that most libraries in the sample have limited staff resources. Whilst this cannot be generalised with accuracy to the wider population of national museum libraries, it does nevertheless seem to point to the possibility of the majority of national museum libraries having smaller staffing structures, in contrast to most research or academic libraries which frequently employ many more staff. This in turn

may constrain the ability of these libraries to significantly broaden or diversify their future roles and activities.

Respondents were also asked to indicate which museum department their library belonged to. This question was intended to elicit a better understanding of the organisational positioning of libraries within national museums and to examine the nature of their relationships with other museum departments. A range of departmental options were provided, with respondents being permitted to select more than one option if their library was administratively linked to more than one department.

32 libraries (30% relative frequency by choice / 34% adjusted relative frequency) reported belonging to a *curatorial / collections* department. This result was broadly in line with expectations as it was anticipated that many museums would treat the two-dimensional collections in their libraries as part of their overall collection of museum objects, and would therefore incorporate the two. This also conforms to reported findings in the literature, notably Lambert (2002).

24 respondents (21% relative frequency by choice / 23% adjusted relative frequency) indicated their libraries did not belong to another department, the inference being that they were independently managed within their museums. The only other museum department to register a significant number of responses was *collections information / registry*, with 17 respondents (13% relative frequency by choice / 15% adjusted relative frequency) selecting this option. This is also similar to findings in the literature, specifically van Boxtel (2009).

The final contextual information question in this section concerned provision of library access and services to the general public. Almost all respondents stated that they offered some level of access and services to the public, with 53 (56%) indicating they

provided full public access and services, and a further 38 (40%) stating they provided partial public access and services (see Figure 12). These results were again unsurprising as the evidence in the literature indicates that a significant number of national museum libraries provide at least some degree of library access and service provision for the public, although as van Boxtel (2009) observes, public service offerings may not always include availability of book borrowing privileges.

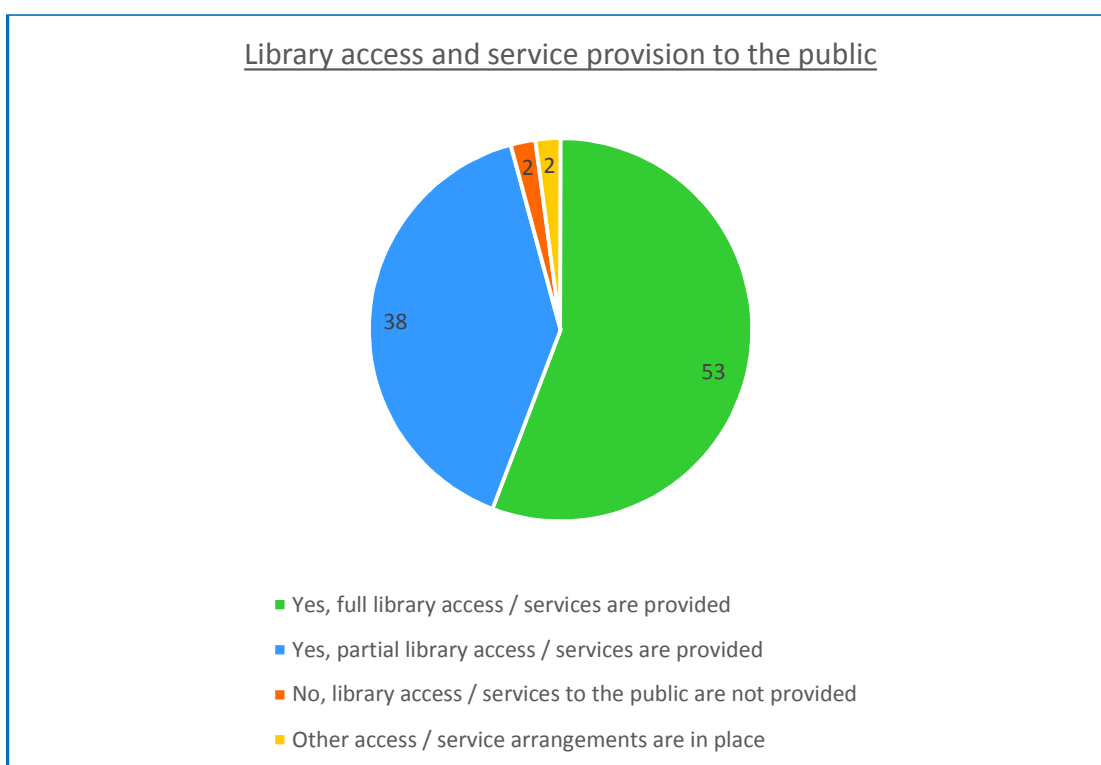


Figure 12 – Library access and service provision to members of the public

Information about library collections

Two questions were asked about the size and type of collections held by national museum libraries. The first concerned the number of print, electronic, and other format items held by each library. The results (see Figure 13) corresponded with the views expressed by van der Wateren (1999), Weijsenfeld & Wolffe (2009), and Zamora et al (2010) in the literature review, all of whom noted that museum library

collections are still overwhelmingly print focused with acquisition policies frequently being centred around the collection of printed, specialist materials.

The most frequent responses for the number of print format items held fell into the three categories: 10,000 to 50,000 items (24%), 50,000 to 100,000 items (24%), and 100,000 to 250,000 items (21%). A sizeable number of libraries (13%) reported holding in excess of 500,000 printed items in their collection. However, very few (3%) reported holding between 1,000 and 5,000 printed items, and none reported holding fewer than 1,000 printed items.

This contrasted markedly with the figures reported for electronic format items held by libraries, which were defined as being either those electronic items that had been purchased outright by libraries, e.g. e-books, or those electronic items where subscription access had been obtained by libraries, e.g. e-journals. 70% held or had access to fewer than 1,000 electronic items, and 11% held or had access to between 1,000 and 5,000 electronic items. Very few libraries held or had access to more than 5,000 electronic items, and none reported having more than 500,000 items.

The responses received for other format items held by national museum libraries, which were defined as being items such as audio-visual media and photographic materials, was similar to electronic items. Most respondents reported that their libraries held a relatively small number of these items, with 42% holding fewer than 1,000, and 14% holding between 1,000 and 5,000. The other responses were fairly evenly spread across the remaining six categories, with a mean response rate of 7%.

It is interesting to note a pattern emerging from the data in relation to the collection focus of these libraries, with the majority being overwhelmingly print dominated and many holding print collections of a significant size, which in some cases are

comparable to the collections of many academic or large research libraries. Likewise, very few seem to hold sizeable collections of electronic or other format materials.

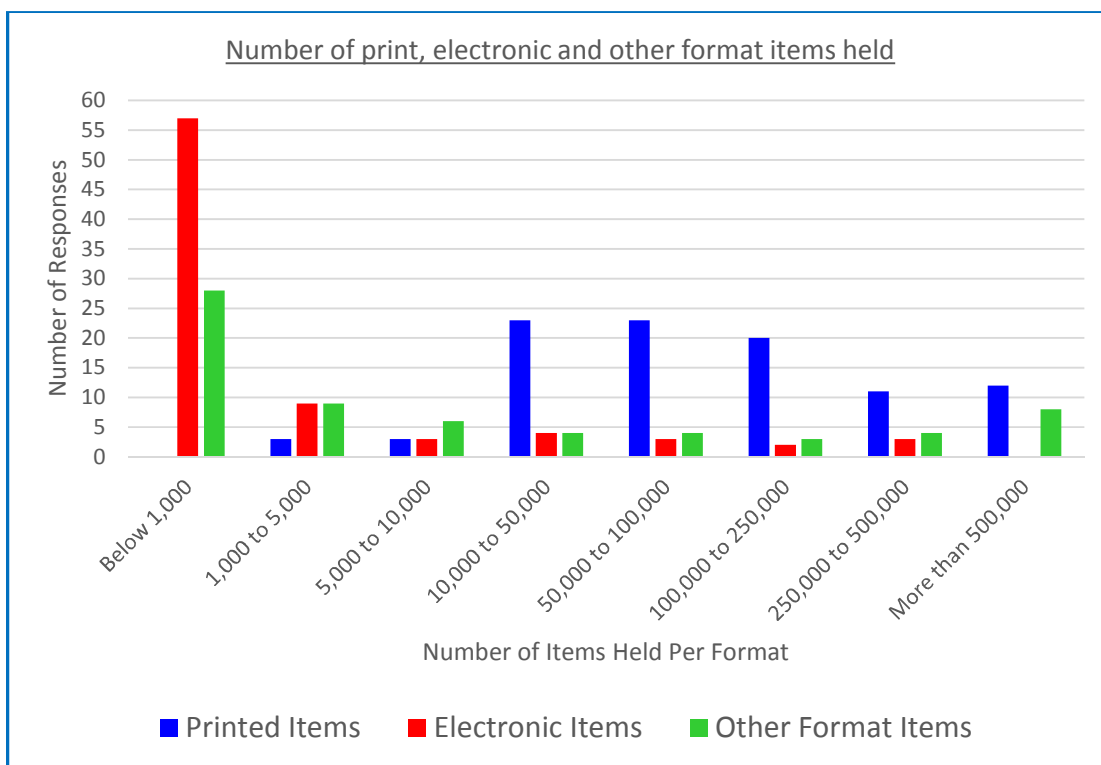


Figure 13 – Print, electronic and other format items held by libraries

The second area that was investigated regarding types of collections held and managed by national museum libraries was archive collections, which were stipulated as being one of three types of items: institutional records and/or archives of the parent museum, personal archives of individuals that have been acquired by a library, or corporate archives of external organisations or companies that have been acquired by a library.

As mentioned in the literature review, there is no consistent position regarding the role that national museum libraries play in terms of collecting, managing, and making accessible archive collections, particularly the archives of individuals and external organisations, with some libraries holding very few or no archives and others holding

quite significant archive collections. This position was reflected in the survey results, with 60 respondents (63%) reporting that their libraries managed archive collections, and 35 respondents (37%) stating their libraries did not manage archive collections.

This shows that whilst more libraries manage archives than not, over one-third do not manage any archives at all. As such, it can be argued that collectively speaking archives are not afforded the same prioritisation in terms of collection development as other printed materials.

One aspect relating to archival holdings that was not asked about in the survey, which in hindsight would have been useful to have explored, was whether the national museums that the libraries belonged to contained separate archives departments that were administratively unrelated to the libraries. This would have helped ascertain whether the management of archives in national museums is more commonplace than the above results indicate and in so doing would have provided a more complete picture of the extent of archives management as an organisational activity.

4.2.3 Part two of round one

The data reported in this section relates to the responses to the sixty future scenario statements listed in part two of the first round of the Delphi survey. This information is important for two reasons. Firstly, because it is central to answering the research questions. And secondly, because it provides a broader context and structure for the design of the case studies that follow, and in turn the conclusions and final scenarios.

The following sections contain results and commentary from the five themed sections of part two of the survey, which are presented in the same order as the survey.

4.2.3.1 Section A – Future library users and usage

Library managers were asked to provide their opinions about the types of users who they felt would most frequently use their libraries in future, their anticipated usage behaviours and preferences, their likely reasons for visiting, and the types of resources and services they expected them to utilise.

Types of users

The first three scenario statements examined who would mainly be using national museum libraries in future. Underpinning these statements was the need to assess whether respondents saw their libraries as becoming essentially inward facing institutions that served a distinct and highly focused clientele, or outward, public facing institutions with a much broader remit.

From the findings of the literature review, it was expected that many respondents would predict a move towards greater public usage of their libraries. And to a degree this proved to be the case, with 26% of respondents stating this would be highly likely to occur compared to 8% who considered it to be highly unlikely. Interestingly though, an almost inverse picture emerged in relation to the desirability of the public becoming the most active library users, with only 9% of managers seeing this as a highly desirable outcome for their libraries, compared with 28% who saw it as highly undesirable. It should be noted though that the majority of respondents provided views that fell in between these two positions.

The feedback regarding the possibility of future library use mostly being comprised of more 'traditional users' of national museum libraries, i.e. museum staff and scholarly researchers, was clearer. A majority of managers, 53%, stated that this scenario would be highly likely to occur, and 52% said it would be highly desirable. A similar response was provided with regard to university students and scholars being the most

active users, with 36% seeing this as being highly likely, and 56% perceiving it as highly desirable.

The general future direction in terms of usage of national museum libraries in the sample is therefore considered as being one that has a strong curatorial and scholarly research focus, with a more modest shift towards greater public use.

Reasons for use

In the following three statements, managers were asked to gauge the primary reasons why future library users would make use of their libraries. Three options were offered: *museum related research, academic / scholarly research, personal interest / pleasure.*

Only *academic / scholarly research* scored highly, with 56% of respondents seeing this type of usage as being highly likely to occur over the next decade, and 69% stating that it would be a highly desirable outcome. Opinions regarding future library use primarily being for *museum related research*, e.g. activities such as curatorial research for exhibitions, and for *personal interest / pleasure*, e.g. activities such as family history research, were far less clear though.

There was some agreement regarding museum related research, with 29% of respondents seeing this as being highly likely, and 34% as highly desirable. These figures were far lower than expected given that much of the literature pointed towards museum staff being the primary users of museum libraries.

However, it is possible that some respondents may have attributed potential library usage by museum staff as being more closely related to the *academic / scholarly research* option instead. There was no overall consensus in terms of library use for personal interest and pleasure reasons, with similar numbers of respondents viewing this as being likely and unlikely as desirable and undesirable.

These results again reinforce the emerging theme of future library usage being primarily focused on scholarly research and less so on other activities. Similarly, it shows a user landscape that will continue to be dominated by what could be seen as more traditional and well established users of national museum libraries.

Return visitors

Reasons for return visits by library users was seen as a particularly important indicator of the future role of national museum libraries, as return visitors are likely to be amongst the most frequent users of these facilities. Consequently, their needs and requirements may well be afforded some degree of prioritisation by library managers when planning future service and resource delivery.

The majority of respondents were in strong agreement that most return visitors would be those needing to access materials that are either unique to their library or which could not be easily found elsewhere, with 73% agreeing that this would be highly likely, and 59% indicating it would be highly desirable. Only a very small number saw this as being either unlikely or undesirable.

This shows that access to specialised, rare, or unique items is seen as being a key motivating factor for future library usage. This theme is also returned to in the next chapter (section 5.4.5.1), where enabling access to rare or unique items is discussed as one of the main drivers for the digitisation of national museum library collections.

These results indicate an ongoing specialised role for national museum libraries, reflecting a demand from users for collections and services that are not easily found elsewhere, and which have an in-depth subject focus.

Fulfilment of information needs

There was less consensus regarding the ability of the libraries to fulfil all their users' future information needs and research requirements (see Figure 14). Most, but not all, managers stated it was likely their libraries would only be able to fulfil some of their users' information needs. Most though felt this outcome would be undesirable.

This perhaps indicates a general acceptance that whilst national museum library managers may possibly want to replicate a wide-ranging collection and expansive service offer of the kind found in academic libraries, it is unrealistic to expect this to happen, given that resource constraints are common. A logical conclusion that might be drawn from this, which mirrors the results of the previous scenarios, is that most of these libraries are adopting a prudent position, which plays to their strengths by concentrating on delivery of specialised and subject focused collections and services.

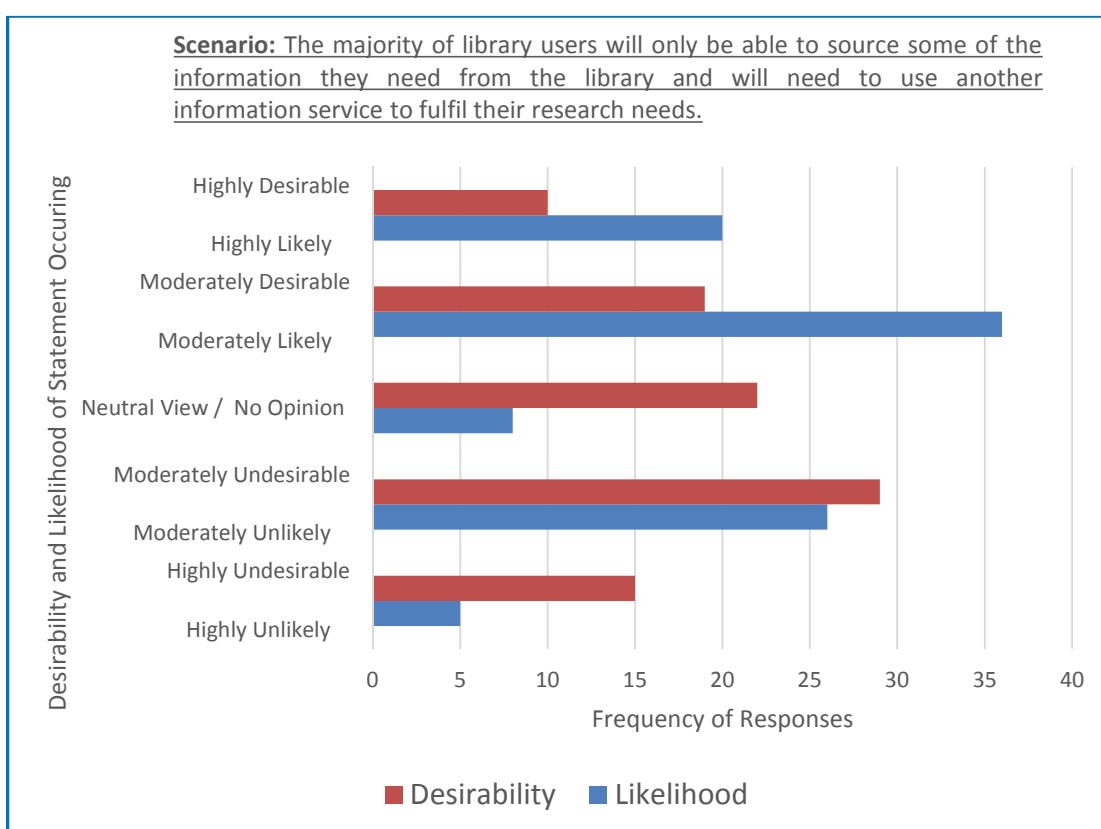


Figure 14 – Responses regarding ability to meet user information needs

Types of resources and services used

Predicting whether future library users will be more inclined to make use of print or electronic resources is at the heart of this research. As stated in the literature review, increasing numbers of research libraries are shrinking their print collections in favour of developing access to digital content (King, 2009; Hazen, 2011), with this trend often being driven by the demands of those library users whose preference is for electronic rather than print resources (Juznic, 2009).

However, this widespread shift from print to digital does not seem to be occurring across the national museum libraries included within this sample. When asked if future demand from library users would predominantly be for print resources, 49% of library managers stated this would be highly likely, with a further 31% saying it would be moderately likely. This compares with a combined total of just 11% who felt this would be highly or moderately unlikely. Similarly, most respondents felt this scenario was desirable for their libraries, with 32% seeing it as being highly desirable, and a further 36% considering it moderately desirable. Only 9% of respondents saw this as being either highly or moderately undesirable. This points towards the probability of a continuing strong demand for print resources from users over the next decade.

However, this assumption is brought into question when the results of the next scenario statement are considered. For this, respondents were asked the opposite question, i.e. whether future demand would predominantly be for electronic resources. A more balanced set of responses were received here (see Figure 15), which is somewhat surprising as based on the answers received from the previous statement it was expected that this would produce overtly negative answers.

This lack of overall consensus could perhaps point towards an emerging hybrid role for these libraries, with print continuing to dominate and being seen as the resource

of first resort in the short to medium term future, but with electronic resources having an increasingly important longer-term impact in terms of their relevance to users.

This would certainly mirror the way in which electronic resources are reported as having steadily grown in importance across research libraries more broadly. Furthermore, the time lag for this development in national museum libraries would seem fairly logical given the evidence cited in the literature of these libraries generally being less technologically developed than libraries in other sectors.

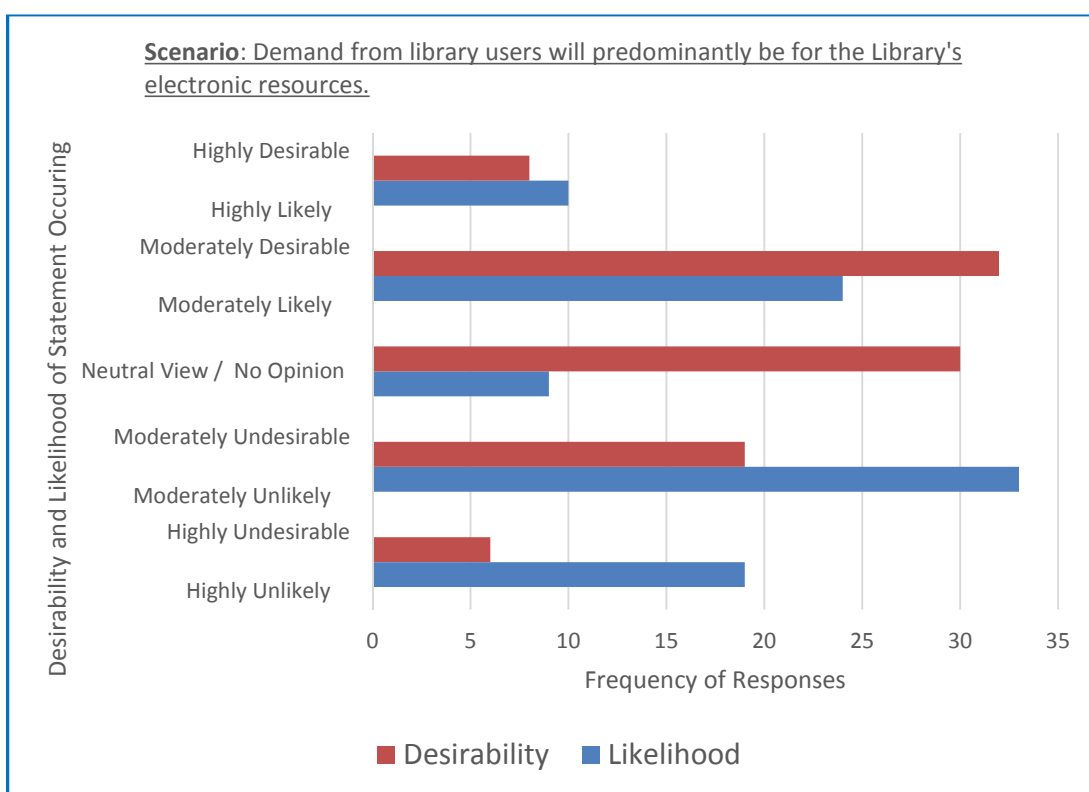


Figure 15 – Responses regarding demand for electronic resources

The next two statements examined anticipated future interactions with the physical libraries by users, with two scenario statements being provided. The first of these sought to establish whether the majority of future users would not need to physically visit the libraries; the unstated implication being that they would mainly access library materials online instead.

The response to this statement was mixed, with no overall consensus being achieved. However, more respondents felt this scenario would be unlikely than likely, with 58% stating it would be highly or moderately unlikely, compared to 37% who felt it would be highly or moderately likely. A slight majority were also inclined to see this as being undesirable for their libraries, with 44% viewing it as highly or moderately undesirable, compared to 33% who saw it as highly or moderately desirable.

The second statement focused on the main situations that would warrant physical visits to the libraries by users. Managers were asked whether they felt library users would mostly visit to undertake activities that could not be easily undertaken elsewhere, such as consulting rare books, or seeking expert advice from library staff. In contrast to the previous statement, the results here were very clear, with 83% of respondents saying this would be highly or moderately likely, and 71% seeing it as highly or moderately desirable.

These results again indicate the importance of unique assets for these national museum libraries. It would appear that there is a strong need for future users to continue visiting the physical libraries but that this will most likely be for specific reasons, which these libraries are well placed to satisfy but which few other information service providers may be able to easily replicate.

The final statement took the issue of unique assets one stage further by assessing the likely demand for services that utilised the information skills and knowledge of library staff. The statement therefore examined the potential demand from library users for library-mediated research support if library staff were able to transform their traditional and reactive 'reference desk' type roles into new proactive 'information consultant' type roles by offering personalised information support services to users.

The study found managers were very supportive of this idea, with 77% seeing future demand from users for these types of services as being highly or moderately likely. Perhaps unsurprisingly, 91% believed offering these services would be extremely desirable for their libraries. This therefore clearly indicates the potential of utilising librarians' skills as a key future asset for national museum libraries.

4.2.3.2 Section B – Future library service provision

In the second section of part two of the survey, attention was turned towards future provision of library services. Library managers were asked to consider future scenario statements across three broad areas: future format provision, future operating environment, and future provision of museum aligned programmes and services.

Future format provision

The first three statements examined the formats libraries would prioritise in terms of information acquisition and provision over the next decade. The results were again indicative of a mainly print based service model prevailing, with 85% of respondents stating their libraries would be highly or moderately likely to serve as predominantly print focused resources. There were similar broadly positive views about the desirability of this situation occurring, with 59% seeing a future print dominated landscape as being highly or moderately desirable for their libraries.

This view was mirrored in the second statement, which sought to establish whether libraries would prioritise electronic format information provision, i.e. focusing on the delivery of electronic resources. Only 6% of respondents felt this was highly likely to occur, whereas 23% saw it as being highly unlikely, and 38% as moderately unlikely. Interestingly, there was a more even spread of responses regarding the desirability of this scenario, with over 15% more seeing it as being desirable than undesirable.

This again implies a recognition that print resources will continue to be important over the next decade, and to a degree will dictate the types of services these libraries offer. This is not surprising given that most national museum libraries have mainly collected print materials over the preceding decades. But at the same time, it does also point towards at least a partial willingness to more fully embrace web-based resources and provide a greater array of electronic materials to library users in future.

This view is more fully borne out in the third statement, which posited that libraries will operate in a hybrid print-electronic environment, albeit one where provision of print resources will take precedence. As can be seen in Figure 16, this statement provided a fairly clear set of results, with considerably more respondents seeing this scenario as likely and desirable for their libraries than unlikely and undesirable.

This also reveals a pragmatic acknowledgement on the part of library managers of the reality of providing services that are based upon large and often mature legacy print collections, whilst at the same time recognising that a gradual shift towards the provision of more e-resources is taking place. This position matches the findings in the literature review, which highlights the slow but steady growth of e-resources across a number of museum libraries. This issue is explored further in section D.

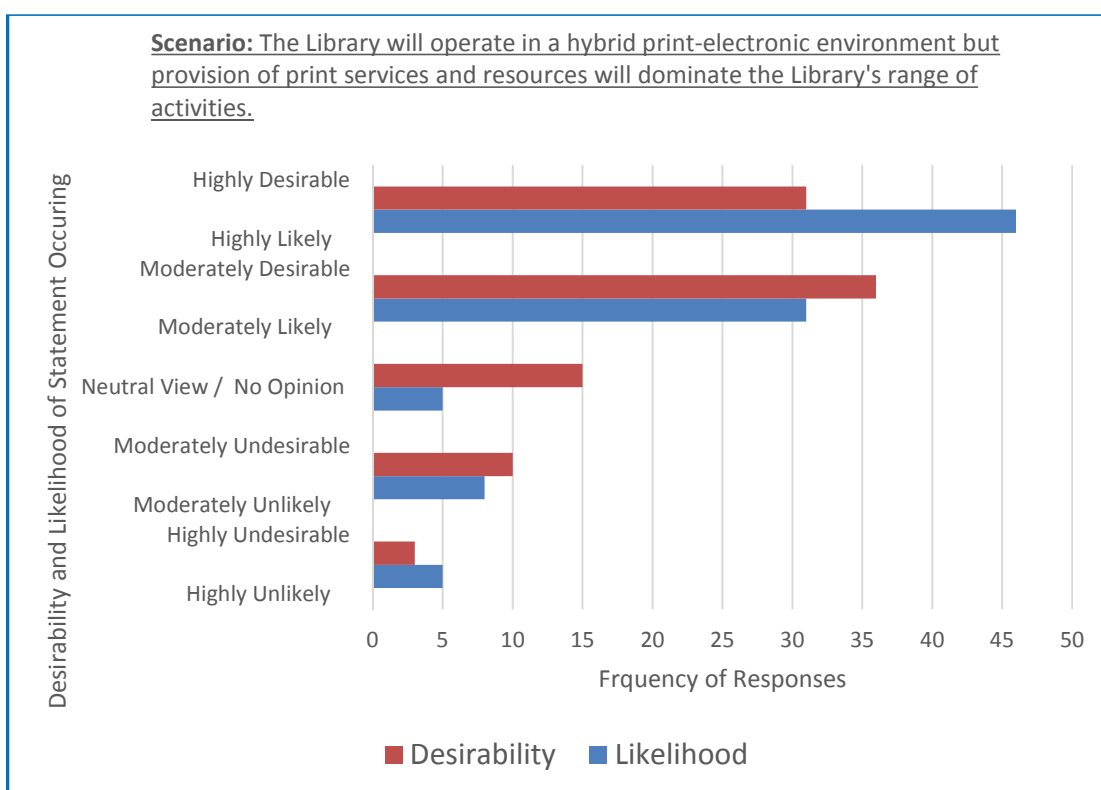


Figure 16 – Responses regarding hybrid print-electronic environment

Future operating environment

Assessing the future environment libraries will operate in is critical to understanding the types of roles they can perform and the services they can provide to users. However, this touches upon many different issues and factors, both internal and external, and it was not possible to cover all these within the confines of a single survey. Therefore, two generic statements were provided, which sought to establish respondents' views on the broad socio-economic factors that may impact on the future development of their libraries.

The first area related to the need or otherwise for libraries to stay relevant and competitive in an information environment that is increasingly dominated by a multitude of alternative options, many of which are web-based and are often available to consumers at relatively low cost, or for free. Managers were therefore asked if their

libraries would need to provide a more expansive set of services and resources in order to retain or attain a competitive edge within this environment.

The results were overwhelmingly clear, with almost all respondents, 80%, stating this was likely to be the case, and an even greater number, 82%, agreeing that re-defining their service offer in this way would be desirable for their libraries. These findings are not in themselves necessarily surprising as it is arguably natural for librarians to want to provide a greater range of services and resources to their users, and equally natural for them to want their libraries to stay relevant and competitive.

However, when taken in conjunction with the results of the following statement, which projected a bleaker scenario where libraries would need to dramatically reduce the range of services and resources they provided to a few core or specialist areas, in order to maximise efficiencies, it can be seen that the majority of librarians are envisioning a broadly positive outlook for their libraries.

This is reflected by the fact that many respondents saw this eventuality as being highly or moderately unlikely to occur in the near future, 48%, compared to those who saw it as highly or moderately likely, 35%. Similarly, and perhaps less surprisingly, over 56% of respondents saw this as being undesirable for their libraries, compared to 23% who saw it as desirable, although the fact that almost a quarter saw this as desirable is in itself surprising.

The impact on the type of services and support provided by national museum libraries as a result of future technological changes was explored next, with several scenario statements projecting potential changing landscapes for libraries that would see them move away from more traditional, physically dependent service provision models towards more virtually orientated, technologically dependent models.

Three possible future outcomes for libraries were described in this area: fewer direct public facing services being offered, e.g. reference services, due to a proliferation of library web-based systems that users could access themselves; the need for fewer staff with traditional library skills and more staff with strong ICT and technological skills, as a result of libraries offering more technology focused services to their users; and the possibility that libraries will struggle to keep pace with the rate of technological change and thus fall behind other information providers.

Despite the potentially highly impactful nature on national museum libraries of fewer public facing services being required in future or of librarians' skill sets being fundamentally adjusted, there was no discernible pattern in the responses received for either of these two statements, with an almost equal number of respondents seeing these scenarios as being likely as unlikely and desirable as undesirable.

More surprising still, a significant number stated they had no opinion at all regarding these issues. There was however a somewhat greater degree of consensus with the next statement, concerning libraries struggling to keep pace with technological change, where a slight majority, 55%, saw this as being either highly or moderately likely to occur, as opposed to 32% who saw it as being unlikely. Predictably, almost all respondents perceived this scenario as being undesirable.

This general lack of clarity and agreement about the role of technology in relation to future library service provision is somewhat at odds with the literature, which generally sees the integration of technology and technological roles into future library services in a positive light, and as something that is already widely taking place. However, as also stated in the literature, museum libraries have historically been slower to adopt and have been more ambiguous in their attitudes towards new technologies, with van Boxtel (2009) highlighting how databases and e-resources are still not yet a common

feature within many museum libraries. This factor may therefore partially explain why the respondents are less certain about the impact of technologies on future library service provision.

Curiously though, despite the lack of consensus regarding the future impact of technological change generally on library services, there was a far higher degree of consensus regarding a similar, yet more specific, issue. This concerned the future impact on library service provision as a result of changing user behaviours and expectations brought about by users' increasing reliance upon digital technologies.

One scenario explored this issue by assessing whether libraries would need to adopt a more agile and flexible approach to the provision of content and resources, where more use was made of online tools and systems that could proactively push information out to users, rather than relying on a reactive and physically located service delivery model.

Another scenario considered a similar issue, where libraries would focus more on delivering information to library users at the time and place that they needed it through targeted outreach activities, e.g. current awareness services or re-packaged information products.

As can be seen from the following chart, in the first of these scenarios, the vast majority of respondents felt this outcome would be both likely and desirable, with only a small number seeing these in negative terms. The second scenario produced almost identical results.

In both cases, this seemingly indicates that whilst there is some uncertainty amongst library managers about the impact of technological change at a broad level, there is

nevertheless a strong connection with the concept of evolving service models through more intelligent use of technology, so they become more flexible and user-centred.

A limitation of these scenario statements is that the approaches the libraries might adopt to enable these evolving service models were not explored further. It was therefore decided that this area should be examined further during the case studies.

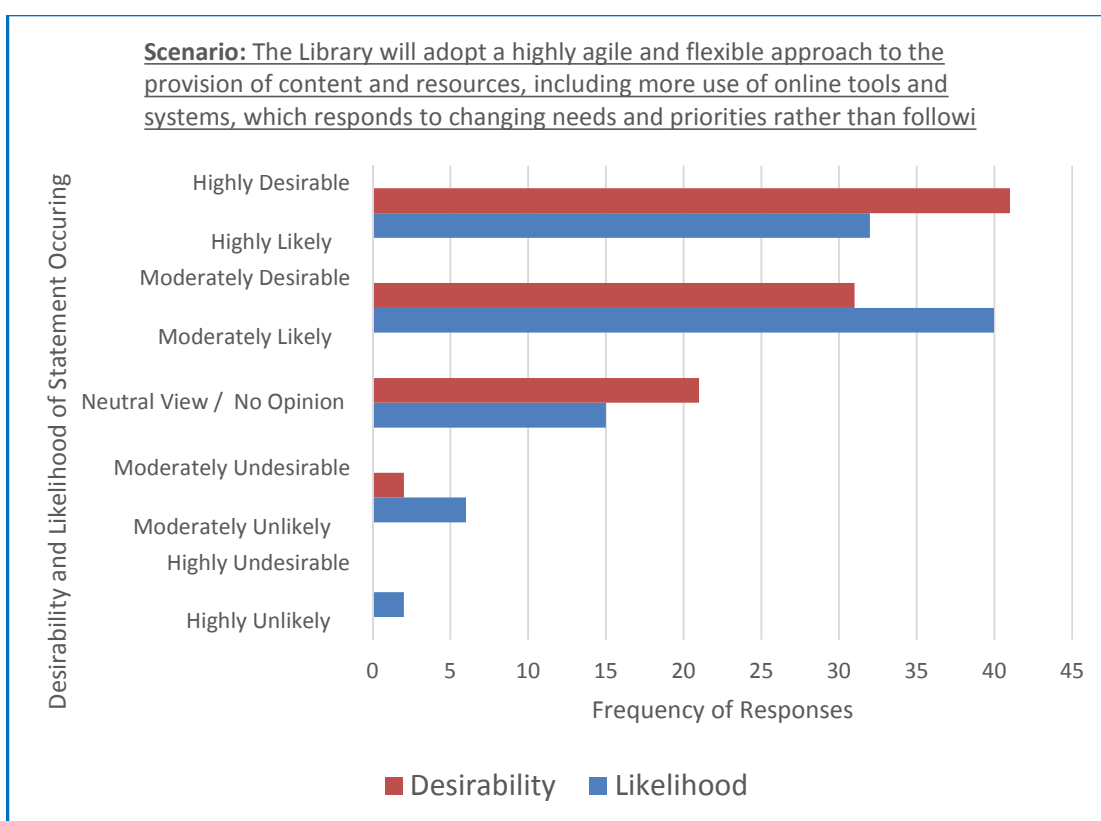


Figure 17 – Responses regarding need for agile and flexible content provision

Future provision of museum integrated programmes and services

The final area within section B related to the future provision of museum integrated programmes and services. This covered two scenario topics – firstly, enabling a greater number of opportunities for museum visitors to interact with library collections as a result of participation by libraries in their museums’ public programming, e.g. exhibitions and learning events; and secondly, provision of more services and

resources by libraries that directly support and enhance museum research, such as promotion of open access publishing.

The rationale for exploring these areas was to examine the degree to which national museum libraries will be integrated into, and thus be seen as more connected with, broader aspects of museum work, particularly areas that may expand the scope of the libraries' core work and the breadth of their pan-organisational interactions.

Furthermore, the fact that museum libraries often have low internal and external visibility and can be seen as slightly disconnected from their parent museums (Collins, 2003; Kolmstetter, 2007; Koot, 2001; Kostanyan, 2011; Tarrête, 1997; Uralman, 2010; Weijsenfeld & Wolffe, 2009) means that these two scenarios are particularly important in establishing the future value, both perceived and actual, of national museum libraries to their users, as well as to other stakeholders, such as general museum visitors and museum management.

With each of these scenarios, there was a high degree of agreement that the provision of more library services and resources that are better integrated with museum programming would be both likely and desirable in future. Providing greater opportunities for museum visitors to interact with library collections as a result of increased library participation in museum programmes and activities was perceived very positively, with 81% seeing this as highly or moderately likely to occur over the next decade, and 89% seeing it as desirable.

This largely mirrors views expressed in the literature regarding the need for libraries to connect with their parent museums, and adopt active roles in supporting museum exhibition and educational activities (Docampo, 2010; Kolganova, 1999; Moody, 2012; Suls, 2008; Zamora et al., 2010).

Similarly, there was a high degree of consensus regarding the provision of more library support and resources for museum research and other scholarly activities. 76% saw this as being something that would be highly or moderately likely to occur in future, and 87% saw it as being highly or moderately desirable. This again strongly reinforces the view that supporting museum research initiatives will be an important future service driver for these libraries. Issues relating to museum integration and alignment are continued and expanded upon in the next section.

4.2.3.3 Section C – Future library strategy and management

Section C examines how future strategic and management issues will affect and impact the surveyed libraries. Scenarios were presented within four categories linked to this theme: future alignment with museum strategy, future technological planning and capacity building, future impact and value, and future funding arrangements.

Future library alignment with museum strategy

Whilst there is some discussion in the literature regarding the need for museum and research libraries to strategically plan digitisation projects and other technology focused initiatives (Ayanbode, 2011; Bültmann et al., 2006; Manzuch, 2011), there is far less discussion on the wider, and arguably more critical, issue regarding the need for a coherent strategic approach to the planning of core operational activities, so that they are relevant to and are aligned with the objectives of their parent organisations.

This issue was considered to be of great importance to this research, as it is central to determining whether national museum libraries are likely to have a pivotal or peripheral role within their museums over the next decade. Three scenario statements were therefore devoted to establishing the anticipated future strategic positioning of national museum libraries within their museums. Specifically, these related to the inclusion of libraries in the strategic plans of their museums, the

involvement of library managers in the museum strategic planning process, and the role libraries will play in supporting defined museum activities. One further scenario was then presented, which examined whether or not libraries would have developed core strategic plans of their own that would be aligned to their museums' main plans.

In relation to the first of these scenarios, the results were clear, with 71% of managers stating it was likely that library services and activities would be included to some degree within their museum strategy, with almost all respondents, 94%, seeing this as desirable. This indicates an overwhelming preference for libraries to be recognised as being central to the core activities of their museums, and to be as fully integrated and aligned as possible to their museums' future strategic objectives.

The next scenario statement explored this issue in more detail by examining to what degree the libraries, in their capacity as internal service providers, would be aligned with the strategic programming of other museum departments or activity areas. Specifically, this statement sought to ascertain whether libraries would have limited future roles restricted to delivering services to institutional areas where historically they might be expected to provide support, e.g. curatorial research. Or alternatively, whether they would have more expansive roles supporting museum departments that have not traditionally used museum libraries, e.g. development / fundraising departments, or contributing to wider cross-departmental museum planning, e.g. museum digital strategy development. This helped to demonstrate the breadth and scope of the libraries' value and relevance within their museums, and their ability to influence and make a tangible contribution to the delivery of museum-wide strategies.

The results from this statement were inconclusive, with a fairly even spread of responses. 23% of managers stated it would be highly likely that their library's main role would be confined to supporting a few defined museum activities, but conversely

11% said that this would be highly unlikely. The other responses were similarly split. In terms of the desirability of this occurring, 32% of managers saw this more limited role as being highly undesirable, but a sizeable minority, 14%, saw it as being highly desirable. As above, the mid-quartile figures were similar.

This points to a reluctance on the part of many respondents to see their libraries as only being able to support certain departmental activities within their museums and a general, if not overwhelming, desire to broaden their internal roles to some degree. But at the same time, it also points to a pragmatic acknowledgement that their libraries cannot realistically support every facet of museum work and must therefore be more selective in the support they provide to internal users.

A follow-on statement to the above asked respondents to consider whether the head librarian would be included in the strategic planning and decision making process for the wider museum via membership of a relevant museum group or committee. Again, this sought to assess the degree of library involvement with the wider strategic activities of the museums.

In terms of the likelihood of this occurring, the results were similarly lacking in consensus, with slightly more respondents seeing this as being likely to occur than unlikely. There was though a clear consensus in terms of the desirability of this scenario occurring, with more than three-quarters of respondents seeing it as being highly or moderately desirable.

As with the previous statement, it can be appreciated from these results that most librarians would probably like their libraries to have a wider level of strategic involvement within their museums, but at the same time there is acceptance that in reality this may not happen.

The final scenario in this section examined whether or not these libraries would have dedicated and clearly defined core strategic plans of their own that are directly aligned with their museums' main strategic plans. The purpose of this statement was to establish to what degree the libraries are able to evolve in a planned and structured manner that is consistent with the strategic objectives of their museums.

Unlike the previous few statements, this resulted in a high degree of consensus, with a significant majority, 69%, stating that they were either highly or moderately likely to develop such a plan in future. An even higher degree of consensus was achieved in relation to the desirability of this scenario occurring, with 89% of managers believing this would be a desirable outcome.

This demonstrates clearly that most of the managers believe that their libraries need to be forward thinking and target driven, and at the same time as closely aligned as possible to the strategic vision and objectives of their museums. This would also seem to reinforce the view that most of the libraries see organisational integration, rather than separatism, as a defining feature of their future services and activities.

Future library technological planning and capacity building

As was noted in the previous section and in the literature review, many libraries, including national museum libraries, are still underprepared for the new technological challenges that have emerged in recent years, and frequently lack the capability to adjust their ways of working in order to adequately address these challenges (Jacobs, 2009; Choy, 2011; Z. Liu, 2006). This is especially true when these technologies directly impact on traditional ways of working within libraries, such as the use of increasingly sophisticated, web-based integrated library systems to seamlessly manage the acquisition, cataloguing, and circulation of collections.

With this in mind, the next two scenario statements invited respondents to consider the ability of their libraries to transform and adjust their technical and operational structures, i.e. their core professional and service delivery activities, to better respond to future technological challenges or opportunities.

Managers were firstly asked to consider a positive scenario, which stated that their libraries would have the necessary capacity and capability to react to and incorporate emerging technologies that could be utilised to improve the fulfilment of internal professional tasks, such as acquisitions.

As Figure 18 shows, there was a strong sense amongst managers that being able to adequately respond to technological opportunities in this way would be a desirable outcome for their libraries. However, this in itself was neither surprising nor revealing. Of more interest was the perception of whether or not this was seen as being a realistic outcome. Interestingly, no overall agreement was reached on this issue, although more respondents believed that this would be likely than unlikely.

The fact that more respondents saw this scenario as being likely paints a reasonably optimistic future picture. However, more than one-quarter of respondents stated this would be unlikely to occur, which indicates they would be unable to quickly adjust their current working methods or professional activities to respond to new technological opportunities whenever they arose.

It could be argued that if these libraries are unable to sufficiently adapt their internal practices, many of which are time and resource intensive, then they may struggle to deal in the longer-term with the fast changing information needs of an increasingly technologically-enabled and dependent population of users. However, these

suppositions cannot be determined with accuracy from these results alone, so further research is needed into these issues.

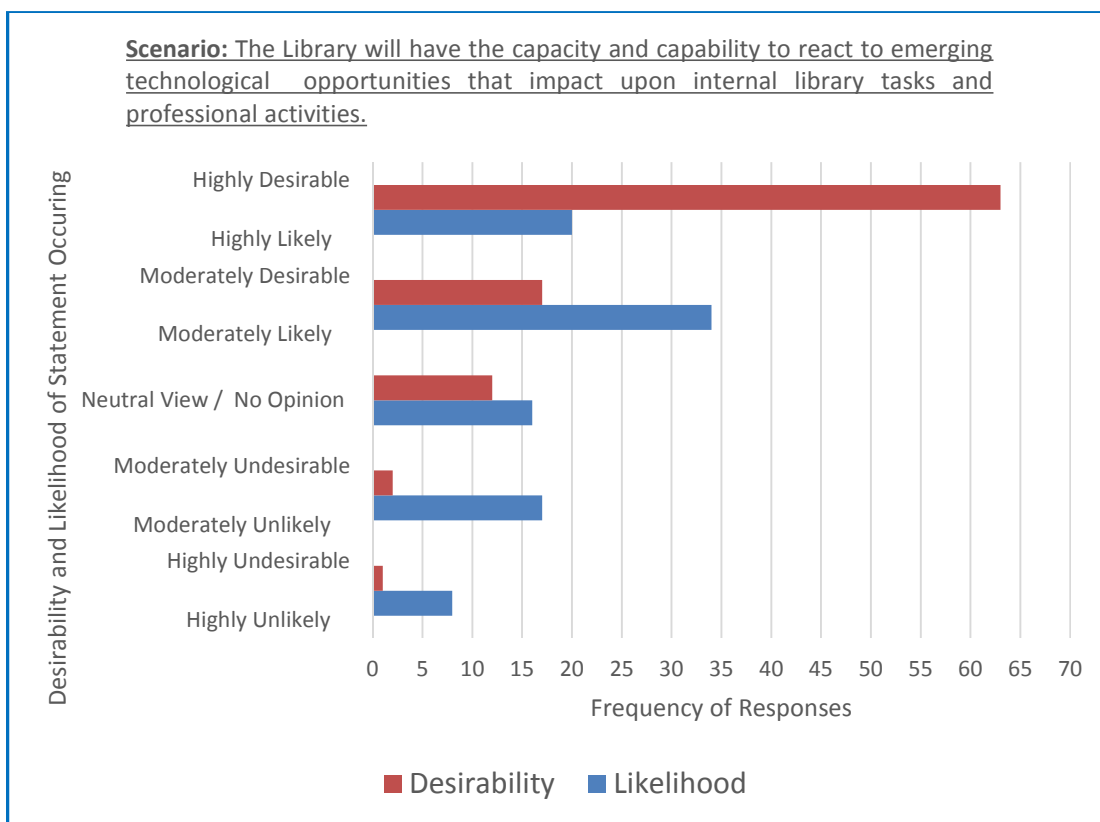


Figure 18 – Responses regarding reaction to technological opportunities

This in turn led to an evaluation of the estimated amount of time that libraries would devote in future to supporting activities that can broadly be said to have emerged out of recent technological changes and innovations, such as data curation, digital preservation, and digital archiving.

The rationale for examining the future occurrence of these activities was that they were seen as being indicative of the kinds of services that national museum libraries would probably need to provide if they were to be seen as making a significant transition from a more traditionally oriented operating model, which is the description of museum libraries redolent in the literature, to a more technologically enabled and immersive operating model.

The next statement therefore asked managers to consider whether their libraries would spend a large amount of time planning and delivering these types of activities in the future. The results were inconclusive, with an almost identical number regarding this scenario as being likely as unlikely to occur.

A similar position occurred in relation to the desirability of this scenario occurring, although the highest category of responses, 29%, was from those who had no opinion about the statement. The ambivalence regarding this issue suggests these libraries may possibly adopt a more technological focus over the next decade, with greater emphasis on new digital activities, but that this development will likely be gradual and sporadic with considerable variation from library to library.

Future impact and value of libraries

The final part of section C focused on a range of related scenarios concerning the future impact and value of the surveyed libraries. Value in this sense was principally viewed from an economic perspective but, as mentioned in the literature review (Halpin et al., 2015; Jaeger et al., 2011; Sidorko, 2010; Urquhart & Turner, 2016), the social impact value of the libraries was also an important area that needed to be explored, particularly in terms of their ability to deliver services that are perceived as benefitting the primary target audiences of their museums.

Three scenario statements were presented on this theme, addressing issues relating to the imposition of library visitor number targets by parent museums, the need to develop dedicated library marketing plans to attract more users, and the need for libraries to provide evidence of the value and benefit they provide. Each of these statements reflected views espoused in the literature that museum libraries tend to have relatively low public visibility and low numbers of users (Chepesiuk, 1996; Kolmstetter, 2007; Koot, 2001; Tarrête, 1997), certainly compared to museums as a

whole, and are thus expensive for museums to maintain when calculated on the basis of the total cost per user. This issue connected with the increasing need for national museums to demonstrate value as funding decreases or becomes more difficult to obtain from central government or other funding providers.

The first statement therefore asked respondents whether they would expect to be set library user number targets by their museums, which would be linked to the amount of future funding received. The challenge of increasing user numbers in this way was clearly something that many respondents recognised as being a possible outcome for their libraries over the next decade as almost half of the managers, 48%, saw this as being either highly or moderately likely to occur. Surprisingly, given the implication in the statement that by not meeting such a target their libraries may be at risk of having their funding reduced, one-third of the respondents viewed this as a desirable outcome, although the majority of responses received, 41%, stipulated it would be undesirable.

The fact that a significant proportion of respondents see this as a realistic prospect though does seemingly point towards an acknowledgment that in a more straightened economic climate national museum libraries will need to do more to visibly justify the continuation of central funding from their museums.

Consideration was also given to the idea that museum librarians would need to be more proactive in their attempts at attracting new users to their libraries. The particular focus here was on those members of the public who are cited in the literature as being increasingly likely to make more use of museum libraries in the future, and who are often seen as primary targets for focused library marketing activities, such as scholarly researchers (Chepesiuk, 1996; Kolmstetter, 2007; Koot, 2001; Moody, 2012; Tarrête, 1997; van der Wateren, 1999). A scenario was therefore

proposed stating that national museum libraries will need to develop and implement a dedicated marketing plan to actively promote themselves to the public.

The results were inconclusive, as one might expect given that some museum librarians have a fairly ambivalent attitude about promoting widespread use of their facilities to the public (Kostanyan, 2011; Navarrete & Mackenzie Owen, 2011; Uralman, 2010; van der Wateren, 1999; Zamora et al., 2010). Many respondents saw the development and implementation of a targeted marketing plan for the public as likely, 43%, and desirable, 48%, but, in keeping with the mixed views in the literature, a sizeable number also believed this would be unlikely, 38%, and undesirable, 23%.

As with the previous statement, this seems to reveal a pragmatic attitude by many respondents of the need to reach out to new audiences. However, the fact that a large proportion also see this as neither likely nor desirable, which could be interpreted as a reluctance to increase public usage, does raise questions about how some national museum libraries plan to ensure that their institutions continue to demonstrate economic viability if they are mainly focusing service delivery on what are presumably a relatively small number of internal users.

Closely linked to these issues is the demonstration of economic and social value. Managers were therefore asked to consider a future scenario whereby their libraries would need to provide quantifiable evidence to their museums of the value-added benefits that they provide to their users. Again, the rationale for this was to better understand expectations that might be placed upon national museum libraries by their museums in order to prove their holistic organisational impact and value.

As above, many saw this as a likely outcome, with 26% viewing it as highly likely to occur, and 33% seeing it as moderately likely. However, many respondents felt this

would be a negative development, with 20% seeing it as being highly undesirable, and 23% as moderately undesirable. A limitation of this question was that no definition was provided regarding the methodology libraries would need to adopt to measure their value, or the nature of the value-added benefits that would need to be provided by the libraries as evidence. That notwithstanding, these results offered a useful insight into the general views that are held regarding the possible future need to measure and report library value and benefits.

Future funding arrangements

The survey then addressed the issue of future funding for national museum libraries. In many countries, national museums receive core funding from central government department budgets, which are then distributed internally to museum operational areas, including libraries.

However, many museums have recently faced economic difficulties as a result of the global financial crisis that occurred in the late 2000s and, on the assumption that the economic situation remains unstable for the foreseeable future, it was thus seen as important to consider how national museum librarians might view the issue of ongoing funding arrangements. Several scenario statements were therefore constructed that examined different aspects of this issue.

The first of these looked at whether national museum libraries would be under pressure to generate additional income for their museums through diverse activities, such as hiring out library facilities, selling high-resolution digitised images, and offering consultancy services. Whilst it was not assumed that these activities in themselves would be sufficient to entirely off-set any potential central funding cuts, their uptake did provide a reasonable indication of the need to augment base funding with additional income.

Despite the well documented recent financial cuts and constraints that have been imposed upon government funded museums in many countries, it was interesting to note from Figure 19 that very few of the respondents felt their libraries would be encouraged or mandated to generate additional income in this way, with a clear majority seeing it as being both unlikely and undesirable for their libraries. This position was even more surprising when compared to the situation in many special libraries around the world, where the need to generate income from library resources, especially through the sale of digitised library images, is very common.

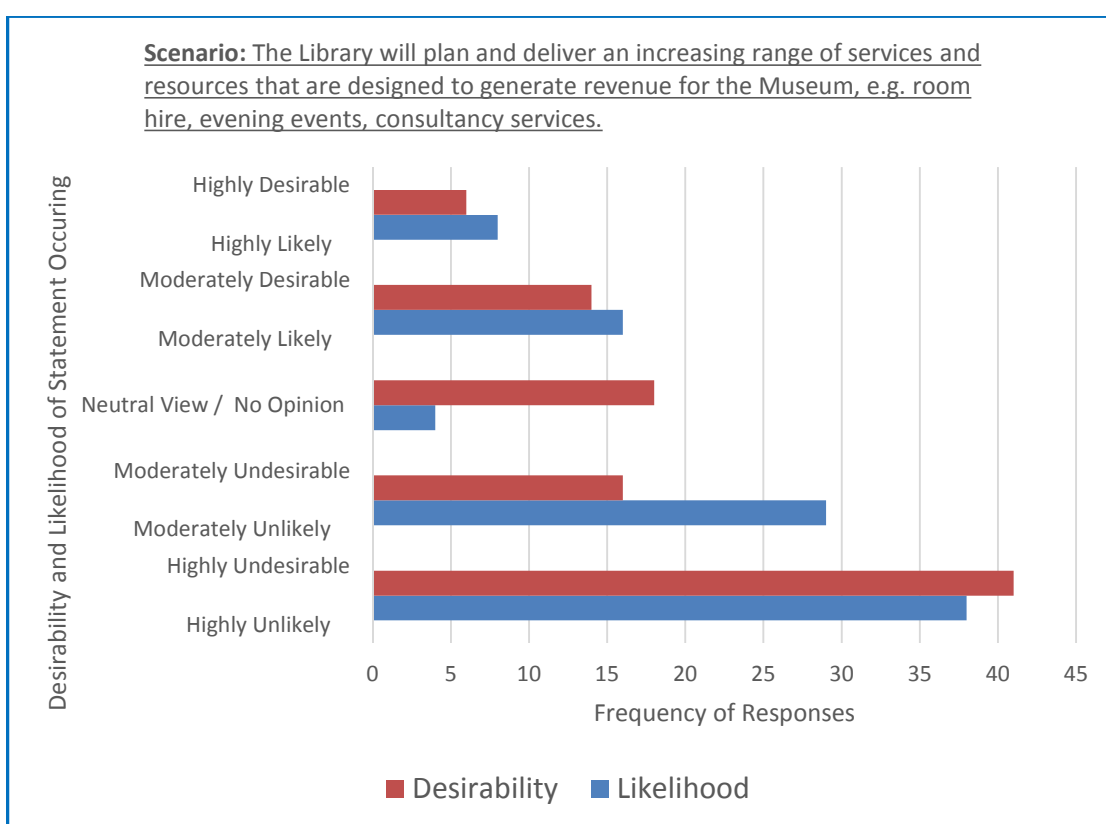


Figure 19 – Responses regarding need for libraries to generate revenue

Conditional funding was another area that was felt to be pertinent to national museum libraries in the future, and which ties in closely with the previously discussed notion of the measurement and demonstration of value. In this instance, respondents were asked to consider a future situation where there might be a direct correlation between the impact their libraries had on users and the amount of funding they received; the

implication being that more funding would be allocated if libraries were deemed to be making a beneficial impact, but less funding if they were not making an impact.

In terms of the likelihood of this occurring, there was an even split between those who felt it would be highly or moderately likely, 44%, and those who felt it would be highly or moderately unlikely, 41%. As with previous statements though, there was widespread belief that this type of performance related funding arrangement would be detrimental, with half of the respondents seeing it as highly or moderately undesirable.

The final scenario in this section envisaged a future environment where current levels of library funding could no longer be maintained, which in turn meant that provision of core library operations, such as acquisitions and cataloguing, could no longer be adequately undertaken.

As can be seen from Part 1 of the survey, many national museum libraries employ few staff, and as such it was considered that this type of situation could have major implications for a significant number of libraries. The scenario that was provided therefore asked librarians to consider whether, as the result of future funding cuts, some of their core technical services may need to be outsourced to external suppliers, for cost efficiency reasons.

Despite the acknowledgement in the responses to previous statements that national museum libraries are likely to experience financial constraints in the future, which may impact on funding and/or aspects of service provision, there seemed to be little appetite for the future outsourcing of often time consuming, staff intensive, and expensive technical service activities.

Only 6% of respondents saw this as being highly likely, as opposed to 34% who saw it as highly unlikely. Similarly, only 8% regarded this as highly desirable, compared to 40% who saw it as highly undesirable. Accordingly, these results would seem to show that any future budget cuts would most likely be absorbed in other ways, and that most libraries would attempt to retain control of their internal operations.

4.2.3.4 Section D – Future library collections

As discussed in section B, it is probable that over time many of these national museum libraries will gradually move towards a hybrid print-digital service model, although print resources will continue to dominate in the short to medium term. Section D expands on this theme by examining the nature of future national museum library collections and collecting in more detail. Five areas are addressed: collecting priorities, acquisition of special collections, acquisition budgets, collection information systems, and the impact of socio-technological change on collecting.

Collecting priorities

As van der Wateren (1999) observes, it is “the collecting of evidentiary documentation” and “the development of deep and uniquely focused collections of research materials” that lies at the heart of the research support that museum libraries provide. The survey therefore sought to establish the future collection development focus for the surveyed libraries, and the primary intended audiences for collections.

The proposition that national museum libraries will primarily develop discrete, subject focused collections that closely reflect the collection themes of their museums as a whole, rather than collect large and comprehensive collections across multiple subject domains, was examined first. Reinforcing the findings from section B, there was widespread agreement that this would be the preferred model for many of the surveyed libraries, with almost half the respondents envisaging this as being highly

likely to occur, compared to 5% who saw it as highly unlikely. Most also felt that such an approach would be beneficial, with 69% stating it would either be highly or moderately desirable.

And as can be seen from Figure 20, the question of who should be the primary target audiences for libraries when planning the development of their collections also elicited fairly conclusive feedback, with most respondents agreeing that the information needs of museum staff would and should be prioritised.

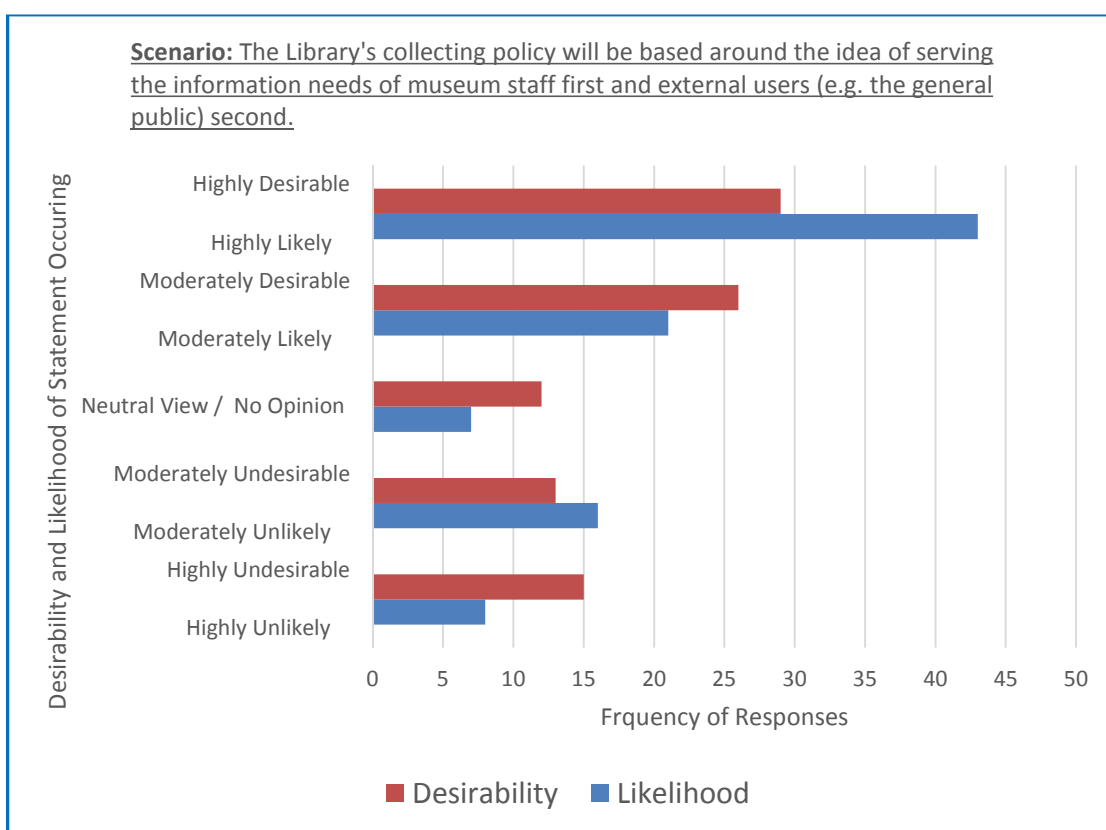


Figure 20 – Responses regarding primary user focus of collecting policies

Both of the above sets of results confirm previously expressed sentiments that the main purpose of the majority of these national museum libraries is to serve the needs of their museum staff, and that alignment with museum strategic priorities is critical to their success. And notwithstanding the transformative nature of some of the libraries

collecting approaches, with a gradual shift to more varied and public oriented subject themes, there is an overriding sense that in many cases traditional, museum focused collecting priorities are still equally valid and relevant in the digital age.

Acquisition of special collections

Taking the theme of collecting priorities one step further, a more detailed investigation was undertaken of the special collections (e.g. rare books, manuscripts, archives) that are collected by national museum libraries. Acquisition of special collections was recognised as a collecting policy theme that has often traditionally differentiated national museum libraries from many other types of libraries. It was therefore necessary to explore whether this would continue in the future, or whether special collections would be de-prioritised.

Library managers were asked to consider a scenario where a substantial amount of their future acquisition activities would be devoted to collecting printed special collections. The results showed no consensus, with 45% seeing this as being highly or moderately likely, and 50% believing it to be highly or moderately unlikely. Similar results were retrieved in relation to the desirability of this scenario, with 45% viewing it as highly or moderately desirable, and 38% as highly or moderately undesirable.

In order to put these results into better context, they were compared with the next statement, which looked at the probability of libraries collecting special collections in digital format in future, such as born digital reports and ephemera. The results from this scenario statement were far clearer, with most respondents, 71%, seeing this as being unlikely to occur, and a significant proportion, 48%, seeing it as undesirable.

The results from both these statements indicate that the acquisition of special collections will continue in some libraries, but will not necessarily be seen as a priority

activity. This would seem to be at odds with the traditional notion of museum libraries as repositories of large volumes of special collection materials, but is perhaps reflective of the significant cost outlays associated with acquiring and managing these items. Furthermore, any special collections that are acquired will most likely be in print rather than digital format. This is not particularly surprising though, given the significant technical difficulties, resource requirements, and intellectual property rights issues often associated with acquiring, managing, and enabling access to digital data and records, which for national museum libraries with few staff and restricted budgets may present too onerous a challenge.

Collection acquisition budgets

The effective management of acquisition budgets in financially constrained times is challenging for all librarians. As already stated, many national museum libraries operate with very limited budgets, and therefore this situation can be especially problematic for them.

As such, library managers were asked to indicate how several hypothetical, yet plausible, budgetary scenarios would affect their ability to collect materials in the future. This commenced with a negative scenario, which proposed that acquisition budgets would decrease in real terms year-on-year, thereby adversely affecting the ability of managers to purchase all the items needed to maintain current and relevant collections.

Predictably, most respondents, 86%, saw this scenario as being undesirable, with the vast majority seeing it as highly undesirable. When asked to consider the likelihood of this scenario occurring though, most agreed it was quite possible, with 61% perceiving it as highly or moderately likely. These figures offered a useful set of baseline results regarding the potential uncertainty of future library budgetary activity.

However, a far more telling set of results in terms of the possible purchasing strategies that national museum libraries might need to put into effect in order to mitigate against likely adverse budgetary situations were seen in the next statement.

One of the main ways that some libraries have managed to provide a sufficient range of resources, particularly e-resources, for their users whilst their budgets have remained flat or have decreased is by joining purchasing consortiums. In the literature review, this activity is mentioned as something that museum libraries are increasingly engaging in (Collins, 2003; Moody, 2012), but it is not clear to what extent purchasing consortiums or partnerships are prevalent across national museum libraries, nor how common they are likely to be in future.

Consequently, survey participants were asked to consider whether they agreed that their libraries would only be able to afford to purchase an adequate range of electronic resources for users if they entered into consortium purchasing agreements with other libraries. As can be seen from Figure 21, many respondents saw this as being both highly likely to occur, 39%, and highly desirable, 34%, with only a few seeing it as unlikely or undesirable.

This seems to signify that for a sizeable number of the libraries, their future e-resources collection development strategy may be undertaken as a collective enterprise with other institutions, rather than an activity undertaken in isolation. Other possible solutions for e-resources acquisition are of course available to libraries, most notably use of free open access publications, but these were not explored here.

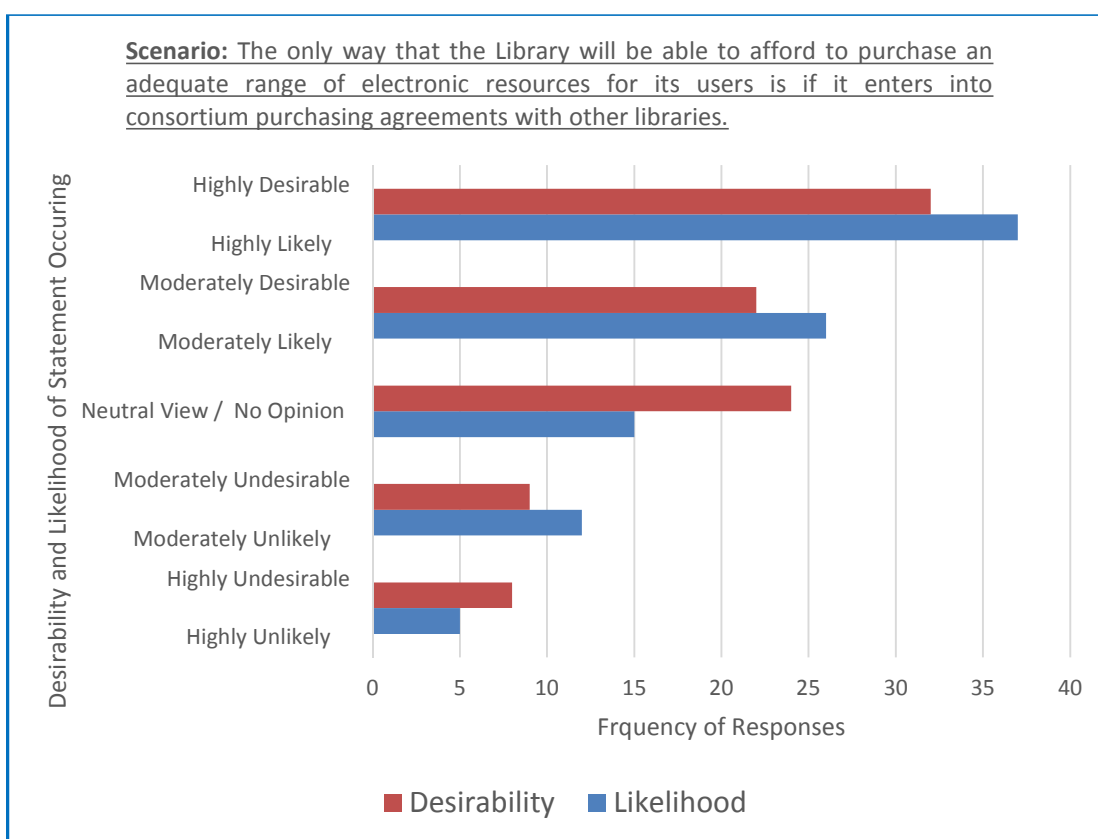


Figure 21 – Responses regarding participation in consortium agreements

In addition to the cost of collection development, the cost of collection management is also a significant financial burden. This is especially true for storage costs because, as discussed in the literature review, many museum libraries hold large collections of printed materials, some of which may be fragile and/or require specialised storage, which incurs potentially prohibitive cost burdens. The impact this may have on the future collecting decisions of the surveyed librarians was therefore considered.

Two related statements were posed. The first proposed that collection development decisions would increasingly be taken with future storage and management costs in mind. The second stated that the high costs of storing and managing library collections would adversely impact on the ability of the libraries to collect a sufficient range of printed materials in future.

There was considerable agreement with the first statement, with three-quarters of managers agreeing that collection development decisions would be made with storage and management costs in mind. This undoubtedly indicates the significance and potentially detrimental effect of this issue.

There was a mixed response with respect to the desirability of this scenario occurring though, with just over one-quarter of managers seeing it as a desirable outcome, and just over one-half seeing it as undesirable. This is surprising as it was expected that all respondents would view this negatively. This may reveal therefore that some libraries have a mitigation strategy in place for dealing with this issue, although it is not clear from the survey answers what this might be.

Responses to the second statement were more polarised. Over three-quarters of respondents agreed it would be undesirable if high storage costs had a detrimental impact on their ability to collect a sufficient range of printed materials. This result was expected, but what was more surprising was that there was not a significant margin between those who saw this scenario as likely to occur, 52%, and those who saw it as unlikely, 40%, pointing towards a possible lack of clarity and certainty over the true impact of future collection management and storage costs.

One notable limitation of these two statements was that they did not investigate to what degree the future collection of electronic resources, potentially in lieu of some of the anticipated print resource acquisitions, would off-set any future collection management and storage issues. This may possibly have been why some respondents did not regard collection management and storage costs as having a significant impact on future collecting activities.

Collection discovery systems

The extent to which information about collections can be easily discovered by users, thus potentially opening them up to a far wider audience, was seen as a key indicator of the preparedness and willingness of national museum libraries to redefine their scope beyond traditional institutional boundaries, especially in terms of engagement of new audiences. Their capability and capacity to make collections information both accessible and retrievable via web-based systems was therefore investigated via two separate scenario statements.

In the first of these, managers were asked to state if they agreed that at least 80% of their library collections would be fully catalogued and searchable by external users on a web-based library management system. 70% of respondents saw this scenario as being likely, and 83% considered it to be desirable. Conversely, only 4% viewed it as being unlikely, and no respondents stated that it would be undesirable. This is therefore strongly indicative of almost all of these libraries having a fully accessible web presence for their collections information in future, and thus, by implication, extending access to a global body of researchers.

The purpose of the second statement was to take the previous statement one step further, by exploring whether national museum libraries would be able to disseminate their collections information online in a manner that was comparable to technologically advanced libraries in other sectors, for example by including 'add-on features', such as embedded full-text links or digitised images. The motivating reason for this statement was to better understand the extent to which these libraries would be able to effectively respond to any future changes in the information seeking behaviours of users, especially increased demand from external users for access to full-text digital collections.

As such, managers were asked to consider whether their libraries would significantly lag behind libraries in other sectors in terms of their ability to use digital technologies to help manage and make accessible their collections information. Unsurprisingly, over half of the respondents considered this scenario to be highly undesirable, compared to only 3% who saw it as highly desirable. Responses regarding the likelihood of this position occurring were far more mixed though, with an almost even split between those who saw this as being likely and unlikely to occur.

This raises the possibility that whilst most of these libraries will probably utilise web-based library systems in order to make their collections accessible to external users in future, the technical sophistication and scope of some of these systems may be limited, which could restrict the level and range of future collection engagement.

In retrospect, one area that was not investigated, but which would have been interesting to explore further, was the extent to which national museum libraries were currently using, or were planning to use, open-source library management systems, e.g. Koha³⁴, to manage and maintain their collections, and what, if any, benefits these systems offered.

Impact of socio-technological change on collecting

As discussed in the literature review, the impact of technological change across museum libraries has to date been generally somewhat less impactful and wide-ranging than for libraries in some other sectors. This section of the survey therefore sought to explore how this situation might change in future, specifically in terms of the

³⁴ Koha - <http://www.koha.org/>

impact of socio-technological change on the future collection development and management activities of the surveyed libraries.

Socio-technological change as a theme was considered to be appropriate, unlike the less nuanced theme of technological change, as it takes into account the interaction between people and technology, and the behavioural impact of technologies on the population at large. And, in the context of this research, the ways in which technology influences and affects the use of national museum libraries.

To investigate this, respondents were asked if they agreed that their overall approach to collecting library materials would be relatively unchanged and unaffected by external socio-technological factors, such as the prevalence and widespread use of mobile devices.

Just over one-half of respondents stated that their collecting decisions would be completely unaffected, whereas one-third believed it was likely their approach to collecting would be impacted to some degree. The desirability of their collecting approach being unaffected by external socio-technological factors produced similar results, with one-third of respondents seeing this as desirable, and a slight majority seeing it as undesirable.

These results thus point towards a mixed picture, with external socio-technological developments clearly having some level of impact on the future collecting behaviours and decisions of these libraries, but not such a significant impact as to radically change the overall collecting approach that has been adopted to date and that is being planned for the future. This issue is explored further in the case studies.

4.2.3.5 Section E – Future digital access and engagement

The final section of part two of the first round of the Delphi survey examined the uptake of future digital access and engagement activities by national museum libraries. Four strands of research were examined in this section: digitisation of national museum library collections, use of Web 2.0 and successor technologies, use of mobile and handheld devices, and the future impact of technologies on national museum libraries.

Digitisation of collections

A key strategic driver for many libraries in recent years has been enabling access to digital surrogates of their printed collections, particularly unique or rare items, via digitisation, which, as Ceynowa (2009) observes, has made it possible for people to be connected to collections in ways that were not possible beforehand.

For national museum libraries, the picture is mixed in terms of the amount of digitisation that has occurred and the impact these activities have had. As discussed in the literature review, some libraries have actively engaged in the digitisation of their collections, either as standalone ventures, for example the creation of a Spanish art history digital library at the Prado Museum Library (Docampo, 2010), or via a contractual agreement with commercial companies, e.g. various projects undertaken with Google (Lackie, 2008), or as part of a wider digitisation consortium, such as the Biodiversity Heritage Library (Gwinn & Rinaldo, 2008). But, as Bültmann et al. (2006) note, digitisation is a costly, time consuming, and technical process, which means uptake by museum libraries is often sporadic.

However, much of the literature on this topic as it applies to museum libraries is now several years old, so it was seen as important to assess the contemporary digitisation landscape within national museum libraries. As such, five scenarios were presented regarding the future prevalence, rationale, and scope of digitisation activities.

The anticipated number of digitisation projects to be undertaken by national museum libraries was examined first, with respondents being asked to consider whether or not the quantity of large-scale digitisation projects (defined as projects where more than 100 items are digitised) would significantly increase in future.

As can be seen from Figure 22, there was strong agreement that this was likely to occur and that it would be desirable, which would seem to indicate that many of the libraries see digitisation of their collections as an important future strategic activity, and that larger-scale, and potentially high profile, digitisation projects are likely to feature as a key strand of this.

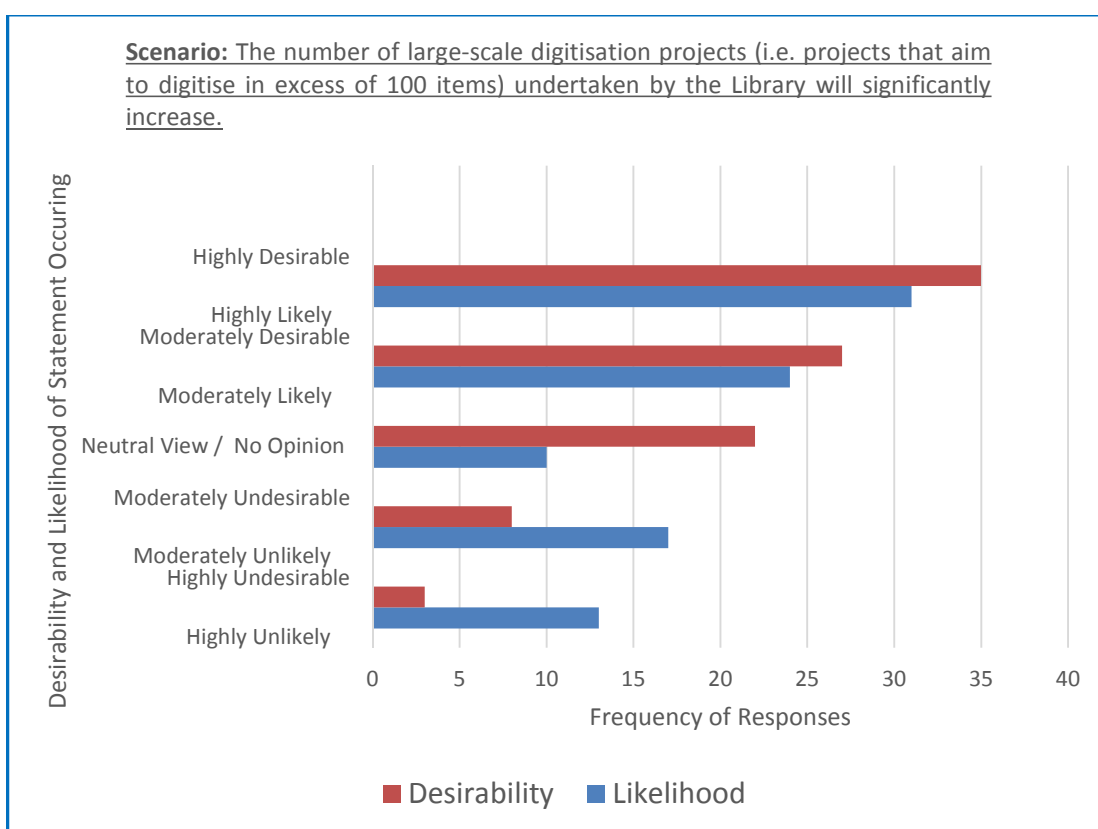


Figure 22 – Responses regarding number of large digitisation projects

Following this, the rationale for the digitisation of collections was explored via two scenarios. The first sought to gauge whether digitisation over the next decade would

primarily be demand driven, by suggesting that the number of projects undertaken would increase as a result of requests from library users for digitised versions of print collections. The majority of respondents agreed that digitisation would and should principally be undertaken due to demand led reasons, with 65% seeing this as highly or moderately likely to occur, and 68% seeing it as highly or moderately desirable. By contrast, less than one quarter of the respondents saw this as being unlikely, and only 11% regarded it as undesirable.

The second statement examined digitisation from the perspective of its commercial benefits to the libraries' parent museums, with a scenario suggesting that library collections would only be digitised where there were clear commercial benefits for the museums, such as the sale of high-resolution digitised images. The results indicate that for most libraries this is not a preferred option, with 59% of managers indicating this would be highly or moderately unlikely to occur, and 54% seeing it as either highly or moderately undesirable. There was though a sense from a sizeable minority of respondents that digitisation for commercial reasons alone may be plausible, as almost one-third of respondents saw this as a likely scenario.

The final aspect of digitisation that was examined related to the resourcing of digitisation projects, which, as mentioned in the literature review, are often costly and resource intensive. Given that 61 of the 95 libraries in the survey sample only employ between one and five members of staff, it was important to ascertain what, if any, impact these workforce constraints would have on the future digitisation aspirations of the surveyed libraries.

The next statement therefore proposed a scenario whereby lack of skilled staff, and/or access to appropriate equipment, would hinder the development of library digitisation projects. As expected, most respondents regarded this scenario negatively, with over

three-quarters stating that it would be highly or moderately undesirable. Results for the likelihood of this occurring were mixed though, with 34% of respondents seeing lack of skilled staff or equipment as being highly or moderately likely, and 57% seeing it as highly or moderately unlikely.

On the face of it, this seems like a surprising set of results as it might be expected that far more libraries would find it difficult to adequately resource digitisation activities, given that they employ so few staff. But, when seen in conjunction with the results of the next scenario statement, a possible reason for this does emerge.

The next scenario statement sought information about the surveyed libraries' possible future participation in collaborative digitisation projects. It proposed that digitisation projects undertaken with other libraries or commercial organisations, e.g. Google, where the costs and activities could be equally shared or paid for entirely, would be far more likely to occur than digitisation projects undertaken and paid for by the respondents' libraries alone.

A majority of respondents saw this as both realistic and beneficial for their libraries, with 64% suggesting it would be highly or moderately likely to happen, and 65% seeing it as highly or moderately desirable. Less than one quarter of the respondents saw this as being unlikely to occur, and less than 10% said it would be undesirable.

The results from these last two statements suggest that despite lacking significant numbers of staff, and presumably significant digitisation infrastructure, many libraries are nevertheless confident about their capability and capacity to conduct future digitisation activities. In many cases, this might be because they intend to work collaboratively with other libraries and/or commercial organisations to meet the costs of the financial, staffing, and technical resourcing requirements that will be incurred.

Use of Web 2.0 and successor technologies

Many libraries have adopted Web 2.0 and social media in recent years to help market their services and improve service delivery (O'Dell, 2010), or to enable the remote delivery of information resources to library users (Gardois et al., 2012; Joint, 2010; L. Watson, 2010). As previously discussed though, little published research exists pertaining to the use of Web 2.0 and social media by museum libraries. Consequently, this survey sought to investigate the future use and impact of these tools amongst the libraries in the sample.

The first statement examined the topic of generic communication via the web, e.g. information conveyed via a library website or email, with participants being asked to comment on the scenario that communication via the web would be the most common method for delivering information about new library services or resources to users.

There was almost unanimous agreement that this would be both likely and desirable, with 87% stating it would be highly or moderately likely to occur, and 81% stating it would be highly or moderately desirable. This therefore confirmed that for many managers, the Internet will be an important future resource for interactions with users. And although this was not specifically considered, the implication from these replies is that this would be the case for both internal and external users.

Taking this one step further, the next two statements investigated whether extensive use of Web 2.0, social media, and successor technologies by the surveyed libraries would form a key strand of their future service offer. As will be discussed in more detail in the next chapter, many national museums funnel social media usage through centralised departments, such as the Communications Department, and so this statement also assumed library use that is mediated by other museum departments.

As the results of Figure 23 indicate, the consensus view was that widespread Web 2.0 and social media use by libraries would be extremely likely to occur over the next decade. Similarly, this was mostly regarded as a desirable activity for these libraries.

On the surface, this would appear to be an unexpected outcome given the perception reported in the literature review that museum libraries have traditionally lagged behind libraries in other sectors in relation to technological innovation. However, social media has been widely used within the LIS sector for at least ten years, and so it would be expected that by now most national museum libraries would be familiar with these resources, and would be very accustomed to using them.

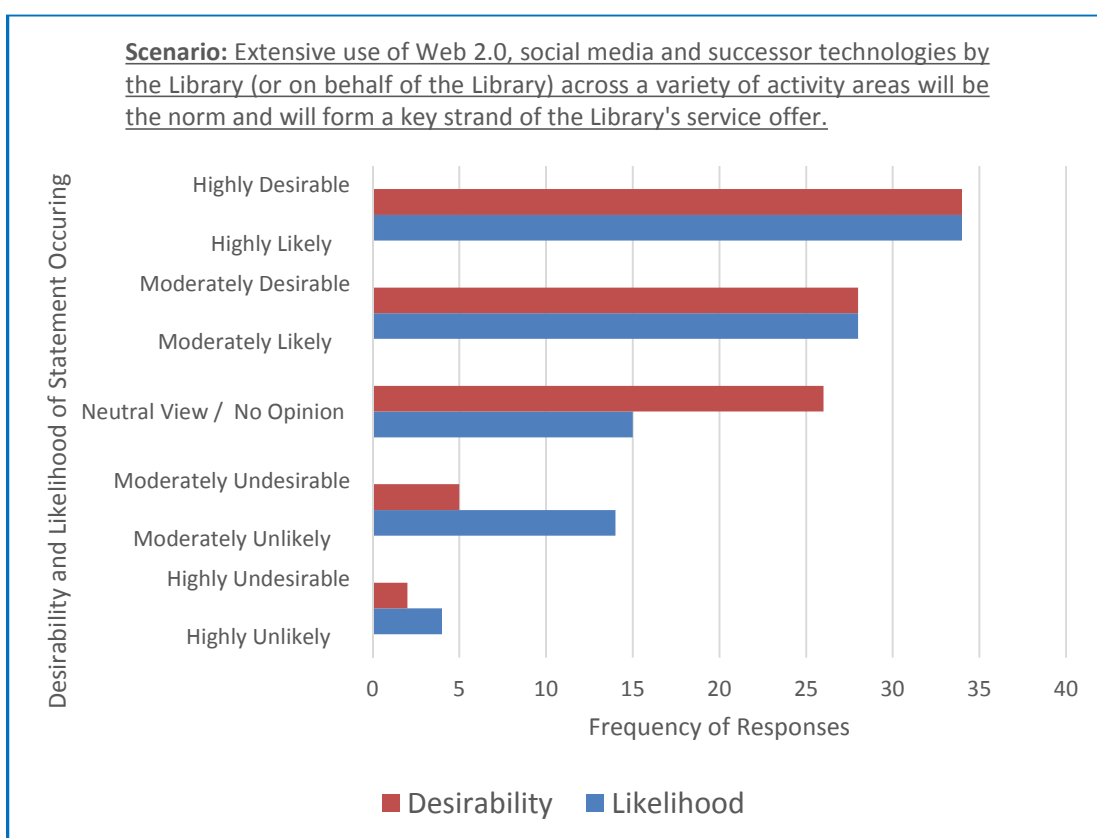


Figure 23 – Responses regarding libraries' use of Web 2.0 and social media

However, in order to more accurately assess why these technologies will be used, it was necessary to follow-up the previous statement with a more explicit statement that

examined the main potential drivers for Web 2.0 and social media usage. Participants were therefore invited to respond to the scenario that use of Web 2.0, social media, and successor technologies by their libraries would be restricted to marketing and promotional activities only, which, as reported in the literature review, is one of the main reasons why libraries initially engage in the use of these tools.

There was no overall consensus to the responses, with just over one-third of respondents viewing this as being likely, and an almost identical number seeing it as unlikely. The remainder expressed no opinion. A slightly higher number of managers saw this as being undesirable rather than desirable, but the difference was not significant.

This presents a mixed picture of the reasons for Web 2.0 and social media usage. For many managers, these seem to be essentially tools to be used for the purposes of promoting their libraries at a fairly general level, whereas for others, they are seen as being potentially useful for a broader set of activities. Unfortunately this survey did not include a follow-up question to explore what these broader activities might be, so at this stage it is only possible to speculate on the purpose of their usage. However, this issue is explored in more detail in the following chapter.

Finally, survey participants were asked to consider the scenario that their libraries would be early adopters of emerging Web 2.0 or Web 3.0 technologies, for example the 'Internet of Things', and would seek to quickly integrate these into their operations. This was admittedly a vague statement as it was not explained what specific technologies were being referred to, but the purpose of the statement was not to examine specific technologies per se, but to ascertain the general appetite for technological risk taking and innovation amongst the libraries.

61% of respondents agreed that early adoption of emerging technologies would be desirable for their libraries, but only 40% viewed this as being a realistic prospect. The presumption that can be made from these results is that most of these libraries will take a more cautious approach to the use of emerging social media related technologies, and will wait to see what their wider impact is before committing to adopt or integrate them into their operational workflows.

The reasons for adoption and non-adoption of emerging Web 2.0 or Web 3.0 technologies were not explored in this survey, and consequently require further investigation. However, it can be reasonably hypothesised that, for at least some of these libraries, non-adoption could be attributed to lack of funding, infrastructure, or the skilled staff needed to support and utilise these technologies. This would also be consistent with views expressed in the literature in relation to museum libraries and technology usage patterns more generally (Branin et al., 2000; Collins, 2003; Hazen, 2011; van Boxtel, 2009).

Use of mobile and handheld devices

Related to the previous scenario statement is the extent to which these libraries anticipate integrating mobile technologies into their operations, i.e. mobile phones, tablets, and other handheld devices.

For many commentators, including those cited in the literature review, such as Choy (2011); Connaway et al. (2011); and Krishnan (2011), the integration and use of mobile technologies is essential for all libraries, especially in terms of attracting and retaining users whose information consumption expectations have been influenced by the immediacy and convenience that is offered by mobile technologies.

And, as also stated in the literature, these technologies offer libraries the opportunity to branch out and develop new ways of enhancing their services (Barnhart & Pierce, 2011). However, no published evidence could be found to substantiate widespread use of mobile technologies within museum libraries. Managers were therefore asked to reflect on two closely connected scenarios, both of which related to the ability of their libraries to integrate mobile technologies into day-to-day service provision.

A baseline position regarding use of these technologies was sought in the first statement, with participants being asked to assess whether their libraries would make more future use of mobile and hand-held technologies in order to deliver core information services and resources to library users, which by implication included the delivery of digital content.

As Figure 24 shows, over half the respondents indicated this would be both likely and desirable for their libraries. At the same time though, it is worth noting that almost one-third of respondents perceived this as being unlikely to occur, although very few saw it as being undesirable.

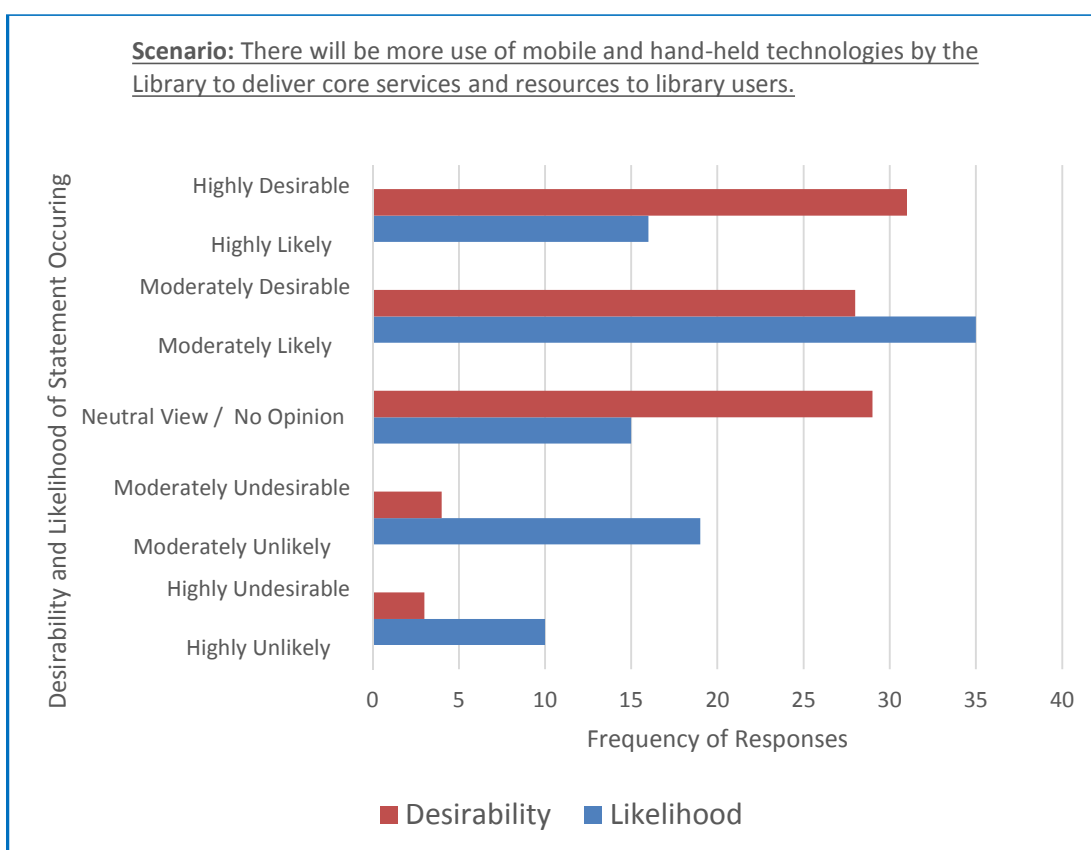


Figure 24 – Responses regarding use of mobile and hand-held technologies

From this baseline position, it was then necessary to explore the wider use and impact of mobile technologies on traditional library service delivery models. Clearly, the notion of ‘traditional service delivery models’ could be interpreted in many different ways, and it was not possible to explore all of these in this survey.

The area that was therefore selected in the next scenario was the one that some authors, such as Anderson (2011), have declared as being of particular importance to the future of all research library services, including museum libraries, namely the impact of mobile technologies on the future purpose and composition of the physical library space. As such, this statement sought views on the potential for there being a reduced dependency on the maintenance of a large physical library space as a direct result of increased delivery of library services and resources via mobile devices.

Despite the previous statement responses, which indicated a general acceptance and willingness to make use of mobile technologies, the responses to this statement were unequivocal in their agreement that there would be no correlation between the increased use of mobile technologies and the need to decrease physical library space, with 71% of respondents stipulating that this would be highly or moderately unlikely.

And whilst the numbers were less compelling regarding lack of desirability, almost half the respondents stated they were opposed to this idea, with 44% overall seeing it as being highly or moderately undesirable. Interestingly though, the largest single set of responses for the desirability statement was from the 32% of respondents who expressed no opinion, indicating perhaps that this is an area that has yet to be fully explored by many libraries.

Future impact of technologies

The final part of Section E consisted of two general statements. These examined different impact scenarios for national museum libraries as a result of the continued fast pace of technological change, and the anticipated increased future dependency on, and usage of, technologies at a societal level.

The first scenario presumed that the pace of technological change, and the challenges associated with that, would pose significant problems for the libraries in future. Examples of the challenges envisaged, which were cited in the scenario statement, included changing user demands, new versions of systems, and lack of standards. However, in practice this could also include many other issues, each of which could impact in a variety of different ways, and to varying degrees of severity.

The results for this statement were particularly interesting, with a high degree of consensus at opposite ends of the scale for both the likelihood and desirability responses. 61% of managers agreed that this scenario would be highly or moderately

likely to occur. Conversely, and perhaps as expected, 65% regarded this as highly or moderately undesirable. As with many of the previous responses in the survey, this seems to show that for many library managers there is a pragmatic acknowledgement that technological developments will impact upon their library services to some degree in the next decade. However, there is also a widely held sense that keeping pace with these changes will not be easy, and that the eventual impact of new technologies is still relatively unclear.

Finally, participants were asked to decide if they agreed with a bleak scenario that their libraries would be significantly scaled back or closed by their museums because of a perception by museum administrators that they were no longer needed, due to the proliferation of freely available web-based information. This statement was ostensibly presented in order to establish library managers' confidence levels in relation to the long-term robustness and viability of their libraries.

Unsurprisingly, almost all the respondents saw this scenario as undesirable, with 88% seeing it as highly or moderately undesirable. The far more relevant results for this statement though related to the likelihood of this scenario occurring. These responses were also fairly conclusive, with 82% seeing it as highly or moderately unlikely to occur.

The high degree of consensus expressed for both sets of answers seems to provide some evidence of managers being confident about the future prospects for, and the value of, their libraries. And despite the many changes and challenges associated with the digital age, most managers have a broadly positive and optimistic outlook regarding their libraries' future direction of travel.

4.3 Delphi survey – round two

As outlined in the previous chapter, the purpose of round two of the Delphi survey was to seek written explanations for any responses to scenario statements from the first round of the survey that fell significantly outside of the collective consensus of responses received, and which were thus considered to be outliers. In total, 112 outlier responses were received from the first round.

112 responses was felt to be too many to individually analyse in the second round, given the time and resource limitations of the study. However, it was assumed that this number would reduce to some degree as it was anticipated that not all the librarians who submitted first round outlier responses would reply to the emails they had been sent in the second round requesting reasons for their responses. This subsequently proved to be the case, as in total 61 responses were received following the initial email request, and a subsequent reminder email. This represented an overall round two response rate of 55%.

These 61 responses were then subject to a review to discount any that were unrelated to the research questions. This situation typically occurred where the respondent had stated that they had submitted a response in error, or had retracted a response due to a change of mind. However, several responses were also discounted as they did not add any real value to the investigation, for instance where an answer had been provided stating that a particular first round scenario statement did not apply to a respondent's library, without that answer then being qualified further to explain why the scenario did not apply.

This process reduced the total number of round two responses to be analysed to 20. These are presented below, in the same order as the five themed sections from the first round of the Delphi survey.

4.3.1 Outlier responses – section A

One scenario statement from this section contained outlier responses of relevance to the research questions. This statement concerned *members of museum staff being the most numerous and active future national museum library users*, which the majority of first round respondents had stated would be likely to occur in future.

Three respondents who stated this scenario would be unlikely to occur submitted second round feedback explaining their divergent opinions. One of these indicated that this would be unlikely as their library had been set-up to perform a distinct role connecting the Gallery with an associated academic research centre.

The Library is intended as a bridge between the Gallery and the academic community. Although the Library is certainly used by Gallery staff, it is open to all serious researchers and therefore an insular view of our users is not something I would consider desirable.

This view was echoed by another respondent, who stipulated that their library's user demographics are currently, and should continue to be, balanced 80/20 in favour of external users, although no reason was offered as to why this was the case, other than that it was seen as a satisfactory arrangement.

Museum staff make up 20% of our users and the remaining 80% are students, academics, researchers, writers, art dealers etc. We are quite happy with this balance.

The third respondent explained that their library shared the objectives of the main gallery strategy, particularly those of the Curatorial and Research teams, which were aimed at serving external audiences. Consequently, the respondent stated that it was

undesirable to focus attention on the further development of internal audiences, who were far fewer in number, and who were already making extensive use of the Library.

The clear implication here was that the Library needed to clearly demonstrate strategic alignment with the overarching organisational mission, and that effective use of library resources, including library staff time, was critical. These themes are also expanded upon in the next chapter.

We are already heavily and extensively used by Gallery staff because our work is so closely interwoven with that of the Curatorial and Research teams. The role of the Gallery is to promote an interest and understanding of portraiture, and for the Library and Archives this means expanding our existing external audience and developing new audiences. In terms of figures, the Gallery has c. 250 FTE staff, of whom c. 25%-30% are active users of the Library and Archive, and currently we are visited by 1,500-2,000 external users p.a., most of whom are repeat visitors. Yes, of course, we would like more staff to use the resource, but, given our ambition and the disparity in staff/visitor numbers, it therefore follows that it would have to be highly undesirable in the future for staff numbers to exceed other users.

As well as offering an interesting insight into this library's service prioritisation, these views also raise wider questions about the longer-term viability and reach of other libraries that decide instead to prioritise service and resource provision to museum staff over the general public, or those libraries that go one step further and restrict library use to museum staff only.

Given that the majority of respondents to this survey saw museum staff as their most active and numerous future users, it can reasonably be deduced that these libraries may not consider prioritising the needs of the general public in terms of their future library service planning and delivery. In turn, this would seem to indicate that many

of these libraries may be seeking to adopt a fairly inward focused operating model, which, it could be argued, might significantly limit or hinder their future potential to grow and develop. This topic is returned to in the following chapter.

4.3.2 Outlier responses – section B

Two scenario statements from this section contained relevant outlier responses. These statements concerned a) *national museum libraries mainly serving as print resources that provide access to rare or specialist materials*, and b) *national museum libraries needing to provide a more expansive range of services and resources to stay competitive*. For both these statements, the majority of first round respondents stated that these scenarios would be likely to occur over the next decade.

For the first scenario statement, two respondents, who had both stated this would be unlikely to happen, submitted second round feedback to explain their outlier responses. One replied that whilst their library would continue to mainly serve as a print resource, this would be for contemporary, mainstream items only and not specialist or rare materials, as these were not collected.

The other response was similar, as contemporary sources were also identified as the main requirement for library users. This respondent also mentioned an interesting point concerning the need for far reaching change in relation to library service delivery:

My bigger question is about the viability of the Library. Traffic and use is so small that I wonder whether a completely different operating model might provide a better service.

The respondent did not state what sort of operating model this might be, but the implication was, given the context of the scenario statement, that the traditional print collection and physical access focused approach was no longer sustainable.

For the second scenario statement, two respondents provided outlier responses stating that the need for a more expansive range of services and resources was unlikely. The rationale provided by both was that further services and resources were not needed, given that their libraries were already well supported and were operating at a level that made them highly relevant to their museums. In fact, it was noted by one respondent that a more focused rather than a more expansive set of resources may well be the optimum route for their library to follow in the future:

Our services may change, but they already include digitisation of audio-visual materials for preservation and access and reference sources for the public anywhere in the world. It is likely that we will reduce some of our resources, such as serials titles, and rely on full-text delivery through major art databases to which we subscribe. So while we will change our focus, I don't think it's a more expansive range, it is a strategic approach.

4.3.3 Outlier responses – section C

Two scenario statements from this section contained outlier responses. These related to a) *national museum libraries having dedicated strategic plans that are aligned to their parent museums' strategies*, and b) *national museum libraries planning and delivering an increasing range of services and resources that are designed to generate revenue for their parent museums*.

For the first statement, which most survey respondents in round one had stated was likely to occur, four respondents submitted second round feedback to explain why they had felt this was unlikely to happen. The reasons provided were quite varied.

Two library managers stated that their libraries had no strategic plans, as this was not deemed necessary. The rationale given for this by one manager was that no external user services were provided by their library, and therefore no strategic plan was required, whilst the other manager stated that *“up to now strategic planning has not been a part of the Library’s culture, and I do not see it changing soon”*.

The other two respondents provided quite differing responses again. One mentioned that the Library did not have a dedicated strategic plan, as the planning process was undertaken centrally with departmental objectives, including those of the Library, being set out in a single museum-wide strategy document. The other referred to the Library being a central facility that served a number of museums across the city, each of which is orientated differently and contains varying collections, therefore rendering a single strategic plan impossible. Whilst it was interesting to note each of these reasons, no similar anomalies or trends could be extrapolated from the data, which therefore confirmed their outlier status.

For the second scenario statement, which, as previously discussed, most first round survey respondents had somewhat surprisingly indicated would be unlikely to occur, four respondents submitted second round feedback to explain their reasons for indicating that this would be likely. Two respondents explained that this was due to their parent museums needing to generate more money as a result of decreased government funding, and that in this respect their libraries were seen as income generation tools by their museums. One commented:

As core government funding decreases, we are looking to generate more income. This will include the Library playing a role in behind the scenes tours, evening events for members, seminar room hire, etc. The Library is not isolated from the Gallery and therefore it will also play its part in securing income. We don’t intend to charge for using the Library itself,

but we will co-ordinate activities with other departments to play a role in income generation.

Similarly, the other respondent gave the following explanation:

The Museum as a whole is aiming to increase income from non-grant in aid sources significantly year-on-year for the future. This is partly recognition that funding is likely to continue to diminish year-on-year, and to support an ambitious programme of activity over the next 10-25 years, including, for example, major gallery developments, and collection digitisation. In that context, the Library and Archive will be expected to increase the amount of surplus we generate each year directly, and be able to demonstrate support for the equivalent efforts in other departments. For example, library publications, images for the Picture Library, content and items for exhibitions, and venues for film production.

In addition to generating revenue for their parent museums, the other related reason that was cited by the remaining two respondents was the need for their libraries to justify their value to their museums through utilisation of library assets. One of the respondents expressed their dissatisfaction with this process, noting that:

The current museum management do not value the Library, its services or the staff; they are more interested in income and hiring out spaces for venues, which may include this library.

A number of areas where the Library would be expected to utilise its assets through income generation were then mentioned, including hiring out library space for external meetings, hosting charged events, having a coffee shop in the Library, and charging for public enquiries. The other respondent was equally dissatisfied with the need to have to justify the value of the Library to the Museum through revenue raising activities, stating that the Library was:

Under the greatest pressure that it ever has been to justify why the organisation should continue to support the development and maintenance of the collections. Ironically, this comes at a point where the three principal collections the department manages are being used more intensively and widely, in terms of the range of external users, than they ever have.

This respondent went on to describe how the Library has increasingly had to diversify from supporting museum research activities to supporting other business areas within the Museum, including contributing to the output of the Museum's Publishing Department (where it was noted that half of the Museum's top selling books in the previous year were reprinted, out of copyright works from the Library's collection), and providing digitised content for the Licensing Department. Other activities mentioned in this context included, offering premium price locations within the Library for events, selling behind the scenes tours to the public, and running chargeable conservation and preservation workshops. This respondent offered the following view about this:

The common theme to what we are doing is that we have a need to raise more funds and meet the expectation of the management that we are engaging with visitors and people who can realise an interest in [the Museum³⁵], by our using our resources much more widely than the original reason for why the collections were created.

Despite these being outlier views, which were at odds with most of the round one responses for this scenario statement, the rationale provided by these respondents was felt to be both compelling and relevant, and also indicative of possible longer-term trends in other national museum libraries. Consequently, it was felt necessary to further investigate the reasons cited in these outlier responses in the case studies.

³⁵ Name of museum removed to ensure anonymity.

4.3.4 Outlier responses – section D

One scenario statement from this section contained an outlier response that was explored in round two. This related to *national museum libraries lagging behind libraries in other sectors in terms of their ability to use web or digital technologies to manage library collections.*

Most first round survey respondents felt that this scenario would be undesirable, but two outlier responses were provided stating that it would be desirable. Second round feedback was received from both of these respondents. The first one did not provide a reason for this, instead just stating that their current work environment was not technically up to date.

However, the other respondent stated that they did not want to try and keep up with libraries in other sectors in terms of use of web and digital technologies because library users did not want this, as they were happy with the current level of provision. No further information was presented to prove this point, other than the following:

It's not at the leading edge because researchers do not seem to want anything more sophisticated than they already have. Investment potential is thus compromised by lack of push. There are also higher priorities. Anything relating directly to collections information is viewed more positively.

4.3.5 Outlier responses – section E

One scenario statement from this section contained an outlier response. This related to *extensive use of social media and successor technologies by national museum libraries across a variety of activity areas being the norm and forming a key strand of the service offer of libraries.*

The majority first round view regarding this statement was that this would be likely to occur. Second round feedback was received from three individuals, who provided outlier responses stating this scenario would be unlikely. Two of these implied that their libraries did not need to use social media or similar technologies. One stipulated that this was because such activities were deemed to be a waste of money, noting that *“our small library, serving the research staff with books and journals, will not be involved in money consuming projects that can be fixed with an e-mail.”* The other stated that social media was not needed because the Library already had a captive audience, commenting that: *“users find their way to us, because we are often the only library in the city that maintains the requested books”*.

Feedback from the third respondent differed somewhat, as this librarian tacitly acknowledged that use of social media by their library would be a good thing, and that this was already being undertaken across the whole museum. The reason cited here though was one of resource availability, with the respondent stating *“we have an active section handling the Museum’s web-presence, social media offerings, etc., but the Library does not have this sort of capacity”*.

These results showed two different reasons why libraries were unlikely to utilise social media in the future, with lack of capacity in particular being a problem that might be prevalent across some other national museum libraries, notably smaller libraries. It was therefore considered worthwhile following-up on this issue in the case studies.

4.4 Summary

The results from the Delphi survey were presented in this chapter. The survey was undertaken over two rounds, and was sent to 200 national museum libraries in 40 countries, with data being collected from 95 libraries in 29 countries.

Five main themed topics were investigated during the survey, each relating to one or more of the research questions. These were: future library users and usage, future library service provision, future library strategy and management, future library collections, and future digital access and engagement.

Respondents were asked during the first round of the survey to consider a number of future scenario statements relating to each of these topics, and to predict and rate how likely and desirable it would be for these to occur within their own library over the next decade. Responses were analysed to explore key themes and emerging issues.

Respondents who submitted the most divergent outlier responses from round one of the survey were then identified, and were asked during the second round to explain why they had provided these responses. A qualitative analysis of the main points emerging from this process was presented.

The cumulative responses from both rounds of the Delphi survey then informed the development of the semi-structured interviews for the case studies. The responses received from the case studies are presented in the following chapter.

Chapter 5 – RESULTS AND DISCUSSION OF CASE STUDIES

5.1 Introduction

This chapter presents and discusses the results of the seven case studies that were undertaken. The chapter commences with a brief descriptive overview of the case study venues. This is followed by a quantitative analysis of the cumulative coded data gathered from the case study interviews and an in-depth qualitative assessment and discussion of the interview responses. The chapter concludes with a brief quantitative and qualitative summary of the documentation sources that were also analysed.

5.2 Case studies locations

Table 10 shows the following profile data relating to the seven case studies: classification of parent museum, geographical region of the museum/library, category and number of interviewees, in person or remote status of case study. Each case study is assigned a unique identification number, which is used hereafter.

| CS No. | Museum Classification | Region | Interviewees | Status |
|--------|------------------------|---------------|-------------------|-----------|
| 1 | Natural History | Europe | 2 staff / 2 users | In person |
| 2 | Art | Europe | 2 staff / 2 users | In person |
| 3 | Art | North America | 2 staff / 2 users | Remote |
| 4 | General | Australasia | 2 staff / 0 users | Remote |
| 5 | Science and Technology | Europe | 2 staff / 2 users | In person |
| 6 | History | North America | 2 staff / 1 user | Remote |
| 7 | Art | Middle East | 1 staff / 1 user | In person |

Table 10 – List and characteristics of case study venues

As mentioned in the Methodology chapter, the case study locations were purposively selected as 'typical cases' based on a pre-defined set of criteria (see section 3.4.2.1). In relation to these criteria, it is important to emphasise before discussing the results that a mixture of both large and small to medium sized national museum libraries were deliberately selected as case study venues to ensure they were as representative as possible of national museum libraries more generally, and that any bias based upon a particular library characteristic, e.g. collection size, was minimised.

Four of the seven case study libraries were therefore selected as being representative of typical large national museum libraries. These were CS1, CS2, CS3, and CS4. These libraries, whilst specialising in different subject areas and being based in different locations, were all broadly comparable in terms of their collection sizes, staff numbers, user numbers, service offerings, etc.

The remaining three libraries, CS5, CS6, and CS7, were conversely selected as being representative of typical small to medium sized national museum libraries, and were similarly comparable in terms of their collection, staff, user, and service profiles.

5.3 Case studies interviews – quantitative results

The responses from the case studies interviews were combined according to the coded data that emerged during the interview data analysis process so that relevant themes or patterns could be more easily identified.

These coded data were then counted and the five most frequently occurring categories were recorded. However, many of the less frequently cited categories are also discussed in the qualitative evaluation sections later in this chapter.

5.3.1 Total responses

659 individual coded responses were recorded from all of the combined case studies interviews. The five most frequently cited responses are presented in Table 11.

| Frequency Order | Coded Response (Thematic Category) | Frequency of Responses | Percentage of All Responses |
|-----------------|--|------------------------|-----------------------------|
| 1 | The museum library must support and align with the parent museum. | 61 | 9.3% |
| 2 | Digitisation of museum library and archive collections is important. | 58 | 8.8% |
| 3 | The provision of owned or purchased digital content to library users is important. | 50 | 7.6% |
| 4 | More public awareness, promotion, and use of the museum library is required. | 49 | 7.4% |
| 5 | Continuing to collect print format library and archival items is important. | 45 | 6.8% |

Table 11 – Total combined respondents' five most cited interview responses

Library alignment with and support for the parent museum was the most frequently cited single issue raised by respondents. As will be seen later, there are many reasons for this, but at a generic level it indicates that for a number of respondents the future success of their libraries is seen as being dependent upon operational positioning that is close to the core business and functionality of their museums.

Two related but subtly different topics were revealed as the next two most frequently cited issues, with the importance of undertaking digitisation of library and archive collections, and the need to commit to the provision of digital content to users being raised as priorities. Again, many reasons were provided for these and many different

issues were raised, but at a general level it was interesting to note that there was a reasonable, if not overwhelming, level of support for increasing digital format resource provision, both in terms of library owned content and content that has been purchased or subscribed to externally.

The fourth most frequently cited issue was the need for greater public awareness and promotion of libraries, and an increase in library use by the public. This was felt to be of particular importance to the library users who were interviewed, indicating that many of these libraries have possibly been less successful in making themselves visible to and understood by the public. This is a situation which seemingly needs to change in future if they wish to broaden their user base.

The fifth most frequently cited issue was the need for libraries to continue collecting print format materials. This is interesting as it would seem to contradict the need to invest in more digital resources, although, as will be seen later, the two were often not seen as mutually exclusive priorities, with many interviewees seeing a need for both.

5.4 Case studies interviews – qualitative results

The following sections offer a detailed qualitative analysis of the interview responses received during the case studies. This ensures that the main themes that emerged during the interviews are explored in greater depth, and the reasons for the responses provided can be analysed more fully.

5.4.1 Role and function of libraries

Interviewees were initially asked to consider several issues relating to the current operational roles and functions of their libraries, and how these might change over the following decade, from both a museum and public focused perspective. It was hoped the answers to these questions might reveal some clear patterns in terms of

the evolving nature of the libraries within the organisations they served, and the service development aspirations envisaged by library managers and users.

5.4.1.1 Purpose of libraries

An important starting point was an examination of respondents' perceptions regarding the current core role, function, and outputs of their libraries. Almost all the library managers indicated that their libraries served a distinct role, which primarily centred on the need to support the curatorial research agendas of their museums.

The main purpose of the Library and Archive is to support the science research here. *[CS1]*

The Library is really focused on research, supporting the curatorial staff, programmes related to the curatorial staff. *[CS3]*

The main role is to support the Gallery's research in particular, but also to enrich art scholarship. *[CS4]*

I think firstly the collections here really underpin our research programme. *[CS5]*

Serving museum staff is the primary purpose of the Library. *[CS6]*

These comments were fairly unsurprising as evidence from both the literature review and the Delphi survey pointed to a significant amount of library time being devoted to supporting curatorial research work. Interestingly though, other museum functions were also highlighted by respondents as being regular recipients of library support, notably conservation, records management, and public outreach functions, all of which were mentioned on several occasions. However, curatorial research support

was the most important activity for most libraries. Of the various specific activity areas that fell into this category, it was clear that provision of support for museum exhibition planning and development was the most important, with almost all interviewees, library managers and users alike, citing the criticality of this activity.

The nature of this support generally fell into two areas. Firstly, provision of background or in-depth subject information for curators undertaking research for content selection, exhibition displays, object interpretation, etc. And secondly, selection and loan of materials from library and archive collections for inclusion in display cases. In fact, several respondents noted that their libraries fulfilled both these functions, as denoted by the following comments from a library user (who was a museum curator) and from a library manager.

The real value for having a museum library is in supporting exhibition development, and very often you'll find that some item that is of enormous value to you regarding a particular exhibition in a particular context has been sitting on the shelf for ten years ignored. I find the quality of our library enhances the quality of our exhibitions. [CS6]

A lot of the curators want to provide that kind of contextual information and displays in exhibitions and I think that's where the Library and Archive is just becoming more and more important. We're seeing our loans for displays and exhibitions going up each year...I think definitely if you go around an exhibition now, you'll see letters from the Archive, photographs, or exhibition catalogues that a curator has just chosen to put into a display or exhibition. [CS2]

Echoing views expressed in the Delphi survey about library staff transforming their traditional reactive roles into new proactive roles, two managers pointed out that the exhibition support that their library staff were starting to offer was far more

sophisticated than simply responding to requests for information from curators. At these museums, the library staff were actively involved with and incorporated into museum exhibition planning teams, and from that vantage point they were able to directly input ideas and contribute suggestions for display themes and content, which would not otherwise have been easy to achieve.

We do have liaison librarians on every exhibition that comes up, so we're always a part of the whole group in developing an exhibition. A lot of our work is done ahead of the exhibition, gathering a lot of material, working with the curators, or with conservation, registration. So I think that role will continue and grow. *[CS4]*

We not only guide the exhibitions teams to our own collections but we also give them advice or do research ourselves on accessing other people's holdings, and that's definitely enriched displays as we often find a lot of material that's both here and in other repositories that's never been brought together before...So, I think going forward really the Library and Archive in some form or another should be part of every museum display and activity. *[CS5]*

There was a sense from some library users though that library involvement with exhibitions, and more importantly the display of library and archival material in exhibitions, was still an area of untapped potential for both the libraries and the museums. Several comments were received from users stating that far more could and should be done by libraries to contribute to their institutions' exhibition programmes, and to make library materials more visible within the galleries.

I think the incredible array of textual resources the Library has can be made much more explicitly exhibition objects...I think greater integration there would just highlight how rich and beautiful the illustrations are, or how good the collection is in and of itself. *[CS1]*

I think there could be more displays around the Gallery that could just make use of this material. I mean I'm often astonished by this stuff that's in the Archive, you think, this is brilliant, these are very interesting objects and items in their own right, and it's all there...it's a free resource they could use. [CS2]

The one way I would like the Library to increase its profile is to do more publicly centred exhibitions on its collection because they don't really do that...They might occasionally have an exhibition which tells the public that this is a living, breathing department in the Museum, which, like other departments, collects, and in this case they collect books. [CS3]

Whilst supporting curatorial research for the purposes of exhibition planning and development was clearly seen as being the most important activity for libraries, there was also a widely held view from many library managers that the nature of the research support they offered had a far broader reach than exhibition planning and development alone. One other notable theme that was mentioned was non-exhibition related academic research undertaken by curators and other museum staff.

There's always been that element of scholarly research support but it is growing and we are actively supporting our collections and our expertise within those arenas. I can see that developing somewhat because if we're supporting research that's being funded externally then the type of support we're providing may change based on what's being funded. [CS1]

Academic research of the museum objects will continue to be an important part of the user research. Currently, there is a big use of the auction catalogues to research our objects but I imagine this will change and the research will involve more in-depth research as more is known and published about our collection. [CS7]

5.4.1.2 Value of libraries

The in-depth research support that most of the libraries delivered also reflected in the views held by many library managers and users in relation to the value that the libraries brought to the museums they served, with the subject scope of library and archive collections being highlighted as a particularly important factor. This point was mentioned by two library users.

The Library is very useful to me because it has a very broad collection and it doesn't only include things like primary resources, but it also has relatively broad, almost beginner's guides types of books, which is quite useful when you're teaching. [CS2]

The Library is best for its wide range of resources that are physical, and for the research I do that is really paramount. There's no other library that has the range of periodicals...and really just the breadth of them, the sheer number of small titles. [CS1]

There was also evidence of the value generated by libraries in terms of the connectivity that existed between their collections and museum object collections, with some library users highlighting the role that library staff played as being a bridge between these two collections. One library user, who was a museum curator, also suggested that this connection played an important role in informing future museum programming as it was the knowledge held and disseminated by the library staff that helped inform future curatorial decision making.

The staff themselves are very knowledgeable, they tend to come from arts based backgrounds, they know about the contents of the Library and the Archive, but also there's a relatively good degree of communication between library staff members and museum staff members of other kinds. Curators are always coming into the Library and doing things and I

think that communication is vitally important because it means that the Library staff are staying in touch with people who are really up to date on what the Museum's doing, what people want to come in and see. And of course, curators and museum staff are themselves very important library users, they need that resource and it will inform museum policy, museum practice. [CS2]

Whilst several of these themes were also echoed by library managers, especially the value of librarians' skills and knowledge, most managers reported the uniqueness of their library collections as being the single most valuable aspect of their service offer, and as being something that differentiated them from other libraries. And as will be explored in more detail later, this was particularly the case in relation to special collections and archives.

I think the major point is that a minimum of 50% of our collections are unique or rare, so if you want to see the original this is the only place you can find it...they can see the digital surrogates, but that's not the same thing. [CS1]

With these physical collections that we have, especially the Archive, which is 100% unique, people can't see the items anywhere else... But our library collections are also unique and different, so it's not just about the Archive. [CS2]

The rare books room is the unique selling point of the Library, and is becoming increasingly important. We are promoting these materials via social media, our website, our OPAC, and private invitations to academics and scholars to visit the collection. [CS7]

Whilst most library managers were able to refer to aspects of their library services that were seen as being of value to their users and their museums, actively measuring

and interpreting this value in such a way that it could be used to influence future strategic planning and service prioritisation was seen as a challenge. As mentioned in the literature review, this problem is not something that is restricted to national museum libraries. However, it was interesting to note that only one case study library offered a clear view on how they planned to measure value within their library, and revealingly the manager who provided this view had only relatively recently started working at the museum library, having moved from an academic library, where it was mentioned that measuring value was common practice.

I've done a lot of assessment to demonstrate how the Library is having an impact on learning outcomes, and we're soon going to start doing an assessment of services, collections, and spaces. [CS3]

For others, this was acknowledged as an area where more needed to be done, but there was a sense of uncertainty as to how to go about doing this in a meaningful way, over and beyond just compiling and referring to basic usage statistics.

That's a really difficult question. We do maintain, as most libraries do, all kinds of statistics. From people who walk in the door, to people who ask queries, and that kind of thing. We're always keeping stats on just about everything because you never know when senior management are going to want statistics. So we're measuring that, that's the main way. Beyond that, we try to keep track of our researchers who come in and what they're doing, what type of research they're doing, if their publishing, you know, what it is their research is leading to. [CS6]

It's really difficult to evaluate impact or do an assessment on what impact your library and archive collections have on an institution or on the public. I don't know if much research has been done around it. We kind of struggle, we've obviously got our KPIs, which use statistics, how many people are coming in, how many collections people are viewing, but you

don't really get the cost benefit of what using libraries and archives are, it's not very tangible. [CS2]

5.4.1.3 Target audiences

Correlating with the Delphi survey results, there was an overriding impression amongst the interviewees that the audiences their libraries served, and the services being delivered, were currently principally inward facing. Many respondents, particularly library users, stated their libraries existed primarily to serve museum staff, especially curators, with public users being regarded as something of an afterthought.

The Library has always been a facility for the use of the staff, particularly the curators. And it's a research facility, which historically was built around that service component. It has a secondary component, which is to serve the public at large with a serious interest in art, and that basically has always been the criteria for wanting to use the Library. [CS2]

When I first came here in the 1970s it was very difficult to tell what books were where because the curators, as they still do, had the right of primary access to the books. So they could check a book out and, literally, it was not returned until he or she retired. [CS3]

Similarly, there was a sense amongst some library users that their libraries had done little to encourage members of the public, and that this was an issue that needed addressing in future as the libraries could not viably justify their continuing existence unless they improved their public reach.

I can imagine that the Library will face the same kind of questions that the institution more broadly will face in terms of accessibility, and in particular its publicness. So the Library is free and anyone can enter it. But there's also a sense in which it's designed for quite a small community

of users, art historians, or researchers. And I can see it coming under pressure to open its doors to wider audiences, and for its collections to be more publicly accessible. [CS2]

Tied in with this was the perception that younger patrons, especially schoolchildren, were very under-represented, and made up a low percentage of the overall user base. This was something that several library users touched upon, with comments received concerning the need to attract more younger library users in the future: *“I also would like to see children coming up to the Library”* [CS5]; *“I think they should encourage school groups to come to the Library”* [CS7].

If and how this position might change in future was less clear though, and the responses revealed mixed feelings on the subject from a few library managers. Some did stress how important it was to develop better service provision for the public, including younger users. However, an equal number stated that their libraries should primarily focus on strengthening and consolidating their internal user base.

In terms of broader public engagement, again we've always done that, but I think that's going to develop and grow, particularly over the next ten years because I think as the Museum is developing its gallery spaces, we have a plan within the next two to five years to develop our spaces. [CS1]

I do see over the next decade that the Library's main function will be serving the Museum, the Museum staff. So it's staff who are working on exhibits, which is what they're often doing, or research of some kind in preparation for exhibits or research for publishing. The public is a secondary purpose, but an important one. [CS6]

Paradoxically, the motivation for focusing on the future development of internal or external library audiences seemed to be driven by the same overall objective, namely

the need to meet the strategic imperatives of the parent museums. It was often the case that where a focus on delivering services to the public was mentioned, this was discussed as part of a wider museum strategic initiative to broaden public access.

I would see that in line with the Gallery's overall desire and strategy to increase public engagement with everything that we do, we'll continue to promote the Library, both within the physical building and through our other galleries as well...So, we will constantly continue to seek ways in which we can engage the public in using and raising awareness of the fact that they can use the Library. [CS2]

Similarly, where an internal audience focus was mentioned, this often seemed to match an organisational objective to increase or improve research and/or curatorial outputs. And this was often linked to an organisational drive to raise the research profile or academic status of the museum.

I can see that the importance of the Library and Archive will grow internally over the next couple of years, because of our masterplan for our exhibitions and all aspects of our public programme. We're going to be much more rigorous in terms of the research work we do, so the Library's going to underpin and be the foundations of our curatorial work here within the Museum. [CS5]

However, the reality of the situation was not as one dimensional as these quotes might suggest. And in most cases, respondents, notably library managers, as can be seen from the CS6 quote above, observed that focusing future service provision on one audience group did not negate service provision to the other group. Rather, it was a case of prioritisation of future activities, particularly new developmental activities.

5.4.1.4 Organisational status

Despite the previous comments, which indicated that most respondents believed their libraries played an important role within their museums, it was nevertheless expected that the future outlook for the libraries might be seen as at best uncertain, given that future budgetary cuts were highlighted in the Delphi survey as a cause for concern. However, this mostly did not seem to be the case, with many responses, particularly from library managers, asserting that the future organisational position and status of their libraries would remain relatively unchanged.

I don't think our role will change, we're always going to be here physically. And this is as much a part of the institution as the art collection is. [CS3]

Fundamentally, some of the role and function won't change, in that the primary purpose of the Library and Archive is to support the science research here. [CS1]

I personally don't see it changing particularly in the future. [CS2]

I see it more as a continuation, that's how I see it right now. But that could easily change over a ten year period. [CS6]

But, the fact that these libraries are in essence support services for their parent museums was in some cases seen as leaving them more vulnerable to adverse change events, e.g. funding cuts, than other museum departments that might be perceived as being more central to the core public-facing mission of their museums.

That, of course, is one of the challenges a museum or gallery library contends with, we are a subsidiary department, a service department of

a bigger organisation. So, we have to fit in with the resource allocation and the priorities of the wider organisation. [CS4]

As will be seen later, this issue also closely tied in with many of the views expressed concerning the need for the libraries to be aligned with the strategic mission and vision of their museums.

5.4.2 Usage trends and behaviours

In order to better understand how these libraries might be used in future, and how this might differ from historical and current approaches to usage, especially in terms of the impact of digital technologies, data were collected on the current information seeking and usage behaviours of library users, and the changes they expected to see in terms of their interaction with these libraries over the next decade.

5.4.2.1 Use of print resources

Library users were asked to state how important print collections would be for the future of their libraries, and whether or not print should be considered as the primary format for future acquisitions by these libraries.

There was a high degree of consensus that print format materials were highly valued and that they were critical to certain aspects of research, such as the analysis of detailed art images. Library users at three case studies, whilst acknowledging the importance of digital resources to their research, emphasised the convenience and ease of use of print materials, and cited these as being the primary reasons why print format items would continue to be important.

I still find printed books very valuable, in some ways they're just better adapted for research in that you can flick through them, you can put

stickies on them, you can walk through the stacks and just see what's there. I think internet access is great, but I would hope to see a continuing role for books, and hope that our library keeps on collecting them. [CS6]

I think technology is fantastic, and it serves a lot of purposes to help the researcher, but having books is very important. You have normally a limited time here, you cannot spend hours sitting in the Library at a computer, you want to go home, so what do you do? You print it out or you borrow a book, and then you read stuff in the evening when you're not at work. [CS7]

I like the fact it's a lot easier to access actual physical copies of journals in the Library, rather than just looking at online databases and things like this. I think it's great that they have the physical object because it's often seeing what else was in that issue...rather than just having them digitised and looking at a single article that can often seem out of context. [CS2]

Library users at three other case studies explored this from a slightly different angle, focusing instead on the fact that the physicality of print was intrinsically better suited to the specific type of research they were undertaking. This was more the case for researchers undertaking arts and humanities research, although a scientist who was interviewed also alluded to this fact when referring to the value of print for carrying out history of science research.

The most interesting research that we're doing has to do with material history. You really have to be able to see things in person and smell the paper, and to see how thick it is, and see the size of it. And unless a digital resource comes around that can absolutely replicate that, then I don't see how a digital resource can completely replace the physical object. [CS1]

At a more prosaic level though, availability was seen as being one of the main drivers for a commitment to the continuing use of print format materials. For researchers undertaking historical research at these libraries, especially research necessitating access to archives or special collections, several reported that there were typically few, if any, digital materials they could access that related to their research.

Given therefore that print was likely to be the only format for which many of these research resources would be available for the foreseeable future, it was seen as being fairly self-evident to a number of the interviewees that print would continue to play an important role within these libraries over the next decade, although what would happen in the longer-term was not clear.

I think it tends to remain the case that most of the best resources are in print. Not exclusively in print, but most of the best resources that I would use anyway, as a contemporary art historian, do tend to be in print. So, I think for that reason that ought to be where the focus is. [CS2]

5.4.2.2 Use of electronic resources

Current and anticipated future use of electronic resources was also investigated, to gauge the extent to which research behaviours of library users might evolve or change in future, from the more traditional, print orientated approach highlighted above.

In terms of the use of externally purchased and subscribed electronic resources, e.g. e-books and e-journals, there was what can best be described as reserved support amongst library users in terms of their research value, and of the future need for their libraries to invest in them in any great quantities.

Only three library users expressed a strong degree of enthusiasm for electronic resources, although none offered a particularly convincing case concerning the

reasons why they felt e-resources would be more useful than print. One user offered a very broad and somewhat ambitious perspective, by stating that *“everything should be online in the next ten years”* and that, *“the Library should move as quickly as possible to a wholly digital service”* [CS5]. One simply mentioned that being able to link seamlessly to different e-resources *“would be very valuable”* [CS1], and another referred to a specific, research-oriented factor, explaining that e-resources are *“very useful for quantitative analysis, and being able to quickly develop a research question and be able to create a data set”*. [CS1]

Other library users adopted more circumspect or non-committal views. One mentioned that *“it’s certainly useful being able to access material online”* [CS6], before then stating a preference for print resources. Similarly, another said that *“it would be useful if everything was available electronically, but I wouldn’t say it was essential, there’s always something to be got out of seeing the actual file in your hands”*. [CS2]

The most frequently articulated concerns expressed by library users about their libraries’ future investment in, and possible reliance upon, e-resources for content provision were twofold. Firstly, the perception that a move in this direction would undermine or threaten continued investment in print resources, which was a view expressed by users of two arts based libraries:

What I fear, and have some anxiety over, is that administrators of the future will diminish the Library’s traditional strength by moving more and more towards digital materials, simply because it would appear to be less expensive and easier to store. [CS3]

It’s obviously partly a question of the Library understanding who is using its collection, and what those people find most useful. If it’s the case that most people want material digitally and find that the most effective way, then that’s where the priorities need to go. I’d have some scepticism

about whether that's the case, particularly for a visual arts institution...people who are interested in writing and thinking about art are interested in materiality, and it matters whether something is printed or it's on a screen. [CS2]

And secondly, various practical difficulties associated with conducting research using electronic resources were reported by users. These included problems reading materials on computer screens, issues associated with embargoed or pay-per-view electronic journals, and long-term digital preservation concerns.

I don't think I'm alone in partly wanting to limit the time I spend with a screen. I know that I'm going to spend large chunks of every day with my laptop, but when it comes to research and reading, I often want to spend time with books as it's a different experience. [CS2]

There can be barriers in the electronic world. Hopefully, it's a barrier that in an institution like this can be overcome fairly easily, because we subscribe to that journal electronically, or we have it on the shelf. [CS1]

Print has a permanence that digital material lacks. We don't know what technology's going to be like in ten years. I know that a lot of digital material gets left behind...whereas once you have a book, it's there. [CS6]

Overall though, there seemed to be acceptance from most library users that an increased level of provision of electronic resources, even at a fairly modest level, was inevitable for their libraries, particularly given the high costs associated with maintaining large print collections, and the ever growing range of e-resources that are available, including the increasing number of freely available open access e- journals available across all academic disciplines. As such, most library users acknowledged that some form of hybrid print-electronic collection would be the most likely and the

most acceptable eventual future outcome, and that there would be a gradual balancing over a period of time of print and electronic collections.

I see online as a lot more portable than a whole library of books, and therefore I appreciate the value of being able to access things online, and that is something I would still like to see. But I do want to actually see books as well, because books and journals, often with markings in manuscripts and covers and things like that, have value...It's that hybrid model, ready access to things electronically, but being able to access the original item when you need to. [CS1]

So what's going to happen over the next ten years? I suppose the Library will move more towards having a large, rich, digital resource of both paid for and freely available materials, and it will then move less used print resources off-site. I'm hoping though when they do that, it's done in a way that is reflective of not just statistics of how many people have pulled out a book or how many people have looked at it or not, but how historians value it. [CS2]

I think it will be somewhat more digital, but not overwhelmingly. I think printed books are still useful, and what the Library hasn't got yet, and maybe will get, is some way of accessing e-books in their collection. [CS6]

5.4.2.3 Use of physical library spaces

As indicated above, a commitment to continuing use of the physical library was a topic frequently mentioned by library users. Several observed that carrying out research within a library, rather than searching for information online, was not only beneficial to them from the perspective of accessibility to the collections they needed, but was also beneficial in terms of less tangible factors. These included, the help that was available from knowledgeable library staff, and the opportunity it offered for interaction and collaborative working in a social space with other researchers working in their field.

I think it's great just to see people doing work that you're really interested in in the same space, and I think that's one of the main interests of the Library that I don't think you really get in a lot of other places. And it's also a great variety of people doing different things; you have graduate students, you also have scholars, you have curators...so that's interesting to me, that community. [CS3]

The role of the Library as a social space, an education space, an interactive environment, I think it should be preserved, it's very important. For me, that is more important than technological change. [CS7]

Now, in this day and age you can access a lot more stuff online, but it still remains very much the case, and this appeals to me personally working here, that I have access to the Library. I can do my job. [CS1]

One library user, who was a curator, noted that the close location of the Library to the curatorial offices within the Museum was an important benefit, and a major reason why he liked using the Library.

There's the advantage of physical proximity. Even in a major university, you don't usually have a library right downstairs. But, having books on-hand, instantly accessible, is extremely useful, and something that you really only get with museums. [CS6]

One of the limitations of this research was that it was not possible to discuss these issues with library users who did not physically visit in person, but relied on remote access, e.g. overseas researchers, or with potential new users of the libraries, e.g. university students. And therefore, it was impossible to gauge how important an ongoing physical library presence is to these groups. Further research is therefore needed in order to gain a more balanced understanding of this issue.

5.4.2.4 Library staff knowledge and support

As mentioned earlier in the chapter, the in-depth subject knowledge that many museum librarians possess was regarded favourably by several library users, and was reported as one of the main reasons why they used these libraries. Furthermore, there was recognition of the tailored support that was frequently provided by library staff, which was seen as being valuable in terms of identification of relevant research materials, especially hard to find items, and highlighting interesting new publications.

Digital resources don't have curatorial knowledge, they don't have people sitting there knowing their resource. And that's really a key part of the Library, that you have librarians here who know how to give access to a user in a way that a user would have no way of doing online. You come to a library not just for the books but for the people who work here, and know how the books relate to each other. [CS1]

If I'm working from home, if I'm studying from home, then I can obviously access the material, that's wonderful, but sometimes I may have to drill down and I need more information. And this is where the librarians can assist me and give me that information I'm looking for. [CS5]

I find it very valuable to be able to talk to people who work in the Library, because they know what's in here...When you do research, it is very lonely. So, when you come to the Library and talk to the people and say, I'm looking for this particular aspect of so and so, the librarian will say to you, there are other aspects here, and you can maybe check this book there. And it makes a huge difference from just looking on the catalogue. I think that is important, that interaction. People who work in the Library know what's in here, and what's on the shelves. [CS7]

Having someone knowledgeable about books, and what's available, I think is going to remain useful. I don't often have to go to a librarian and

say, 'where can I find something about this', because they already know in terms of the publishers what's just come out. They monitor publishers more closely than I do, and often they find out things that I don't. [CS6]

It should be noted however that the users who offered positive comments about the bespoke nature of library staff support typically tended to be museum employees, often curators, whereas members of the public who used these libraries seldom mentioned this level of support as being available to them, although they did refer to the knowledge and helpfulness of staff more generally. This would seem to indicate that the more in-depth, personalised support and current awareness services that library staff in these museums provide is currently primarily focused on museum staff.

5.4.3 Strategic aims and objectives

As a follow-up to the Delphi survey, where various library strategic planning scenarios were presented, library managers were asked during the interviews to provide a more detailed synopsis of the strategic objectives for their libraries over the next decade. Understanding this information was key to forming a clearer picture of the type and range of activities and services that these libraries would be planning to deliver during this timeframe.

5.4.3.1 Museum strategic alignment

Strategic prioritisation was initially examined from the perspective of the broader organisation-wide objectives contained within the main strategic plans of each museum, which were then cascaded downwards to museum departments, including libraries, to implement. The purpose of this was to establish to what extent, where, and how the libraries slotted into their main organisational strategies, and the key roles they will play in supporting and shaping the future plans of their museums.

However, during the course of the interviews with library managers it became apparent that very few of the libraries were actually mentioned in their museums' strategies, and even fewer had objectives specifically assigned to them. This also largely appeared to be the case with more specific museum strategies, in areas where the libraries may have been expected to make an active contribution to the delivery of objectives, such as digital strategies. As such, for most libraries there was little documented information that explicitly connected the services and resources they provided to the intended strategic outcomes of the museums they served.

It was expected that this lack of organisational acknowledgement and strategic visibility would be seen negatively by library managers, and would be interpreted by them as reflecting a perception that museum directors saw their libraries as having a less significant role within their museums than other departments. None of the library managers mentioned this as being problematic though, and it was not even reported as being surprising to them. Many managers seemed to take it for granted that their libraries had key roles to play within their museums and were clear as to what those roles should be. For most, this was about their libraries directly underpinning and supporting the delivery of their museums' range of programmes.

Recently, the Museum has created a five year strategic plan and most departments are aligning themselves with that...but the Library is not included in the Museum's strategic plan. What we were told by the Director's office, essentially was that they rely on the Library to be there and to be really focused on research, supporting the curatorial staff, programmes related to the curatorial staff, so digital media and education. And they're trying to utilise those programmes and focus on building and connecting with a broader visitor community, essentially trying to build a base. [CS3]

The Library definitely has to stay in tune with whatever the Museum is doing in terms of exhibits, programming, education, different types of research. We usually have at least a five year exhibit programme schedule, so we know what's going to be developed over the next five years. So, we have to stay in tune with that, we have to stay in touch with the historians and specialists who are bringing things into collections, we have to know what they're working on, and what kind of things they're collecting, so that the Library can provide them with assistance. Because we're a museum, we also want to be collecting as well, so we're looking for rare material that meets the needs of an upcoming exhibit. [CS6]

And for one manager, this lack of clarity within the Museum's strategy was seen as an advantage as it offered a degree of autonomy in interpreting strategic objectives, and deciding how best to assign library tasks and activities in support of the Museum.

We're taking the overall strategic planning document and essentially writing the Library into the plan to get support from museum administration to say, look we need to continue to work in these areas to support what's happening with the larger strategic plan, but we also need funding in these new areas to support more collections off-site, to support enhanced reader services or public services, to connect with internal scholars. [CS4]

Irrespective of whether or not the libraries were mentioned in museum strategies, several managers indicated that their libraries should be as closely aligned as possible to their museums' strategic plans in order to ensure continued organisational relevance. Two managers noted how important this was, and stated that their libraries could not and should not be deviating from that path as their success as museum departments depended on their being as integrated as possible.

I think there's a risk that if the Library tries to go off and develop its own strategy that we're seen as not fitting in, and also we won't get the

resources because they're too stretched. It would be nice to say, yes, we're going to develop our own programmes of outreach and do all sorts of things ourselves, but we haven't got the staff to do that so we've got to align ourselves with the Museum and the way it's going. [CS5]

You have to show that your priorities for the Library and Archive are to support the exhibition display programme, the learning programme, the research programme, within the Gallery. Because if you have individuals going off doing their own thing, it just doesn't work anymore. When you've got limited resource it has to support the organisation, and if you can be seen to support the organisation directly then it really helps. [CS2]

5.4.3.2 Libraries' strategic priorities

Following on from the issue of alignment with museum strategies, library managers were then asked to identify their strategic priorities for the future, which is to say those objectives they would be undertaking that either directly supported their museums' strategic plans, or which related to other relevant activities. The most frequently cited of these were: collection development, digitisation, exhibitions support, improving online access, new audience development, and communication and promotion.

Collection development and digitisation are covered in detail later and so will not be explored further here, other than to acknowledge how important these were seen as being by library managers, and a sizeable number of library users, for their libraries' future growth and development. The other strategic priority areas are outlined below.

Strategic priority – exhibitions and research support

After collection development and digitisation, supporting the development of museum exhibitions featured most prominently as a strategic aspiration. This was not a surprising revelation, given the comments outlined earlier concerning the importance of these activities. What was quite surprising though was that there were very few

specific plans for further developing or extending this activity area, or for integrating new services, resources, or technologies into the support the libraries offered. For most managers, the strategic visions they articulated were fairly vague and essentially amounted to a continuation of their current service offerings. However, this could justifiably be attributable to a lack of capacity, rather than a lack of desire.

Future planning principally centred on two areas. Firstly, ensuring that curators and other exhibition development staff received adequate information and research support. And secondly, providing relevant library and archival content for display in exhibitions, in either print or digital format. For almost all managers, both of these activities were described as being equally strategically important.

We're usually involved in planning meetings for upcoming exhibits. And if we're not directly involved then we're chatting with the historians, we know what they're working on, and we try to stay in touch. And so that absolutely has to be something that we have to do, so that we can respond to their needs. [CS6]

I think one of the things that we have traditionally done, and will continue to do, is provide and make available and discoverable the information that informs good quality research...But also, helping time poor users and researchers get to the material, the sources they need, and guide them to the parts of the Library collection that might be exciting or really useful additions to their exhibitions. [CS4]

I think what will definitely be happening within the Gallery, is that archive material in particular, but also library material, will be used to enrich the exhibition and display programme. And so you will see more archive material on display in parts of the collection. [CS2]

In a similar vein, support for research was also emphasised as a strategic priority, both in terms of the support libraries offer researchers working within other museum departments, but also in terms of the original scholarly research that the libraries themselves carry out. This last point was stressed as an important future strategic objective by several library managers, and was seen as being something of a departure from the libraries' more traditional museum research support roles.

I think doing more research aligns with the research agenda. And it's expected of the Curatorial staff, and the Library and Archives staff are included in the Collections and Research Department. So, I think if we start producing at least some press articles, and maybe some peer reviewed work as well, that aligns us much better. [CS5]

A lot of objects will be coming into the Museum to start to tell those bigger stories, and we need to understand more about those objects and how they relate to each other, and those themes and stories that we're going to be telling. So, there will be quite a lot more research being done by the Library within the Museum, but also with our university collaboration. [CS4]

However, one manager emphasised that whilst a commitment to undertaking research within the library setting was important for future library development and strategic alignment with their museum, it was often difficult to obtain the funding needed for such research. A more realistic approach was seen as attempting to slot the Library into research projects initiated by other museum departments instead.

Although I think over the next ten years we may struggle in terms of actually bringing in research grants that are specifically library and archive research grants, we can provide an important element of support for that growth in wider research grants that we're locked into. [CS1]

Strategic priority – improving online access

The need to improve online access to library collections and collections information was also widely identified as an important future aspiration. This ties in closely with improving the discoverability of library and archive content, and social media use, both of which will be discussed later in the chapter. But, for several libraries improving online access was seen as a broader challenge, which focused on the need to enhance the public visibility of the libraries themselves by upgrading library websites and web portals. There was a feeling from several library managers that this was an area where change was slow, and that this in turn was currently holding their libraries back and preventing wider and faster engagement with external audiences.

The one thing we really need to do is improve our web presence right now. Our library portal and our library catalogue look ridiculous; they are antiquated, terrible. We definitely need to integrate better with the Museum's website as a whole, just so we can get with the times. [CS3]

I think there's some fundamental issues that we have in terms of our technology and our website, and how you then find information about our collections here. And I think it needs to be far more intuitive or easier to access and use. I can imagine a significant investment would be needed within that. [CS5]

Strategic priority – new audience development

A common theme amongst many library managers was the need for their libraries to continuously attract and develop new audiences, especially from groups or communities that had not made great use of the libraries in the past. Several explained how they intended to prioritise this area in future, either through engagement in marketing initiatives, or by undertaking new, externally focused activities that specifically targeted these audiences.

Already we do the archive conferences, which attracts a different type of audience, the family history audiences. And I think there's a lot of opportunities to do much more with that with other groups, whether it's universities or other partnerships. [CS5]

The Museum already does a huge amount of work with school groups and so on, and there is the potential to involve the Library and Archives within some of that work as well. Particularly at the secondary school level, to try and get students more interested in and aware of archives and what they can produce from an earlier age, particularly from those who are going to go on to university and study art history. [CS4]

We would be supporting the Gallery's strategy, which is not only about supporting our own curators, who are very important of course, and we have to continue to support that really rich research environment, but also, there is a real focus as well on engaging a much broader audience. So, that will be quite a challenge for us, thinking through how we respond to all that. [CS2]

An issue of concern that was expressed by one library manager, but which may well be applicable more broadly, was that many of their current library users were elderly. Consequently, it was seen as important from a user continuity perspective to ensure that younger users were also attracted to the Library.

The populace is ageing, and they make up a good 60 to 70 per cent of our audience. So if the decline in that audience continues then we need to be far more successful in attracting younger student users. [CS6]

For most managers who mentioned new audience development as a strategic priority, the focus was principally on developing new external public users. However, two managers mentioned that there was also scope for developing internal audiences by

aiming to better meet the information needs of staff working in museum departments that had traditionally not made heavy use of the libraries.

We're expecting increasing use internally as well from the curatorial staff, but not just confined to the curatorial team, but other teams as well because of the increased work we'll be doing in terms of re-developing the Museum for the masterplan. But also for the rolling programme of exhibitions, and so on, that we're going to be doing. [CS5]

There's 4,000 people who work in this museum. So, I'm going to start doing presentations to all new people that come into the Museum so that they're aware that the Library is seen as a resource. Because a lot of staff who work in the Museum, even if they work in Education, or Security, or Art Handlers, or these sorts of things, oftentimes they're art historians, or scholars, or performance or visual artists, so they're already connected to the art community. [CS3]

New audience development was also seen as an important future objective for some library users. Concern was expressed that the current limited numbers and narrow range of library users were unsustainable, and that libraries might be at risk of being seen as an expensive luxury by museum management, which may lead to their opening hours being reduced, or ultimately to their closure. Of those users who commented on this, most expressed a need for this risk to be off-set by diversifying the user base, and by attracting younger users, as typified by the flowing quote.

I think the Library's audience strategy should not just be about professional researchers, but also schools...The schools should be using the Library more. And to some extent targeting tourists, don't discourage tourists, because they come to the Museum and they want to find out more about it, so it's a social objective as well. [CS7]

However, one user commented that their library's reach to new users should not just be confined to audiences who were easy to reach, but should be far more expansive in scope, incorporating international researchers and those who cannot visit in person.

One thing I see as being a priority, and is really important, is that there are researchers all around the world who would want to, and will want to, use these things. So, I think the main issue there is in terms of staff readiness, in terms of having a provision that staff ought to cater for people who aren't able to physically make it to the Library, and might be interested in those resources. [CS2]

Strategic priority – communication and promotion

Linked to the issue of new audience development is that of improved communication and promotion. Many interviewees, both library managers and users, recognised that historically their libraries had not been particularly adept at communicating information about their collections and services to either their existing users or to potential new users. Similarly, promotion of the libraries was recognised as having been confined to small scale activities, with limited reach and exposure.

The advent and rise of social media as a communication tool has started to make inroads into this area of need, and has raised the profile, sometimes considerably so, of some of these libraries, and this will be discussed in more detail later. But social media notwithstanding, the need to be more professional and better organised in relation to library communication and promotion, and the need to increase the quantity and quality of targeted information that is disseminated to existing and target audiences, were both frequently mentioned themes during the interviews.

The most telling comment on this, which reinforces the findings of Tarrête (1997) reported in the literature review, was received by a library user, who observed that

visibility and awareness of their library outside of the body of regular library users was virtually non-existent. Furthermore, it was stated that museum visitors interested in finding out more information about objects on display in galleries were probably not even aware there was a museum library, as it was not publicised in the Museum.

I think there should be much more in the way of promoting the Library for the benefit of others, by actually listing what they cover. They have librarians who are able to spend time on your own subject, and there's a facility available where they're able to do research on your behalf for a fee. That's not widely known...It's much more than just a library, but no-one's aware of it. [CS5]

Similarly, albeit on a wider level, two other library users mentioned that their libraries needed to do far more to promote themselves to the external research and scholarly community, as well as to other research libraries within the same subject field, so that greater professional collaboration could occur.

I think the Library could improve its own marketing. I mean, I've been a member of the Library for quite a few years and I first found out about it from a friend who happened to go in. I think it's certainly relatively well known within the academic community of art history, but I certainly don't think it's known broadly outside that. There are many people, especially artists or people who don't have any particular academic connections, but are somehow otherwise involved in the art world, who I'm sure would find its collections useful and interesting. [CS2]

The collection here is marvellous, no doubt about that, but they have to foster a reputation, they need to explain to other libraries that we have books and objects. And they need to promote it, not just in this country but regionally and worldwide. [CS7]

Library managers were generally well aware of this problem, and were keen to rectify it but, there did not seem to be a widely accepted way to go about this, with each manager who discussed this issue providing responses that lacked specific objectives. For example, the manager at the same library as the library user from CS5 quoted above provided this response when asked whether there was a need to better promote the Library and make it more visible to would-be users.

There have been great steps taken to try and encourage people to come up and use the Library. But it's interesting, not many people seem to venture up. It says something about signposting, what we've got perhaps. Hopefully, the masterplan will pick up on that because it's quite a difficult museum to flow around, and it's not immediately obvious that you can come up to the balcony and you can come through. Whether or not that means the Library has to be more visible elsewhere within the Museum to enable people to understand things more, I'm not sure. [CS5]

Other responses provided by library managers were similarly lacking in detail, with most just stating that the need to better promote their libraries was a stated future aim. However, one manager did provide a more structured plan for improving knowledge of and communication with existing and potential library users, as well as promoting the Library more generally.

I'm currently thinking about what kinds of software we can use to track usage and visitors, and these sorts of things, to generate usable information, so that we can evaluate and look at it in terms of who's coming in and who we're targeting. And then I want to start looking at software that we can use for tracking user satisfaction with the services and collections we're providing. All of this is to say that we're doing a lot more outreach than we used to, instead of just relying on the fact that we are the Library and we have the books, and if you want to do research you have to find us and come in and use us. [CS3]

One other relevant, and potentially significant, fact, which was raised as hindering the ability to easily communicate with users and engage in effective promotion, was that national museum libraries are essentially just one of many departments within their museums, and therefore they often have to abide by organisational communications policies when sending out external messages, which can often be restrictive. This issue is discussed again later in the specific context of social media usage but in general terms, it was highlighted by one manager.

To a very large extent, access to the Library and information about the Library is mediated because we're inside the organisation. We don't have a separate name or identity, like the National Art Library. [CS4]

5.4.4 Collection development

As stated previously, collection development was acknowledged as an important future strategic aspiration, specifically in terms of augmenting existing collection strengths. As well as being a strategic aim though, collection development is also a core day-to-day function of national museum libraries, in their capacity as collecting institutions. And, perhaps uniquely within the LIS sector, collecting is also central to the objectives of the organisations these libraries serve, i.e. national museums. It is not surprising therefore that this topic featured prominently in the interviews.

5.4.4.1 Policy direction

In order to gauge the future collection development plans and priorities of their libraries, interviewees were asked about the acquisition objectives for the next decade, as stated in their collecting policies, and any collection areas that the libraries would be specifically looking to develop, or, conversely, phase out.

All of the library managers stated that their libraries would continue collecting items over the next decade, and that their collections would most likely grow. However, this continuation and growth was, in the main, anticipated to be selective, with only certain collection areas expected to increase significantly.

The areas that were repeatedly mentioned as being prioritised for future growth were special collections and archives. This was somewhat unexpected as the results of the Delphi survey had clearly indicated that the level of support amongst managers for increasing the future acquisition of special collections and archives was evenly split between those in favour and those against. When asked why development in this area was so important, several managers pinpointed uniqueness as being an important factor, with the assumption being made that by holding unique collections, researchers were more likely to want to visit and make use of their libraries than would be the case for non-unique collections.

We're often looking for rare materials, like regimental histories, trench newspapers, this kind of thing. We take, for example, personal memoirs, and many of them are self-published. Sometimes, the individual may have only produced ten copies of them, so we're pleased to take one copy and put it in our collection...So, I think it's got to be collecting unique resources, filling gaps that other institutions may not be able to fill because of budgetary reasons or because they can't justify purchasing the material. That makes ours a very strong and unique collection, which will encourage the clients to come. [CS6]

We will be continuing the collection of print materials, but I think one of the most important aspects of course are our special collections, and those are unique to us, especially our international artists files. And we're collecting more and more artists' archives as well, which are very valuable for people who come to do research on particular artists. [CS4]

And as mentioned previously, targeted collecting that closely supports and aligns with both current and future museum exhibition development programmes and museum research activities also featured prominently in terms of library managers' future collection development priorities.

The Library's resource acquisitions support the Museum's research, and all the associated exhibitions, publications, and programmes. Priority will be given to acquiring any materials that relate to these areas. [CS7]

We have to be very focused, and we have to work much more with the curators, so they can suggest what they really could use for exhibitions...I'm encouraging them to advise us on what we actually need in our collection here. [CS4]

I think with our collecting, we now have much more of a focus on special collections stuff, and we are buying things with the anticipation that they will go in exhibitions in the future. [CS2]

We have a collections plan for the entire museum, which the Library is part of, but it's a few years old. So, I'm looking forward to the new document, which we are in the process of developing, to hopefully give us some more guidance. It will be directly linked up to the Museum's main goals, but also to the research strategy, which is another major development within the organisation. [CS6]

I think the Library collection needs to be able to respond quickly to where the research agenda's going, and make sure it stays current to serve the needs of the PhD students and other scholars. We've got to make sure the journal collections are up to date too, as those journals reinforce that academic study. [CS5]

Only one case study venue, CS3, indicated they would not be adopting a targeted approach to their collecting. Instead, the manager at this library mentioned that, in keeping with their historic collecting policy, they would be seeking to acquire as much material within their subject area as possible, with the aim of building a deep and comprehensive collection of all relevant materials. However, it should be noted that this library was different from the other case studies, as it was, by the library manager's own admission, well-funded, and had not suffered any recent budget cuts.

Several library users also referred to future library collecting policies. However, these were all general comments about the need to continue collecting relevant materials.

5.4.4.2 Formats

As noted earlier, factors relating to availability play an important part in influencing the decision of library users to access published materials in print or digital formats. This was also reported as being a key driver for the current and future collecting approaches of several libraries, with comments received from art museum library managers in particular indicating that much of the published material that was needed in their subject areas was not yet available to purchase in electronic format.

There are some e-books and some journals that are available online, but for the most part they're print based. So, I know what I say doesn't apply to science, but for this particular field, it's still print. [CS3]

There's not a huge proliferation of e-books in the art publishing industry at the moment. I think that's because of the quality needed for art publication, it's all about the colour and representation you get, so the book format is generally better than anything you can get online. I think that's probably why art publishers haven't gone down that route. [CS2]

Cost was another important theme cited by some library managers when deciding whether to invest in print or electronic format materials, with several comments being received indicating that electronic format items were generally seen as being too expensive to acquire, given the relatively small budgets of many of these libraries.

Certainly our library budget is not large enough at the moment to allow us to subscribe to the digital resources we would want. We just haven't got the capacity to say yes, we'd love to add that digital title to our subscriptions, because of the expense of the digital resources. We just can't do it because the library budget is so small. [CS5]

It will partly depend on resource. Resources in museums and galleries are very tight, and investing in online resources is a challenge. So how far we go with that in terms of what we're providing might be different from say, the university sector, and is something we'd have to think about. [CS2]

The cost of electronic resources prompted one library manager to note that they would only acquire materials that could not be freely accessed elsewhere via the national federated discovery platform their library belonged to.

One of the other things too with electronic stuff is that if we can discover that somebody else has preserved it and has it accessible, we don't need to collect it. The important thing is we can provide access to it. [CS4]

Similarly, another manager observed that their library would seek to off-set the expensive costs and above inflation annual price increases associated with traditional journal subscription models by making more active use of open access journals within their subject area, and to actively promote these resources to their users where they were seen as being relevant and of value.

I think we need to be far more aware, and make our users far more aware, of open access publications, as this is an area we have largely overlooked in the past. But we're now finding that more and more open access titles are relevant to our field, and to our users' interests. [CS7]

Cost and availability issues notwithstanding though, there was a general acceptance that more electronic resources would be procured in the future than was the case currently. And, mirroring the previously discussed comments received by some library users, and also the results of the Delphi survey, in some cases library managers felt this would eventually lead to the development of a more evenly balanced hybrid print and electronic collecting approach.

The proportion of digital content will grow...our explicit policy for the last two years has been if there's a digital version of the newly published material, we will buy the digital version, with some exceptions. So that balance will change over time. In terms of proportions, it used to be that no more than a quarter was available digitally, but that's shifting. [CS1]

A lot of the serials are going full-text online now, so probably the serials collections will not be used in paper as much. We're going to be moving over time much more into use of the full-text online for serials... and we're also moving into cloud storage as well. Some of our technology, with our Ref Tracker and Alma, has all gone to the cloud. [CS4]

However, many of these libraries are starting from a position of possessing few, if any, electronic resources, and having substantial print collections, which for older libraries may have been built up over many decades. Developing truly balanced print and electronic format collections therefore is likely to be a slow and gradual process, a position which, as already mentioned, is further exacerbated by the slow growth of electronic publishing in subject fields that are of relevance to a high proportion of national museum libraries.

It's a little bit difficult to predict, we're certainly pushing for that move to digital, but we're obviously reacting to what the market is. So the direction of travel is definitely for the newly published material to be digital. So, at the moment, probably in terms of that new material, it's still expanding each year, so we have to allow that growth space. But what we're anticipating is that it may be more like fifteen years, unless that change happens more rapidly. [CS1]

Several library managers were acutely aware that a likely continuation of print as the collecting format of choice, at least over the next decade, did set their libraries apart from libraries in many other sectors, especially university libraries, where the transition to digital in certain collection areas, and in some cases all collection areas, is already well-established. Whilst this could easily be perceived as a weakness for national museum libraries, one respondent saw it as a strength, as it was felt this positively differentiated them from other libraries or online information resources.

One of the things that we're seeing is academic libraries are moving away from physical collections. I think museum libraries may be the places where physical collections are being held, but they'll be unique holders of material, so users might either use inter-library loans to get the benefit of our collections, or if they're able to they'll do personal research here. So, our physical collections, I suspect, will become much more valuable to the general scholarly and research community. [CS4]

5.4.4.3 Discoverability

As discussed in the literature review, the importance ascribed to the discoverability of collections, be they print or electronic, and the need to improve discoverability, was an issue that was seen as critical by virtually all the case study interviewees. For some, this was seen as a main future priority area for improvement.

Library managers emphasised the importance of this in the context of either reaching new audiences, or better serving existing audiences who were less likely to use physical libraries and were therefore reliant on accessing electronic content and collections information.

Even if you can't deliver collections and content, you've got to be discoverable, and you've got to be able to push your profile out a bit beyond your own website...So yes, if you can't deliver a great deal of digitised material then you've got at least to have a catalogue, and you've got to have a presence beyond a webpage. You've got to be out there somewhere where the search engine hits will pick you up. [CS7]

One of our challenges is with the resources that we have available, how do we make those unique collections as discoverable as possible? For cost and resource reasons, and copyright reasons of course, digitisation is neither possible nor feasible for lots of things, but the library catalogue becomes an incredibly valuable resource in its own right. [CS4]

One library manager stressed how important this was for museum staff and other researchers who were undertaking research away from the Museum.

So that's the challenge for us, how to enable access to those collections and make sure that they're not forgotten about. Increasingly, because people are working in a global sense, we need to make sure that material is accessible in a digital format so that rather than having to make physical visits that collaboration can happen in a virtual environment. [CS1]

Discoverability was also intrinsically linked to the availability of fully functioning and adequately supported library management systems. There was a mixed picture though in terms of the current availability of such systems, and the extent to which they were able to deliver the level of access that was seen as being needed. In

relation to this, one library manager cautioned that procuring or upgrading to new systems was often a time-consuming process, which caused difficulties for institutions such as theirs with limited resource capacity.

One of the first things I wanted to do, and one of the first bids I put in when I started five years ago, was for a new library management system, and we've only just achieved it. [CS1]

One of the problems faced by many national museum libraries is the mixed nature of their collections, with library, archival, and special collections all frequently being managed together. Often though, these are catalogued and searched via separate online catalogues, or in some cases via manual finding aids, which often tends to be the case for archival and special collections materials.

Several library managers recognised that the only way to effectively counter this, and thereby improve discoverability, was to procure and implement resource discovery systems that enable simultaneous searching of all their separate collections. It was acknowledged though that such an undertaking is often logistically and technically difficult, given the different cataloguing standards and processes for each collection area, as well as being both time-consuming and expensive. For most of the library managers, there was therefore an unstated sense that this was more of a future aspiration, which may or may not be fulfilled, rather than a definitive objective.

There is a lot of pressure to make things more readily accessible, and I think people are now used to doing research remotely, or at least doing the initial stages of research remotely. A lot of our library catalogues are on PDF at the moment or Word documents worked up to PDFs, so you can't search across collections. We need to be able to do that more, and make things more readily available remotely as well. [CS5]

You can search our collections in a variety of ways through various links on our website, it's very confusing. So we need to bring everything together, hopefully into one central portal where you can cross-search. But then there's also the challenge, not just for the Library and Archive, but for the wider collection too, that you might get a description come up but it might not be a particularly great description. So, there's something about how we catalogue, the standards of cataloguing, and the consistency of that. [CS4]

However, one library manager had successfully implemented a discovery system and was clear that this offered enormous benefits to library users; stating that to effectively manage collections access without such a system was an unrealistic expectation.

Since we've had *Resource Discovery*, the increase in access to and usage of electronic journals has definitely gone up, so that's really good. Staff can access it anywhere from their desktop, although the public can only access our e-resources in the reading rooms. I think you just have to have something like *Resource Discovery* now if you've got electronic resources and electronic subscriptions to serials because otherwise they're just not going to get used, there's too many different gateways into all the different collections, it's just confusing. [CS2]

Poor discoverability was also cited as an impediment by many library users. Interestingly though, the main problem reported related to difficulties finding physical items within library collections, which was not mentioned by any library managers, all of whom focused on discoverability in relation to electronic collections information. For several library users, the root cause of this discoverability problem was due to uncatalogued or poorly catalogued materials, which seemed to be particularly associated with archives and special collections.

With the standard library material, the books and exhibition catalogues, it seems that everything has been catalogued and I don't usually have to ask. Occasionally things aren't on the stacks in the right place and you can ask somebody for advice, but in general everything is searchable. With the Archive, it's a different story in that I call up files on a particular artist and I usually don't know what I'm looking for. [CS4]

At the moment we have archive material that's left in boxes, it's not necessarily put in an order which is reasonable, it's in an order which is a bit chaotic on occasions, and so therefore you don't get the most out of that material...I find it quite frustrating in the first instance, if I think about the Library per se, I find it very difficult to appreciate that a lot of the material hasn't been fully catalogued. [CS5]

Another discoverability issue associated with physical library usage, which was noted by several library users, was the lack of open access to collections. This was highlighted as being a problem for users of three libraries, where open access collection browsing was not permitted and book call-up systems were in place.

One of the things I guess I would want is open stacks, I mean that would be great, although I know it's complicated. [CS3]

When you're ordering books through an online system and you can only order five books an hour, and you don't know if those books are going to be any use to you, and they may show up and only be 10 pages, that's a frustrating process. [CS2]

They will often come back to me and say that it's going to take three hours to call up a box which is only adjacent to the room, and that I find a little bit irritating, because of course my time is precious as well. [CS5]

5.4.4.4 Space and storage

Most national museum libraries are physically situated within the museums they serve, often occupying locations within the main museum buildings. Furthermore, many national museums, particularly older museums, are situated in central urban locations with no room for expansion.

These factors can pose significant difficulties for national museum libraries in terms of collection management, and was highlighted as giving rise to two problems in particular. Firstly, the need to defend and retain designated 'library spaces' within the museum buildings, in the face of significant competition for space from other museum departments. And secondly, the inability to extend library collections storage areas or utilise other museum spaces for library collections storage.

Several managers reported that both these factors have a major impact on the overall collection development approach and the ability of their libraries to acquire and retain all the items they needed to collect.

There's a big thing about acquisition, about what we have, what we collect, what we store, where we store it, what our expansion plans are, because we don't have a great deal of expansion space now, we're pretty much full up in terms of physical capacity...And also, I guess there will be challenges as the Museum develops, challenges potentially to do with the space, because the Library is in a prime space. [CS5]

One of the problems we've got here in terms of the Library is a question about how much we can continue to develop the Library collection, because of the physical storage. So, obviously the more we can get digitally available, that addresses the issues of storage, but opens up other issues to address. So, I think there are some fundamental questions

that we do need to answer over the next few years with storage space and capacity. [CS4]

There was recognition from managers that this problem had to be confronted as it was only likely to get worse in the future. However, no-one was able to suggest a definitive solution to the problem, although two librarians offered views which might indicate possible ways forward. One adopted a somewhat philosophical view, suggesting that investment in electronic rather than print resources was the only long-term method for resolving this issue.

Libraries are being threatened, space is expensive. Will somebody in the future say, OK we don't need the space but maybe we want to provide all things electronically. [CS6]

Another librarian suggested a solution could be found by working collaboratively with other national museum libraries to agree joint collecting and de-accessioning policies, and to locate and make use of shared storage spaces, much in the same way as the UK Research Reserve (see section 2.7.3).

One of the things we're working on is that we've all got storage issues, and this is expensive real estate, and the Museum is really under pressure in terms of space. And that is reflected across all museums, so I think certainly the Nationals have to lead in this, in terms of finding those joint technical solutions nationally so that we don't lose collections, as we can't do it in isolation...That is going to dominate over the next few years. [CS2]

5.4.5 Digital services and resources

Issues pertaining to digitally focused library services and provision of digitised library collections featured prominently in the discussions with many interviewees. This demonstrates that this is a significant and relevant topic for national museum libraries

for the foreseeable future. Several issues on this theme were discussed, commencing with an examination of future digitisation plans.

5.4.5.1 Digitisation

Reflecting the findings of the literature review and the Delphi survey, digitisation of materials owned by the libraries, typically out of copyright items, and dissemination of digitised content were seen as critical objectives by virtually all the library managers and users. This was perceived as enhancing the ability of libraries to widen their reach, especially to people who may not be able to access the physical materials. As one library manager observed:

We know there are some users who download our digitised items first, rather than come to the physical shelves as they would have done, because they know it's available there. Particularly colleagues who are out in the field or working in other parts of the world, who are tapping into that material remotely. [CS1]

Digitisation was though widely seen as an extremely ambitious objective. Only two libraries, both fairly large and well established, reported having previously conducted large-scale digitisation projects. The other libraries offered a mixed picture, with two having previously undertaken some digitisation work, and the other three having undertaken very little or none at all. All the libraries though held significant collections of library and archival materials, which were seen by library managers as being candidates for future digitisation projects, providing the required funds and resources were made available.

However, planning and putting in place the necessary infrastructure to make this happen was for many seen as a difficult task to undertake in isolation. For the majority of the libraries therefore, tying digitisation into the wider strategic priorities of their

museums, and planning digitisation in collaboration with other museum departmental activities, were seen as the only ways this could realistically be carried out in future.

I lead a useful group called the Archives and Special Collections Research Group, and it's been really helpful...We decide what the digitisation priorities are going forward, and what we're going to digitise in the future. Attending that meeting, there's a representative from Research, a representative from Learning, we've got three or four key curators, we have the Director of Collection Care, we have someone from Publishing, and we have a member of staff from our Development Team. So we all sit there and agree what the priorities are. [CS2]

What will be prioritised will link to the Curatorial Division within the Gallery, so it's a wider debate. So the Library on its own would not be making decisions about where to digitise material, we would be looking at areas of interest in the Gallery, we would be looking at what's unique and special. Of course there will be a huge number of factors within it, but it will be very much aligned to the Curatorial Strategy. [CS4]

Aside from the overriding need to tie in with wider museum strategic objectives regarding digitisation, numerous library specific reasons were also provided as to why digitisation was seen as important, with three being most frequently mentioned: enabling accessibility to high profile or in-demand items, aiding preservation of rare and valuable materials, and supporting museum exhibition displays.

Of these, enabling access to high profile or in-demand items was seen as the main driver for future digitisation activities. The items typically equated by respondents as fitting into this category were rare or unique items, especially special collections and archives, which were often the subject of frequent access requests from researchers, but which at the same time tended to have restrictive or conditional access arrangements imposed upon them by the libraries as a result of their financial value

and/or physical condition. Digitisation was therefore widely seen as the best possible way of opening up and extending access to these materials, with several library users in particular voicing their support for this.

One library user noted, digitisation allows *“far more inclusive, more democratic access to information”* [CS1], and stressed that this should be seen as a priority by the Library. Similarly, another user stated that *“with rare books, it’s far better to digitise those so that all researchers can use them”* [CS7]. Another library user went further, by stating that the sheer act of digitising rare books made them even more valuable as research materials as many researchers may not have previously been aware of them: *“rare books are becoming relatively more important as research artefacts because they’re being digitised at such a rate”*. [CS6]

However, as reported by Rimmer, Warwick, Blandford, Gow, and Buchanan (2008) in the literature review, finding a balance between library digitisation priorities and the scholarly research needs of users is not always an easy or straightforward task. One library user touched on this by suggesting that the Library’s approach to digitisation of rare materials should be entirely user driven, and should effectively be seen as a reactive policy that supports the changing research needs of users.

The Library should send people digitised material on spec as they ask for them. So you don’t necessarily have to digitise it all in one go at the start, someone asks for it and that’s a good prompt. [CS2]

Digitising rare materials in order to widen access to them was clearly perceived as being an advantageous and beneficial activity by many library managers as well. Enabling this to happen though was seen as an immensely difficult challenge.

There is obviously a clear demand now for entire archive collections to be digitised, entire photographic collections to be digitised...How we are going to do it? I wish I could answer that. Again it partly comes down to the fact that we're not in control of our own digitisation or dissemination or presentation of materials. And to be honest, I don't think the Museum knows how it's going to do it. [CS5]

Central to this challenge was funding, and the need to ensure that sufficient funds were made available, not just to digitise the materials, but also to organise them, make them accessible, and manage and preserve them in future.

It's about getting more funding to be able to continue with the digitisation. We'll continue to do it as part of our normal work in a small way, but to really make inroads we would need additional funding. [CS2]

In an ideal world we would digitise the entire collection. Realistically, that's never going to happen. There are library and archive holdings that we know have such a specialist audience that digitising them wouldn't be a cost effective use of resources. So, I think we're going to have to be able to deliver print media through a traditional reading room format, or we're going to have look at where somebody pays for digitisation. [CS5]

None of the libraries reported having entered into partnership arrangements with other libraries or having negotiated deals with commercial organisations, such as Google, in order to help fund their previous digitisation activities. And neither did they refer to these types of arrangements as being likely to occur in the future. However, one library did state that because of the financial pressures that digitisation brought, they had to rely heavily on the use of volunteers, and had to engage in crowdsourcing activities to bring the costs of digitisation down. It was stated that these arrangements would increasingly become critical aspects of their digitisation programmes in the future, as this kind of public support was the only way that digitisation could be

achieved on any significant scale. However, it was also noted that the management of volunteers and use of crowdsourcing were both resource and time intensive.

They've done a huge amount of work for us, I mean tens of thousands of images have been digitised that way. Realistically, with the financial situation, I can see us working more with volunteers and doing more crowdsourcing stuff. That does have implications with staff time as well, getting things set-up. [CS4]

Preservation was also reported as being a key reason for future digitisation. Many of those interviewed, especially library users, expressed concern that rare or unique items held by their libraries were at risk of damage or loss unless they were digitised, with some suggesting that digital copies should be almost exclusively used for research purposes, with original items being stored for safekeeping. A library user at one library noted:

I can see in the next five, ten years, they really need to focus on preservation...Now, if things were digitised, I would then like to see this material on the system with the originals then stored away for an indefinite period and they are only used by, dare I say it, academics. [CS5]

However, another library user felt that whilst digitisation was vital in some cases, it should not be seen as a panacea as it limited the interactions that users had with the research materials that they needed to consult.

There are some materials that are fragile and those should be digitised, period. But I don't think everything should be digitised because that then makes the experience entirely technological. I think there's something valuable about handling a book. [CS3]

Given though that many national museum libraries often hold large quantities of unique or rare items, and typically have extremely limited budgets for preservation activities, most library managers seemed to accept that digitisation could only ever be a partial solution to the problem of preserving library and archival materials, and that they needed to adopt a highly selective approach to digitising for preservation purposes. And as one library manager pointed out, the act of digitising print materials for preservation can actually generate even more preservation problems.

It needs to be focused, you don't want to digitise everything or provide online access to everything because it's really quite expensive. Digitisation's not cheap, it may become cheaper in the future, but it's not cheap. You also then have a digital copy of something and a physical copy, so you've got to preserve both of them, you've got to make sure that they're sustainable. In fact, looking after physical copies is actually much easier in some ways than looking after digital versions or surrogates of materials, so I think you have to be realistic. [CS2]

Support for museum exhibition displays was referred to as the other main driver for digitisation within the libraries. In most cases, this related to digitisation of materials that could then be incorporated into the exhibitions themselves.

Linked to our digital programme, we are getting more requests for digitising material for part of a display or exhibition experience. I think that's going to be something which will increase because people are looking for that richer experience and material around the individual art record. [CS2]

Digitising library and archive materials was also seen as supporting delivery of content outside the physical museum environment, predominantly via delivery of online displays or exhibitions that are hosted on museum websites, either as adjuncts to physical exhibitions in the museums or as separate exhibitions entirely.

A number of different national museum websites were visited as part of this research³⁶ in order to better understand how digitised library and archive content is presented and used in online exhibitions. This revealed that content is usually presented via one of two different methods.

The first method is via the display of digitised content taken from a specific library or archive collection, or from several different collections that have a common subject theme. These are typically presented as basic lists of digitised low-resolution scans of texts or photographs, although high-resolution and/or full-text searchable scans are sometimes provided, and are often accompanied by metadata tags or brief descriptive summaries.

These are normally searchable to some degree, usually via the library online catalogue, and are often aimed at scholars and researchers rather than casual museum visitors. These often tend to be only accessible from a museum's library webpages or catalogue, and not directly from the main museum website.

Examples of these types of online displays could be found in approximately 50% of the national museum websites that were visited, including three of the case study libraries' websites. Screenshots from two websites that were visited are shown here:

³⁶ As well as the websites belonging to the museums of the seven case studies, twenty-eight other randomly selected national museum websites were also visited and assessed. Thirty-five national museum websites were therefore visited and assessed in total.

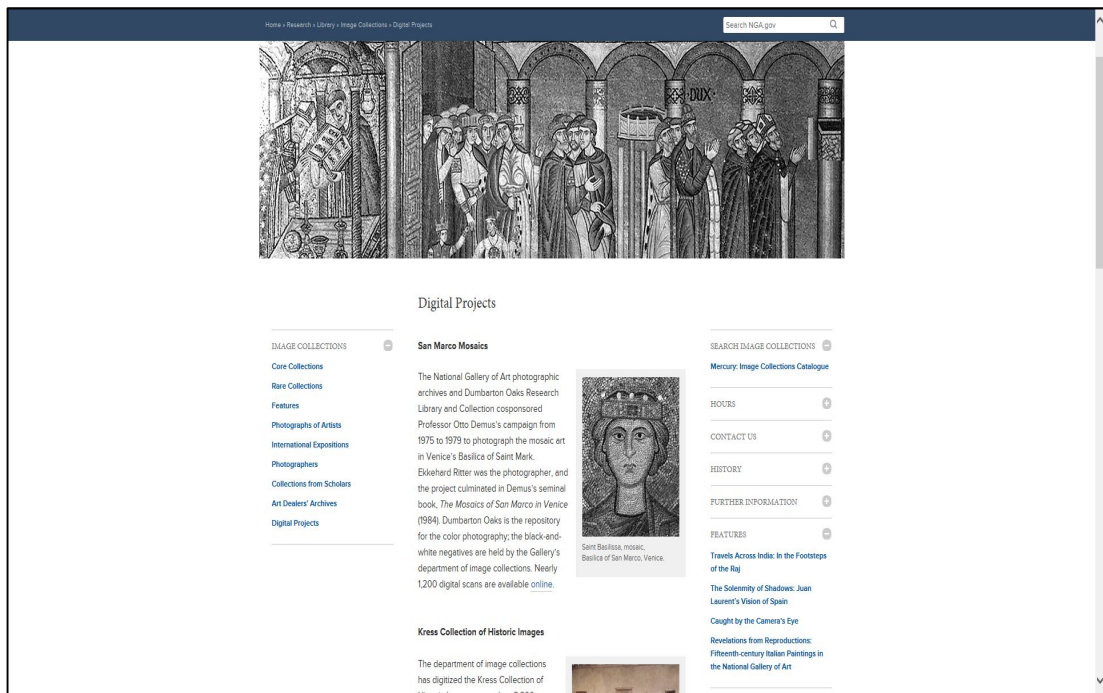


Figure 25: National Gallery of Art Digital Projects Collections

(<http://www.nga.gov/content/ngaweb/research/library/imagecollections/digitalprojects.html>)

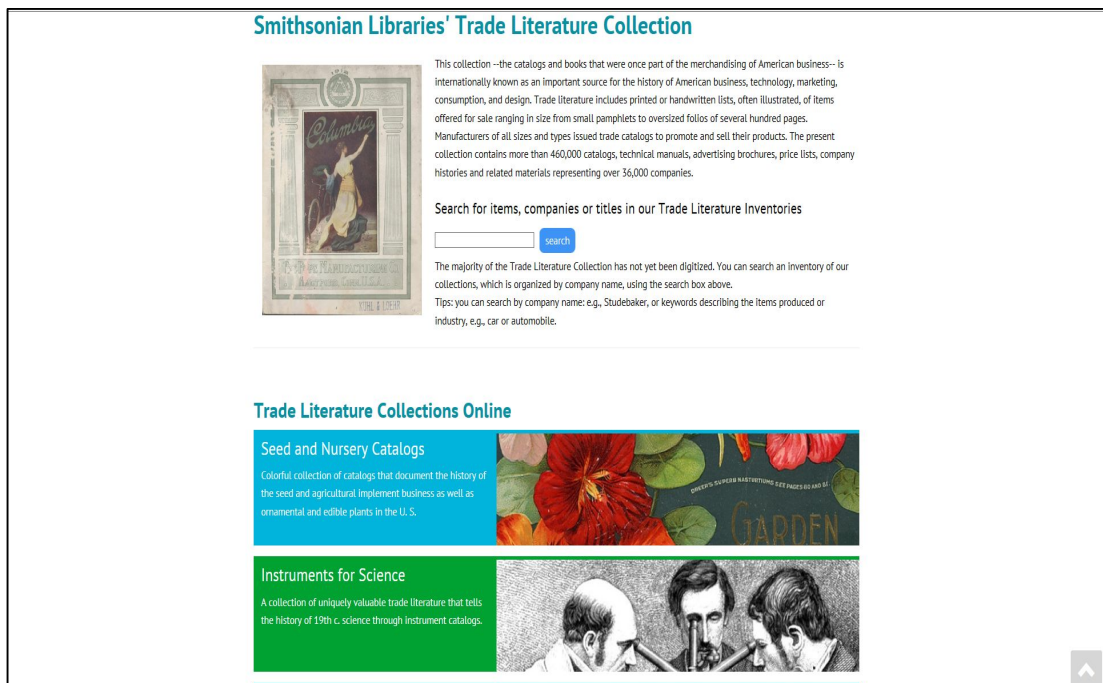


Figure 26: Smithsonian Libraries Trade Literature Collections

(<http://library.si.edu/trade-literature>)

The second method is via the display of interpreted and curated digitised content, which is normally thematically linked in a cohesive way, and which may be taken from a range of library and archive collection areas, often incorporating ‘library treasures’, e.g. rare or aesthetically pleasing items, and often including some museum objects.

These sites tend to be professionally designed, utilise high-resolution images, and may incorporate some interactive technologies to allow a degree of user participation. They are typically aimed at general audiences, often as a way of encouraging physical museum visits, but may also be aimed at specific audiences, e.g. secondary school students. These are usually linked to from several locations on a museum’s website.

Examples of these types of online displays were found in circa 20% of the national museum websites that were visited, including one of the case study libraries. Screenshots from two of these are shown here:

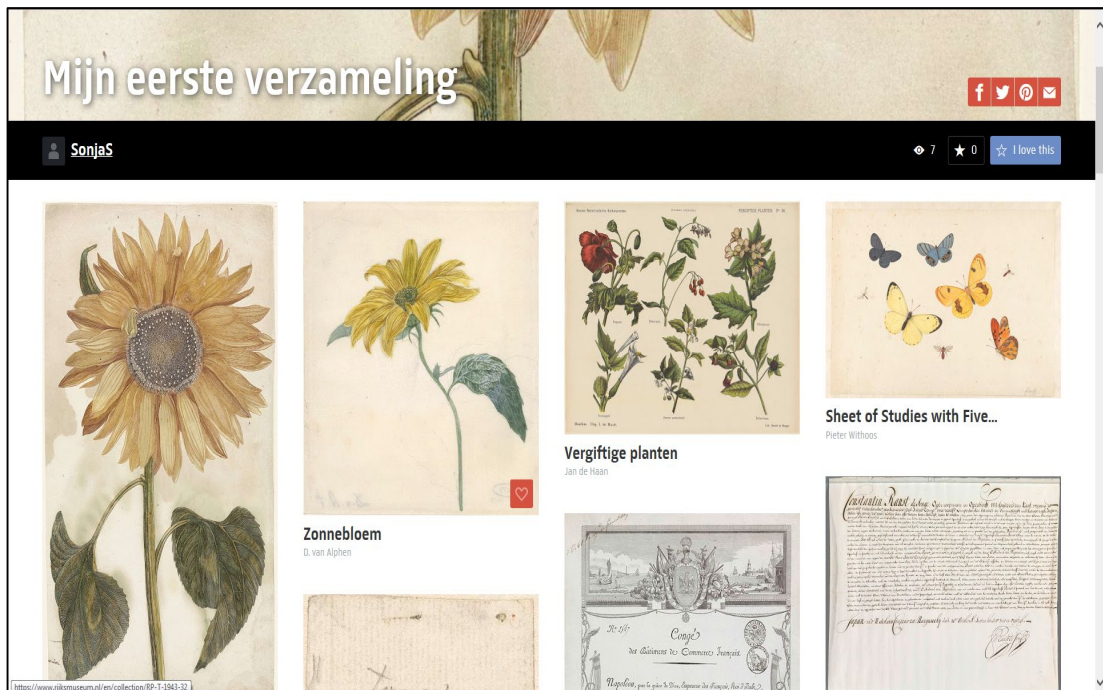


Figure 27: Rijksmuseum Rijksstudio Exhibitions

(<https://www.rijksmuseum.nl/en/rijksstudio>)

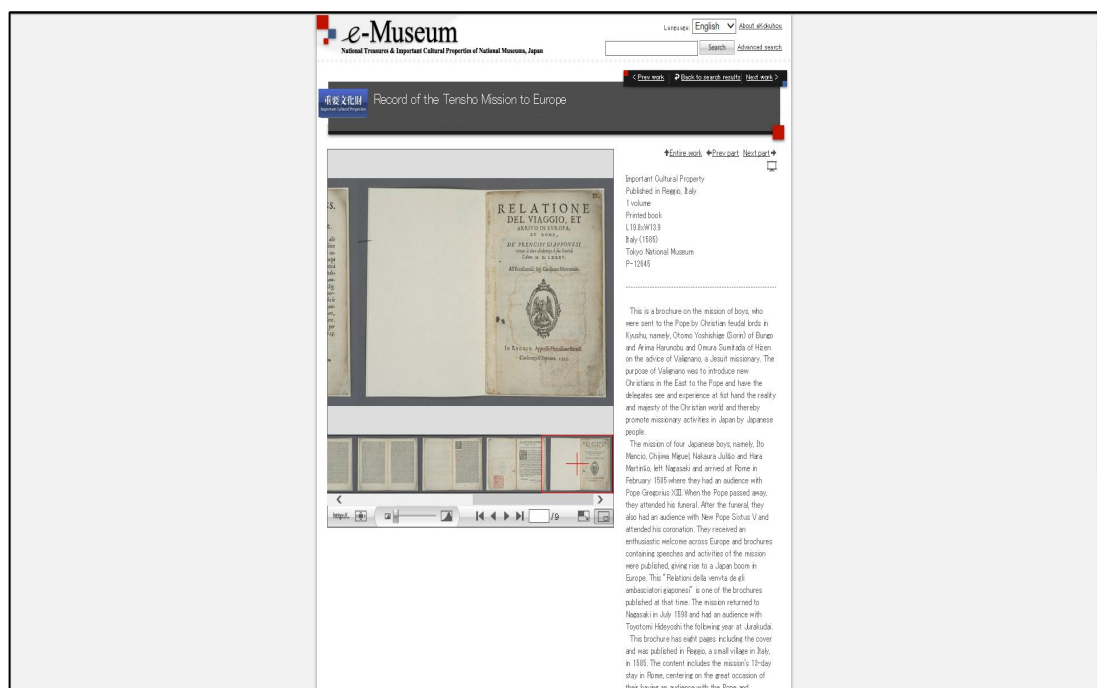


Figure 28: National Museums of Japan e-Museum Collections

(<http://www.emuseum.jp/>)

A third method for exhibiting digital content was also found on four of the national museum websites that were visited. These were all more sophisticated online exhibitions that used innovative technologies to showcase virtual representations of physical museum galleries or exhibitions. In two cases, these were available as commercial mobile apps, which could be downloaded by museum visitors in order to augment their museum visits. However, none of these examples contained any library or archival materials or referenced museum library collections in any way.

Interestingly though, when these types of technologies were mentioned in discussions during the interviews, a number of library managers immediately saw their potential and recognised the benefits that they could offer their libraries, and expressed a keen desire for their libraries to be involved in the use of these at some point in the future.

One of the things that we'd like to develop is that sort of virtual exhibition element. We've got content that has been themed and we've curated that, but there is the capacity then for people to do additional curation.

So I think that's exciting for the Museum, not only in terms of how we might present some initial content, but also how can we then throw it out there and people can create their own exhibitions, particularly when it comes to school groups. [CS1]

We're aware of the overall goals of the Museum, and one of them is to take our material beyond the walls of the Museum, to encourage the accessibility of material. So hence this is our push for digitising materials, so that people don't have to come into the Museum. [CS6]

5.4.5.2 Use of Web 2.0 and social media

The results from the Delphi survey indicated that social media and Web 2.0 resources are increasingly important tools for many national museum libraries, with usage forecast to steadily grow over the next decade. This view was largely confirmed during the interviews, with the majority of library managers confirming that these technologies are used to some degree at the moment. And whilst the extent of current usage was mixed, almost all managers stated this would increase in future. Likewise, many suggested that their application would form an important strand of future strategic programming across a broader range of activity areas than at present.

We're not using it in a widespread way at the moment, but I certainly think that in the future we would want to. We've used blogs and tweets and things like that, but we would need to develop it further. [CS2]

The Library is already a big user of Web 2.0 and social media, and I think this will continue to be an important part of our communication and marketing of our services. [CS7]

It's wide ranging. It started out in the beginning to just be a way to promote the digital collections, but now it's a way to promote everything

we do here...Our Instagram is getting more and more followers. We've got between 5,000 and 6,000 followers now, and we've only been doing it for a few months. [CS3]

For most library managers, there was a clear and consistent sense of the benefits that Web 2.0 and social media usage brought to their libraries, and the potential it offered in terms of reaching new audiences or delivering information to researchers in more relevant and timely ways.

Maybe we'll use social media to start delivering things that people actively want for their research. If they want just the text or a low-res research quality image, then we do it that way, you know digitise and send it and we worry less about having a 600 dpi TIFF file that's backed up in three different secure places. [CS5]

You know, in public libraries you've got the chat reference service, that kind of thing. We're not doing that at this stage, and we're probably not doing it because we don't have enough staff, but will that be a trend in the future in the museum library environment? Very possibly. [CS6]

So far as marketing to our users, so far that's happened kind of organically and we do have a very active social media presence. But I think there's definitely room for improvement. Our Instagram pictures in particular are definitely trying to show the wide range of things that are here, and just show that this is a fun place that has really interesting stuff in it. [CS3]

Several managers though indicated that future use of these technologies could only succeed if activities were planned and co-ordinated at a museum-wide level. To do otherwise was seen as risking the perception, particularly from internal stakeholders, that library activities were either tangential to or at odds with the strategic priorities of

their museums, which would be counter-productive in terms of promoting the libraries as services that were connected with and contributed to museum programmes.

We would have to link it very carefully to our priorities and strategy, and the Gallery's priorities and strategy, and also because we work in a gallery environment, there are lots of considerations as well about how you manage interaction, particularly with social media. [CS2]

Social media is very much part of the Gallery's marketing tool, so whatever we do would have to fit in with whatever marketing messages the Gallery would want to project at any given time. [CS4]

We need to plan rather than react as a starting point, which isn't to say we haven't done any planning, but I think we've been reacting rather than anticipating. And I think we've been one pace behind, rather than keeping pace. [CS1]

However as mentioned earlier, the need for centralised social media co-ordination was often imposed on libraries by their museums. And for some library managers, this was seen as a barrier to social media use, rather than a benefit, as it slowed down the ability of libraries to communicate quickly with their users, or to put out the messages that they wanted to disseminate.

I think we're missing out because a lot of our younger staff here are really keen to get involved, and to them it's just a matter of course, that's just a part of their communication on a day-to-day basis. But we have to go to the Gallery's Digital Engagement Team and say, look we're doing these show and tell events, can you tweet about it? [CS2]

Right now, we have to go through our Communications Section to do any kind of social media. If we want to post anything on Facebook, it has to

be done through them. It does slow us down because sometimes we're keen on doing something and we have to convince them that they want to do this. And it also depends on what they've got on their agenda. [CS6]

Although it was not specifically asked, it was interesting to note that none of the managers indicated that their library had been allocated the task of handling their museum's social media traffic. This is sometimes the case in similar libraries in other sectors, especially learned society libraries, and so it would have been reasonable to expect that at least one of the case study libraries might have been allocated this responsibility. However, it seemed that in all cases this task was managed by other museum departments.

Whilst library managers were generally positive about library use of social media, it was somewhat surprising to discover that support from library users was far more mixed, with roughly half acknowledging its potential benefits for researchers, and the other half seeing it as offering few, if any, benefits. Typical of these conflicting opinions are the following quotes from two library users.

I don't know that I benefit from it in a direct way, beyond using it as a platform for access, say if you have a Facebook page or something like that and they linked you to digitised direct sources. I don't know how useful it would be beyond that, besides the sort of soft uses it has in terms of community building, and things like that. [CS3]

I think it's a great way of putting out modern research. One of the things I quite like, I don't think necessarily the Museum is doing it though, is where you build a Facebook page where you can put examples of your topic, and you'll see a history, pictures, and a reference list. [CS1]

There was no obvious pattern to these comments in terms of internal and external users or socio-demographic profiles, and thus no conclusions could be extrapolated to indicate why such mixed comments were received.

5.4.5.3 Technological change

The final question asked during the interviews invited participants to consider if and how their libraries might be able to keep pace with the anticipated rate of technological change over the next decade, and how they can maintain their relevance to users if they were unable to respond to this change. The purpose of this question was twofold. Firstly, to establish if there was a consensus view concerning the most likely future development path and outcome for the libraries during this timeline. And secondly, to ascertain if library managers and users were aware of, or anticipated, any particular issues or problems that might impact on the future ability of their libraries to continue to function as museum and/or public focused services.

All those interviewed anticipated that their libraries would have some kind of role to play within their museums over the next decade, irrespective of whether or not the libraries were able to keep pace with the anticipated rate, scale, and scope of external technological change. Most respondents, both library managers and users, predicted either a continuation or a slightly evolved version of the current service models. For library users in particular, their confidence seemed to stem largely from the importance they placed on the physical collections held by the libraries.

I think it would still be relevant, slightly less useful perhaps, but still very important. For technology involving online databases, if the Museum couldn't deliver these, that would be a loss. But books are always really important for me and printed books just sit there. They don't care about technological change. [CS6]

I think it would be able to continue perfectly well without that being a particular priority. Obviously, these things can move very quickly. Nobody in the book industry really knows what's going to happen, so it might be that technology is going to change significantly in terms of what's being provided, and that could change things. But as things stand now, I don't see that it's a priority. For me, content is king really. Content is the most important thing, and it doesn't really matter how you deliver that content as long as you are able to deliver it effectively. [CS2]

Not all library users were as confident in making these assertions though. Two in particular felt that the need for their libraries to keep pace with technological change was, from a research perspective, critically important.

Yes, they need to keep ahead of these things or keep apace with them. If the Museum and the Library itself doesn't maintain the momentum that it has currently going then it's not going to be the place that historians or humanities researchers or scientists come to anymore. [CS1]

The Library is successful in terms of being aware that people want to interact with materials digitally, people do want to scan things, and if they scan things, there's nothing stopping them sharing those, and that's OK. In terms of digitising their records, their bulletins, that kind of thing, I would say that it's very important, especially in art history where you're dealing in images and things that you really need to see. [CS3]

Another library user felt that organisational factors would hinder his library from keeping pace with technological change, and interestingly noted that such change would even be actively resisted by the Museum.

I don't think this library will keep pace with technological change, partly through lack of finance, partly due to lack of clarity from the Museum's management team, but also partly through lack of change management

skills amongst staff. The organisation seems to be very conservative and traditional in its outlook, so resistance to change is likely, and opportunities for balanced change probably won't be embraced or exploited. [CS5]

The point raised by this library user concerning lack of finance hindering the ability of libraries to keep pace with technological change was repeated by several other library users, and by some library managers too. In particular, comments were received about the need for museums to commit to funding and supporting their libraries, not only in terms of the technological infrastructure that would be needed in future, but also skilled staff who will be required to use and exploit such technology. The comments below, the first from a library user and the other three from library managers, exemplify the concern that was expressed about this issue.

I think it will be a challenge because this is down to finances again, the resources need to be there to maintain access to the material that you're dealing with, and the staff need to be sufficiently savvy enough to use those technologies. [CS1]

We've looked into page turning software for scrapbooks and photo albums. So, we're aware of what the technology can do and that many institutions are using it, it's justifying it, convincing the senior people. So, it's hard for me to say where we're headed. I hope that technology will be playing a big role and that we'll be making our materials more widely available. I hope that's going to take place, but it's difficult to say. [CS6]

I think the critical thing is that we can employ people who have skills and are keeping on developing their skills, so that we're keeping pace. And I think the other thing is how our users are changing, in that everyone's using gadgets now, and they're just changing at such a rapid rate. [CS1]

I think it's fundamental. Those challenges are of real significance. Obviously, if we're unable to satisfy or meet the requirements that we expect of the Library then that will have a significant impact in terms of how the Museum develops over the next few years as well. So, it's essential that the Library is able to keep up with that change and respond to that, and that the Museum supports all that we are trying to do. [CS5]

Trying to predict exactly what future technological developments and innovations will take place over the next decade and then assess their impact on library services and resources is, at best, a nebulous exercise. Therefore, it was not surprising that none of the interviewees attempted to do this.

However, in keeping with the Delphi survey findings, two library managers did emphasise use of mobile technology as a relatively recent societal trend that would become even more important over the next ten years. They noted that of all the recent technological changes that have occurred, this was probably the most significant for their libraries, and the one they would need to most swiftly respond to if they were to remain relevant to many future users, especially younger users, particularly in terms of the delivery of mobile compatible information and content.

I think mobile is going to be totally ubiquitous. I imagine people are not really going to have desktop computers in ten years, so everything has to be mobile optimised, and we're not ready for that right now. I imagine certain things are going to be very similar in ten years. All of the books are still going to be here, but how they find the stuff, it's all going to be on their phone. [CS3]

I think the one area that is really kind of trending, and the Museum's doing a better job of being aware of this, is mobile technology...You know 95%, or something like that, have a smartphone and are connecting to the Web in these ways, so I think the biggest challenge is being on the cutting edge

and then trying to work with a lot of other staff who are not and doing that in a way that keeps people connected to you. [CS7]

5.5 Document analysis

Document analysis was undertaken to examine the future planned activities of the case study venues, as stated in their strategies, policies, and plans. All seven libraries were asked to send any relevant documents, with five submitting at least one of the requested documents. The types and quantities received are presented in Table 12.

| Strategic and Operational Plans | Collecting Policies | Access Policies | Marketing Materials ³⁷ |
|---------------------------------|---------------------|-----------------|-----------------------------------|
| 5 | 4 | 1 | 1 |

Table 12 – Documentation received from case studies libraries

5.5.1 Strategic / operational plans

Of the five library strategic / operational plans received, one was a five-year plan, covering the period 2015 to 2020; two were three-year plans, one covering the period 2014 to 2017, and the other 2015 to 2018; one was a two-year plan, covering the period 2014 to 2016; and one was an operational plan, for the current year only. None of the documents were publicly available to view via the libraries' websites.

Each of these five plans set out a list of high level aims or priorities for the time period covered which, in all cases, were then sub-divided into a series of more specific objectives. For the purposes of this research, these objectives have been

³⁷ Marketing materials include written plans and any promotional items pertaining to future objectives available via the libraries' websites.

anonymised and are presented as broad, themed categories in Table 13. The overall frequency of each category is also shown.

| Categorised Strategic Objectives | Frequency |
|--|-----------|
| Improve access to physical and/or digital collections | 5 |
| Expand range of third-party electronic resources | 4 |
| Digitise designated library or archival materials | 4 |
| Develop specific printed library or archive collections | 3 |
| Undertake preservation or conservation work | 3 |
| Enhance user education or training provision | 2 |
| Develop external partnerships or relationships | 2 |
| Promote library to targeted new audiences | 2 |
| Increase library and archival items on display in museum | 2 |
| Re-design library web pages | 1 |
| Increase commercial potential of collections | 1 |
| Improve physical library facilities | 1 |
| Undertake targeted outreach work | 1 |
| Procure a new library management system | 1 |
| Create new library user guides | 1 |

Table 13 – Frequency of strategic / operational plan objectives

Improving access to physical and/or digital collections was the most frequently mentioned strategic objective, with all five libraries mentioning this in some form or another in their documentation. Three mentioned this in the context of all collections, not specifying a specific format type, although the other two mentioned access to collections in both print and digital formats.

This was closely followed by expanding the range of third-party electronic resources, and digitising designated library or archival materials, with four libraries reporting these as future strategic priorities. These findings largely align with the Delphi survey data and case studies interviews, although interestingly a higher emphasis seems to have been placed on expanding electronic resources in these plans, compared to the prior data and feedback received.

All of the other strategic themes also align with the prior survey and interview data, with the only surprise being the fact that increasing the quantity of library and archival items on display in the museums did not feature more prominently, as this was frequently referenced during the interviews. One possible explanation for this is that these activities are already being carried out, and therefore are not considered to be new or evolved strategic priorities for the future.

5.5.2 Collecting policies

Four libraries submitted their current collecting / collection development policies. As with the strategic plans, none of these were made publicly available. All four policies outlined the current and future approach to collecting adopted by the libraries, including, where relevant, archival materials and digital format items.

None of the policies were specified as being set for a defined period of time, although two specified that they would be periodically reviewed, with one not stipulating a timeframe for this, and the other stating a three-yearly review period.

The formats of the four collecting policies were broadly similar, with each one providing a general description of the collection as a whole, detailed information about specific facets of the collection and formats collected, collecting considerations, and information relating to retention and disposals. Several other themes were also covered in the policies by two of the libraries.

The collecting policy themes covered by the libraries are outlined in Table 14.

| Collecting Policy Themes | Thematic Elements x 4 |
|------------------------------------|---|
| Collection description | <p>Art and history of art</p> <p>Regional art</p> <p>Natural history</p> <p>Transportation</p> |
| Collection facets / formats | <p>Monographs, periodicals, sales and auction catalogues, special collections, artist files. Formats: print and electronic (no preference).</p> <p>Monographs, periodicals, manuscripts, artworks. Formats: print and electronic (electronic preferred).</p> <p>Monographs, periodicals, ephemera, archives (both individual and company). Formats: not specified.</p> <p>Monographs, auction and exhibition catalogues, periodicals, manuscripts, ephemera, databases. Formats: print and electronic (no preference).</p> |
| Collecting considerations | <p>Within subject scope, mixture of selective and comprehensive collecting depending on item type, one copy of each title, all languages collected, e-books purchased on individual title basis.</p> <p>Scholarly importance, bridge or fill gaps, fulfil a research need, selective approach, appropriate formats, but electronic preferred, cost effective.</p> <p>Subject focused, supports museum mission and museum collecting policy, highly selective, active and reactive collecting, fill gaps, funding required for archive collections.</p> <p>Within scope of the museum's research and collecting areas, priority users' needs considered first, balanced and broad collection, quality content, selective languages, all formats.</p> |
| Retention / disposals | <p>No regular weeding of collection, withdrawal of items made on case-by-case basis, retention of superseded editions.</p> <p>Core collection retained in perpetuity, disposals only for non-core items, museum disposal policy followed.</p> <p>Disposals by exception only, must be motivated by curatorial decisions, disposals committee takes decision.</p> |

| | |
|--|--|
| | Retention and disposal decisions on case-by-case basis, de-accessioned only if volume can be replicated. |
|--|--|

Table 14 – Collecting policy themes

There was a large degree of consistency between the collecting policies of these four libraries, with a focus on the future development of mixed-format collections that are closely aligned to the overall research and collecting policies of their museums. However, an interesting aspect, which as outlined in the literature review is a common feature of many national museum libraries, is the fact that disposal of superseded or unwanted materials is a relatively rare occurrence as collections are usually acquired for perpetual retention. This typically means that collecting policies are adhered to rigidly, as once items are acquired subsequent disposal is often a difficult process.

5.5.3 Collections access policies

Only one library submitted a collections access policy. This was brief and outlined ways in which the Library planned to provide access to its collections in the future, as well as related collection management issues. The document described two access methods: physical and intellectual access. The first of these referred to issues concerning collections classification, storage, access, borrowing, and copying arrangements. The second referred to issues relating to use of collections for exhibitions, displays, lectures, publishing, and other commercial usage.

With the exception of expected constraints, such as restrictions on access to fragile or commercially sensitive materials, the Library offered a wide level of access to all its collections, which was in fact a stated aim of the document. Furthermore, the policy made explicitly clear that it was aimed not only at existing users, but also at new audiences, i.e. “a wider audience than that currently served by the museum.”

As there was only one collections access policy to refer to, it was not possible to compare the approach of this library with those of the other libraries. One notable finding perhaps, is that only one library submitted a collections access policy. This is not to say that the other libraries do not possess such a document, as they may simply have chosen not to share it, but it is possibly indicative of the fact that collections access is not seen as being such a highly important strategic issue in some of these libraries. This view though cannot be substantiated from the research.

5.5.4 Marketing materials

Similarly, only one library submitted a marketing plan. This document was also brief and focused on aspects of the service that were seen as being the most important for future promotion. No timeframe was given for the plan, so it was not possible to judge what period it covered, and neither was any mention made of if and how it fitted into the Library's broader strategic plan.

The main aspects of the marketing plan included, an objective to more widely promote the Library's e-resources, a commitment to market the Library as a resource for use by schools and colleges, a plan to deliver behind the scenes tours of the Library's storage areas, and an objective to make more regular and focused use of social media, especially as regards promotion of digitised materials or new acquisitions. Several other ongoing marketing objectives were also listed, such as distribution of library guides.

As with the collections access policies, it is again interesting to note that only one of the libraries presented a marketing plan. Given the importance that was placed on marketing from some of the Delphi survey responses, and comments in the case studies interviews, it was expected that many of the libraries would have developed a dedicated plan for these activities. Despite this though, it would appear from several

of the libraries' strategic plans that these activities are already frequently taking place, but seemingly without the need for a dedicated marketing plan to guide them.

5.6 Summary

The results from the case studies are presented in this chapter. These were carried out at seven national museum libraries across four different geographic regions, which were purposively selected from the Delphi survey respondents.

The case studies were divided into two parts – semi-structured interviews with selected library / museum managers and library users, and document analysis of library strategy, policy, and planning documents.

The semi-structured interviews were grouped into five broadly themed topic groups, which mapped directly from the Delphi survey results. These were: role and function, usage trends and behaviours, strategic aims and objectives, collection development, and digital access and engagement.

Document analysis of the main strategies, policies, and plans for each of the libraries that supplied these documents was also undertaken to assess future library planning and prioritisation.

In the following chapter, the results and discussions outlined in this chapter, and the preceding chapter, are considered and presented as both thematic conclusions and possible future scenarios for national museum libraries.

Chapter 6 – CONCLUSIONS

6.1 Introduction

Following the explanatory sequential mixed-methods research design adopted for this thesis, the aim of this chapter is to mix and interpret the cumulative findings of the research undertaken during both the quantitative and qualitative phases of the study. Triangulation of the data in this way is a common feature of mixed-methods research that utilises two or more methods, and is often used to test the validity of the research as a holistic process (Jick, 1979; Tashakkori & Teddlie, 1998).

The main findings from the research are therefore presented and discussed in this chapter in order to address and, wherever possible, answer the research questions. This is achieved by analysing and discussing the combined results of the research from the literature review, Delphi survey, and case studies, in relation to the thematic issues presented in the twelve research questions.

Following the presentation of these findings, and in keeping with the pragmatic nature of this research, three possible future strategic scenarios for national museum libraries are outlined, each of which is formulated from the combined research data. These scenarios offer different plausible paths that national museum libraries, particularly those studied for this research, may wish to partially or completely follow as they consider their future development during the next decade of the digital age.

The chapter concludes with discussions concerning the limitations of this study, contributions of the study to LIS professionals and scholars, and recommendations for further research.

6.2 Role, purpose, and organisational status

There was significant agreement amongst library managers, and many library users, that national museum libraries primarily exist to serve the internal needs of museum staff, notably curators, and to support the strategic programmes and activities undertaken by their museums. There was a broad consensus of opinion that libraries play an active role in supporting future exhibition development, both through provision of research support to curators and exhibition development teams, and through the identification and supply of library and archival materials for display in exhibitions. These views were reinforced by the fact that many library managers in the survey indicated that their libraries were administratively attached to museum curatorial or collections departments, indicating a strong internal focus.

It seems unlikely that these traditional curatorial and museum research support roles will fundamentally change in the future, with a clear preference expressed in both the Delphi survey and the case studies for a continued focus on these activities. Furthermore, indications were provided in the case studies of new and innovative curatorial support roles emerging within some libraries, such as the delivery of digital content for exhibition displays or contribution to the development of online exhibitions.

There was though some support for increasing prioritisation of service provision to general public users, evidenced by the fact that over half the libraries in the survey stated that they already offered full public access, and with widespread acknowledgement of the view expressed by Collins (2003) and Boxtel (2009) of the need for two distinct and separate target audiences, i.e. internal and external. There was also acknowledgement that from a financial sustainability perspective, use of libraries by the public would probably have to increase in the future as it was not cost-effective to focus on museum staff alone. Support for increased public usage was strongest in relation to services for external scholars and academic researchers, but

it also included recognition of a need to develop services to new audiences, especially younger audiences, such as school groups. There was also recognition of a need to provide new services to museum visitors, such as museum object collection enquiries.

Opinions regarding service provision over the next decade were widely offered by library managers and users. Many pointed to the continuing importance of a largely traditional operating model whereby the physical library, the subject knowledge and information skills of librarians, and the widespread availability of print resources, all have important roles to play. However, many survey and several case studies respondents also recognised that as technology becomes more pervasive, and as user needs change, this model will most likely gradually evolve to encompass more digital services and resources³⁸. There was also acknowledgement that libraries would probably need to provide a wider array of services that were delivered in a more flexible and responsive manner in order to stay competitive.

There was a strong sense of optimism about the future role and status of national museum libraries, especially from an internal perspective, as it was felt that a mutual dependency would continue to exist between libraries and museum staff, particularly curators. As evidence of this, the majority of survey respondents, and almost all case studies respondents, expressed a view that their libraries would have a distinctive support role to play in future, irrespective of funding issues or the competition they might face from other information providers. This echoes the opinion of several authors, notably Kolmstetter (2007), who states how important it is for museum libraries to be strongly integrated within their parent museums. Several respondents in the case studies also highlighted the unique or differentiating aspects of their

³⁸ This point is also discussed later in the chapter.

libraries, especially their collections, which would ensure that there was continued need for the libraries to be used by both internal and external users.

This is not to say though that there was not recognition of challenging issues for libraries over the next decade, and many library managers who were interviewed observed that their libraries were vulnerable across a range of different fronts, from pressure to relinquish library space to other museum departments, through to the need to seek external funding to supplement often diminishing core funds received from their museums.

6.3 Strategic positioning and objectives

The results showed that there was a mixed picture in relation to the current and future strategic positioning of national museum libraries within their museums. In the Delphi survey, a majority of library managers stated that they felt their libraries would be included in their main museum strategies and would be acknowledged by their museum leadership as having a clearly defined purpose and function. Similarly, a slight majority of library managers felt they personally would be involved in some capacity with the strategic planning process for their museums, typically through membership of a senior management committee or other decision making body.

However, there was also a sense of ambiguity concerning the expansiveness of the strategic positioning of libraries within their parent museums. Some library managers expressed confidence that their libraries would support a wide variety of museum activities, but others felt that they would only support a limited range of core curatorial related tasks.

These views were largely reinforced in the case studies, with most library managers stating that their libraries had clear strategic roles to play in supporting the

programmes and activities of their museums, but at the same time acknowledging that their libraries were either only referenced briefly in their museums' strategies or were not mentioned at all. This seems to indicate that national museum librarians may face a challenge in terms of convincing senior museum managers of the more expansive future role their libraries can play, and of the holistic value they can offer their museums.

There was a greater degree of consensus regarding the main strategic objectives of these libraries over the next decade. Most library managers reported that their libraries would be focusing on similar core strategic activities in future. There was a clear perception that museum aligned activities that underpin or support the delivery of museum public programming would be prioritised. Likewise, several comments were received in the interviews of the need to ensure that libraries do not deviate from supporting agreed museum programmes, as to do so would risk a dilution of their core purpose.

This evidence again reinforces the notion that many national museum libraries will continue to adopt a predominantly inward facing position going forwards, and will maintain roles that are closely tied to the broader strategies of their museums. Of these internally focused activities, support for exhibition development, in terms of availability of research resources and provision of content for display, was seen as the most important activity, with this being widely reported in the survey and the case studies interviews and document analysis.

There was though some recognition in the interviews that whilst prioritisation of internal service delivery was important, there was also a need for libraries to broaden their base beyond core internal audiences. Several managers believed there was an urgent need to improve the discoverability of their content, in order to widen the reach

of their collections and/or to actively publicise their services, typically via social media or through involvement with new externally focused or outreach activities, in order to attract new audiences. These aspirations were also highlighted in several of the strategic and marketing plans reviewed during the document analysis. Similarly, development of external partnerships with other libraries was also seen as a way of extending the reach of libraries and targeting new audiences, notably through participation in collaborative digitisation or similar projects.

A possible explanation for this need to broaden the user base of libraries can be found in the recognition expressed by some managers of the future challenges, especially financial challenges, which may lie ahead (see section 6.2). It is interesting to note that many of the librarians who expressed these concerns were the same ones who stipulated a need for their libraries to undertake new activities over the next decade. This seems to indicate that they are seeking to off-set or mitigate future risks through the generation of a greater level of need for and dependence upon their services than is currently the case.

6.4 Usage trends and behaviours

The research revealed that use of national museum libraries is often split between internal and external users, i.e. museum staff and the general public, although many libraries prioritise service delivery to internal users. These are broad categorisations though as there are many different types of users, all of whom have specific reasons for use, and differing information needs and requirements. The research findings were therefore interpreted with this in mind.

That notwithstanding, evidence was found of some common usage trends and behaviours. In terms of primary motivations for library use, the survey responses indicated that most library users utilised national museum libraries for scholarly

research purposes, although it was reported that a significant minority used them for personal interest or leisure reasons. This position was reinforced in the case studies, with numerous users citing scholarly activities as their sole reason for using the libraries. Interestingly, several stated that these libraries were often superior in terms of their collection coverage and service offering to university or national libraries, confirming the view expressed by Malinkovskaya (1999), who stated that many university students in Moscow preferred to use the Pushkin State Museum Library rather than their university libraries.

Aside from these fairly generic motivations, other more specific reasons for use were also discovered. The most common of these was in relation to research preferences, with clear indications being received in the Delphi survey, and overwhelmingly clear opinions being expressed in the case studies, of the importance to users of physical libraries as research spaces, and of print collections as key research resources.

For museum staff, these factors often seemed to be linked to issues of convenience and ease of access, whereas for members of the public they were often linked to less tangible factors, such as the social and educational experience that use of these libraries offered. It should be noted here that there was also some support expressed for use of electronic resources, although this was more selective, and typically related to digitised content created by the libraries, rather than purchased third-party electronic resources. This issue is explored further later.

The results also indicated that both internal and external users regarded two other factors as being important drivers for usage – the specialist nature of library collections and the support offered by library staff. In terms of library collections, importance was attributed to collection depth and subject scope, as well as the availability of rare or unique materials, notably archives and special collections. It was

found that these types of collections are highly valued by researchers who regularly visit national museum libraries, many of whom have specific research interests. In terms of library staff support, the subject and collection knowledge and information skills possessed by many library staff, together with the face-to-face interaction and proactive support that library staff deliver to users, were highly valued, especially by museum staff, who are frequently the main beneficiaries of this type of service offer.

It was evident though that optimal usage of the libraries by both internal and external users was often compromised by collections access policy decisions, and by inadequate communication from libraries about their services and resources. Data from the interviews pointed towards poor user satisfaction with some of the closed-stack retrieval policies of libraries, with several users expressing unhappiness with the often time-consuming nature of these services, and the limited number of items that can be retrieved.

Another important and related problem is poor collection discoverability caused by the frequent lack of single, cross-searchable online collection management systems for all collection areas, and by inadequately catalogued records, especially for archives.

In terms of communication issues, there was widespread acknowledgment in the survey and the interviews that far more needed to be done in terms of adequately communicating library service information to existing and potential library users, as most libraries currently had very poor external visibility. This correlates to research undertaken by Tarrête (1997), who reports that many museum libraries are virtually unknown to the public, and shows that this is a long-standing issue of concern that has seemingly progressed little in two decades.

6.5 Collection development and management

Significant support was revealed for the continuing expansion of library collections over the next decade, and specifically for the ongoing collection of print materials. Interestingly though, it was also clear that there was less enthusiasm for significantly expanding collections of electronic materials, e.g. e-books and e-journals. These opinions were clearly evident during the Delphi survey, where a majority of respondents stated that their libraries currently held a small number of electronic resources, and that they did not anticipate this position changing in the near future. Likewise, during the case studies, many library managers and library users advocated continuing the future collection of print over electronic format materials.

At a superficial level, these results are surprising as they are at odds with collecting trends in other similar libraries, notably academic libraries, where in recent years there has been a steady collection development policy shift towards the procurement of more electronic and less print materials (King, 2009; Koehn & Hawamdeh, 2010; Resnick et al., 2008). When examined in more detail though, a number of valid and understandable reasons can be found to explain these views.

Of these, the most widely reported, especially from library users, was the inherent suitability of print resources to the type of research that is commonly undertaken in national museum libraries, a high percentage of which is arts or humanities focused. Comments were received in the interviews of the fact that printed materials are often far better suited to viewing images, and that the physicality of print is easier for browsing than electronic equivalents. It was also noted that issues that can hinder access to electronic items, such as embargoed content, do not occur with print format materials.

And also in terms of access issues, it was found that many publishers of art focused titles still do not publish a great deal in electronic format and so acquisition of print materials is often the only option for these libraries, although it was acknowledged by some library managers that this position may change in future.

The results point towards another critical factor though, which seems to be a common challenge for many national museum libraries, which is lack of funding to acquire electronic resources. Most of the Delphi survey respondents stated that it was likely their operating budgets would continue to decrease year-on-year, and that their ability to purchase all the materials they needed would be adversely affected by this.

This issue was explored further in the case studies, where it became clear that budgetary issues would have a direct impact on the future ability of library managers to spend money on e-resources. These were widely seen as being more expensive than the same print format items, both in terms of the basic unit price and the on-costs associated with supporting e-resources, such as the need for adequate web-based discovery systems. Several library managers therefore effectively ruled out future acquisition of e-resources unless ways could be found to either bring the cost of these down or share costs with other libraries.

As such, some managers stated that they were either exploring the idea of entering into library purchasing consortiums, and/or making more use of open access e-journals. Increased future use of purchasing consortiums confirms the findings in the literature review, where similar collaborative purchasing approaches were discussed as the only means for some museum libraries to acquire e-resources (Collins, 2003).

Despite these challenges though, and the preference for print expressed earlier, many library managers and users felt that eventually (although no timescales were

provided) their libraries would move towards a more balanced hybrid print-electronic collection model. Several comments were expressed in the interviews in support of this notion, although a few library users made the point that any move in this direction should not be at the expense of collecting print materials. This is possibly why the collecting policies examined during the document analysis phase referenced the need for the future development of a mix of different formats and item types.

Finally, in terms of collection development, special collections and archives were seen as worthy of specific attention. The data showed that traditionally many national museum libraries have collected these resources. And often their rarity or uniqueness is seen as an important point of differentiation, which is felt to encourage more researchers to visit, as they know that they cannot easily find these items elsewhere.

However, the findings from the research were unclear regarding the future prioritisation of special collection development. The survey results depicted mixed views on this issue, but the case studies indicated strong support, especially from library managers, for increasing the collection of these items. Whilst it could not be ascertained exactly why the survey results indicated less clear enthusiasm for future prioritisation of special collections acquisitions, it is possible to hypothesise from some of the other data that these views may have been influenced to some degree by issues to do with the high cost of processing and maintaining special collections, together with concerns about lack of storage and vulnerability of library space.

6.6 Digital activity and provision

In both the survey and case studies, most library managers reflected positively on their libraries' involvement with the three digital activity areas investigated during the research – digitisation, Web 2.0 usage, and incorporation of mobile technologies, as well as digital access and engagement activities more generally.

Most managers in the interviews saw these as offering a range of benefits to their libraries. For digitisation, these were mainly seen as the ability to widen the reach of library collections, better support museum exhibition development, and aid preservation of rare and fragile content. For Web 2.0 usage, opinions were more diversified, with some seeing these tools as being essentially confined to marketing activities, whilst others saw them facilitating more far reaching dissemination of information and content. The position regarding mobile technology use was less clear still, with few managers able to offer a definitive view of the potential uses for mobile technology. However, of those that did offer a view, mobile optimisation of library web information and catalogue records were seen as the main applications.

It was apparent though that uptake of and involvement with these activities was sporadic, with only limited evidence being reported in the survey of these technologies being regularly incorporated into the operational programmes of libraries. Possible reasons for this were alluded to in the literature review, with barriers to entry relating to cost, time, skill sets, and resource availability being mentioned as challenges that many libraries are often unable to easily overcome (Barnhart & Pierce, 2011; Jacobson, 2011; Riley-Reid, 2015; Skekel, 2008).

And these opinions were also expressed in the case studies, with a number of comments received relating to the difficulties faced by libraries when putting in place the necessary infrastructure and raising the funds needed to carry out digitisation projects or utilise mobile technology for content delivery. This in turn opened up questions concerning the possible need for libraries to enter into partnerships with other libraries or commercial organisations when considering future technology-focused activities.

Similarly for Web 2.0 usage, resource limitations and policy constraints were reported by several library managers, with a common problem being that library social media usage needed to be channelled through central museum departments. This was seen as lessening the efficacy of these tools as modes of instant communication.

So whilst most managers saw digital engagement activities as being beneficial, some also saw them as being too difficult or ambitious to undertake currently, and stated that they were mainly future aspirations. However, the results did indicate optimism from library managers about the potential for these activities to grow and be incorporated as important strands of strategic programming over the next decade.

As well as a desire for increased involvement with already well-established technologies, such as digitisation, there was also a sense of eagerness from some managers for their libraries to be collaborating with other museum departments on projects such as online exhibitions, where emerging technologies, e.g. virtual reality, could be used to display digital library content. It was also interesting to note the extent to which collaborative working was being actively considered by some managers in order to achieve these and other service development ambitions that were currently unrealistic for many libraries to achieve in isolation, especially complex or expensive activities, such as mass-digitisation projects.

Effective planning of digital access and engagement activities was also highlighted as a key consideration, particularly for digitisation. A number of the managers noted that digitisation planning had to occur at a museum-wide level and could not be undertaken in isolation by their libraries. Digitisation had to tie-in with museum plans and priorities, and where relevant seamlessly integrate museum object collections with the knowledge about the objects held in museum libraries.

There was something of a dichotomy here though between this cautious and steady approach and the more ambitious opinions of some library users, many of whom expressed a desire for library digitisation to be far more expansive in scope, and to be user-led in terms of decision making regarding subject matter to be digitised.

It is interesting to note though that whilst some library users were positive about the use of digitisation and other digital tools, others were far less enthusiastic. For these users, physical access to the collections was of paramount importance, and whilst there was acknowledgement of the benefits of digital technologies for enabling access to certain materials, this was only seen as being of limited value to the research process.

Reservation was most apparent with regards to social media usage, with sceptical comments being received by a number of users, both young and old, about its relevance beyond that of a general marketing tool.

Reasons for this can possibly be attributed to the fact that these users, in common with many other national museum library users, often tend to visit the libraries in person in order to satisfy quite specific and known information needs, which usually require interactions with pre-identified physical collections. Consequently, they may be far less dependent on receiving speculative digitised content, or other web-based information, from their libraries.

Other types of users who were not interviewed for this research, especially remote users, may have far more diversified reasons for using these libraries, and may be considerably more likely to see these technologies as being of more immediate benefit to them in terms of accessing collections. This is an area where there is considerable scope for further research.

6.7 Measuring and communicating value

In the literature review, it was stated that measuring value is not always considered an easy task for librarians to undertake, given the difficulties of defining what should be measured, and the processes that need to be in place to achieve this.

To make matters more complicated, there is no single measurement methodology that suits all libraries, with each one having different benefits and limitations (Marshall, 2007; Murray, 2013; Tenopir, 2012). This sense of uncertainty and confusion was also reflected in the research, with a distinct view being expressed in both the survey and the case studies of library value measurement being seen as an overly complex activity that is not currently afforded widespread prioritisation.

However, the majority of library managers did recognise that the measurement and communication of library value was something that would increasingly be required of them by museum management in future, and that in some cases this may also be linked to library funding decisions. Moreover, a majority of library managers in the survey felt that their museums may impose library visitor number targets in future, heightening the need for value measurement processes to be put in place.

There was though a clear sense of unpreparedness amongst the library managers who were interviewed regarding the most effective ways for achieving this, with several respondents stating that compilation of basic library usage statistics was the only method that they currently had available for providing such data.

Despite this lack of clarity, many library managers expressed confidence in their ability to articulate the value they perceived their libraries as offering, both in terms of value to their museums and to their user base more broadly. Views concerning the uniqueness and differential status of library collections, particularly special collections

and archives, as well as the specialist knowledge, skills, and support that library staff could offer their users, were both cited as being especially important in this respect.

Other aspects were also mentioned by some managers, notably the connectedness between museum and library collections, and the future impact of technological developments within libraries, in areas such as dissemination of research information.

It is therefore reasonable to deduce from these findings that many national museum libraries are currently lagging behind libraries in other sectors, especially the academic sector, in terms of measuring and communicating their value. At the same time though, it is also clear that many national museum library managers are aware of the fact that valuation methods will increasingly need to be deployed in the future as museum management seeks further evidence that libraries are providing a return on investment.

Furthermore, it is also clear that many managers already have a clear understanding of some, if not all, of the areas where their libraries are able to add value to their museums, and to their wider user base.

It will be interesting to return to this question in the future to see if and how national museum libraries are being held accountable for the services and resources they provide, and to ascertain how they have developed a mechanism for capturing, evaluating, and communicating this information to their stakeholders.

6.8 Scenario models

Three future strategic scenario models are presented below. Each of these is based upon and designed from the main emergent themes revealed from the research data. Specifically, the three models highlight different policy and planning initiatives, service

delivery objectives, target audience profiles, and resource allocation suggestions, all of which have been identified as being possible and plausible operating models for national museum libraries over the next decade.

In keeping with the pragmatic nature of this research, each scenario has been designed so that it can be either partially or completely adopted by library managers in order to maximise their libraries' strengths and opportunities, develop their reach and impact, and deliver maximum value to their stakeholders.

Each scenario model is presented through a different environmental lens, relating to the main internal and external factors that shape and drive their overall direction. These are denoted by their respective titles. As with the scenarios themselves, these have been formulated from the findings of the research by extrapolating trends and patterns from the data that are of relevance to the research questions.

The three future scenario models for national museum libraries are:

- 1) Consolidation Scenario
- 2) Commercialisation Scenario
- 3) Contradistinction Scenario

6.8.1 Consolidation scenario



Figure 29 – Consolidation scenario matrix

In this scenario, activities undertaken by national museum libraries primarily focus on proactively supporting the delivery of overarching museum plans. The libraries effectively adopt a policy of shoring up and consolidating their core role as specialist information providers for museum staff, and of underpinning any museum strategic objectives that relate to information provision or research support.

Primary audience development is thus inward facing, with traditional users, especially curators, being prioritised. Development of new internal audiences from museum departments that may not have traditionally used the libraries will likely also occur though. The internal service support offer provided by the libraries would therefore grow considerably in this setting, notably in terms of support for museum exhibition planning and curatorial research.

Service provision to general public users would be considered a lower priority, with limited publicity being aimed at or communication delivered to these groups. However, it is likely that scholars and students with specialist interests in the subject areas of the museums would be encouraged to visit, albeit possibly in a limited capacity, e.g. reference use only.

Attention would be given to further developing all aspects of the library and archive collections, but only where there is a demonstrable link to museum programming, or if there is a clear internal demand-driven imperative to do so. Collection development policies would thus focus on building collection breadth and depth within the parameters of the subject specialisms of the museums. Collection development in areas that fall outside this scope would be de-prioritised.

Collection development will continue to be predominantly print based as most library users are located within the physical museum, and so remote access is less of a priority. However, selective acquisition of electronic journals and books will occur where required and if affordable, mainly to augment print collections.

Improving access to and availability of print collections will also be a key future development, with efforts made to off-set the challenges that many users experience in terms of finding and using collections, especially those that are uncatalogued or difficult to locate, such as archives.

In this environment, library staff will be expected to utilise their subject skills and knowledge to proactively provide tailored research support to museum staff, often embedding themselves into teams or being dispersed around museums to assist key projects and activities, e.g. exhibition planning, with the aim of providing relevant information in advance of when it might be required. Use of social media and other

technological tools, either to alert museum staff to relevant new publications or disseminate useful information, will also become more commonplace.

The physical library as a research space is important within this model, although space constraints will limit collection growth rates. Mitigating this problem is partially achieved by digitising rare and/or large items and placing these in off-site storage facilities, but this process will be slow and gradual due to ongoing financial and resource limitations.

Other selective digitisation activities will occur, typically to provide digital materials for exhibitions or for preservation purposes, but an important feature of digitisation within this setting is that it will be highly focused and only undertaken within a museum-wide context, thus ensuring broader strategic alignment.

Finally, given that operational budgets may continue to decrease over the next decade, libraries will need to consider alternative funding sources. Given the internal focus of this model, one possible approach is for libraries to collaborate on bids for research grants that are being made at a wider level by other museum departments. This will be a particularly suitable model for digitisation or research-focused activities.

Scenario implications

This model would undoubtedly offer national museum libraries a strong and focused internal role, which should help to clearly position them as core service departments within their museums and, in turn, enable them to demonstrate their irrefutable value and worth to museum management.

In this situation, it is likely there will be greater opportunities for libraries to expand their internal roles, which may help provide justification for increased funding and

staffing bids. This is especially the case for research and exhibition support activities, particularly if libraries can substantially diversify their range and type of involvement within these areas, and in so doing ensure that curators and other influential museum staff become dependent on library services for the delivery of their work.

The risk with this model is that it places too much emphasis on internal support, which for most national museum libraries means concentrating service delivery on a relatively small number of users. Irrespective of the value that the libraries may bring to these users, this model will probably be regularly reviewed by museum management and libraries will be expected to demonstrate how and where they are delivering value for money, especially if budgets need to be cut.

This model also places the libraries at elevated risk from external competition, especially online information resources that are available for free or at low cost. If there is a perception from museum staff that online information is quicker and easier to obtain and it is not cost prohibitive then they may abandon their museums' libraries in favour of these alternative resources. In this situation, museum management may take the view that continuing to maintain library services is no longer financially viable, which may result in funding cuts or even closure for libraries.

Scenario indicators and signposts

Indicators and signposts for this scenario are determined by the following factors.

- Decline in outward facing communication, e.g. library websites or social media.
- Fewer members of the general public allowed to access or utilise libraries.
- Increased library involvement in planning and delivery of museum projects.
- Greater library recognition and visibility within other museum departments.
- Greater internal acknowledgement of the value of librarian skills and knowledge.

- Library collections are more stratified and aligned to museum subject domains.
- Selective procurement of digital resources and use of digital technologies.

6.8.2 Commercialisation scenario

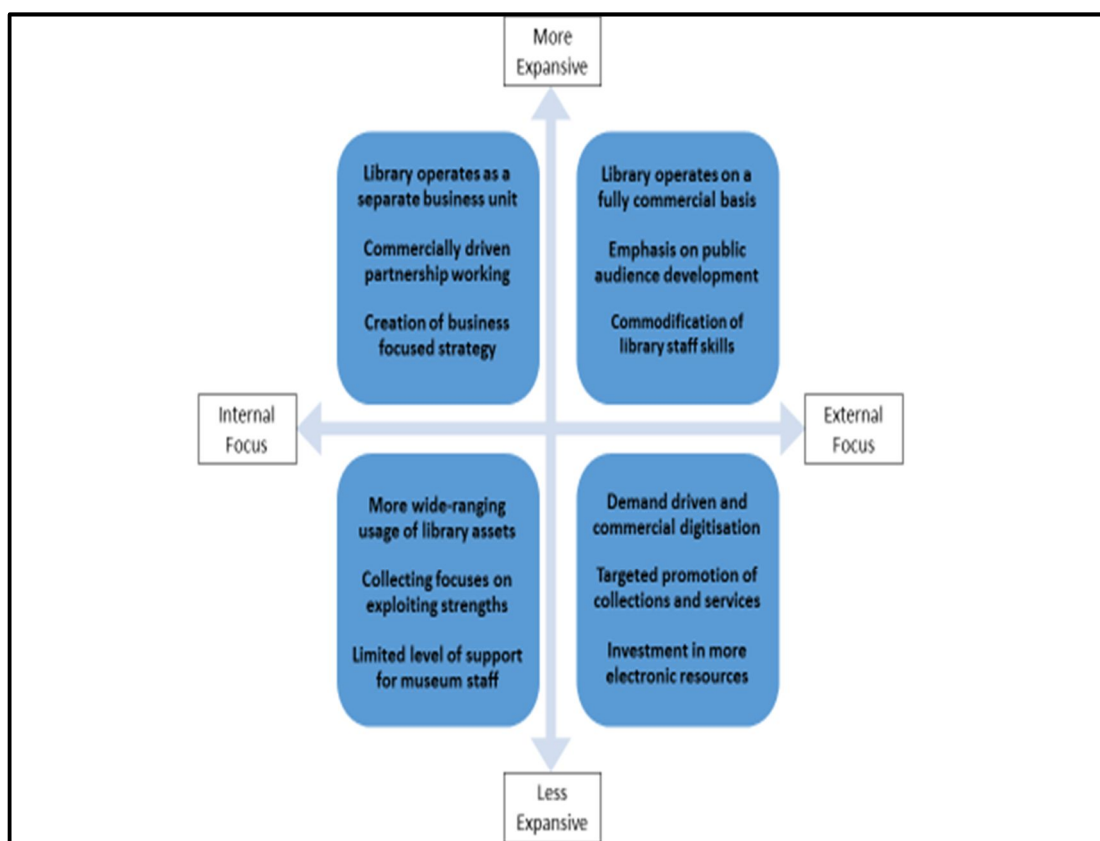


Figure 30 – Commercialisation scenario matrix

In this scenario, national museum libraries adopt an outward facing, expansionist, and overtly commercial role. Libraries will still function as museum departments and receive central museum funding to support basic operating costs. They will also still provide support services to museum staff, but these are afforded lower prioritisation and may be restricted to those activities with limited resource implications for the libraries or that are mutually beneficial to the libraries and their museums, e.g. museum exhibitions with a strong library content focus.

Instead, libraries will be managed as semi-autonomous business units, akin to other commercially oriented, revenue-raising museum departments, e.g. publications departments or museum shops. Libraries will develop their own business strategies, which exploit their collection strengths and unique assets in order to offer them a niche position within the wider information marketplace. As such, audience development is focused on the general public. The demographic profile of these public users will vary from library to library, but a universal theme will be the prioritisation of audiences who have the propensity to regularly pay for library usage.

Libraries will therefore seek to market themselves as commercial services by creating information products that can be sold to these audiences for a profit. For example, if a library has a strong socio-historical focus with collections of interest to genealogists then it may seek to set-up a family history spin-off company that utilises these collections, together with library staff research skills, to sell genealogy information to family historians.

Commodification of library staff skills could also be extended in other ways, e.g. working directly with companies to help them manage their archives or records, or help them in areas where they may lack skills, such as data curation.

Similarly, because libraries will be expected to generate substantial income for their museums, they will also need to diversify their revenue streams elsewhere. Maximising the profit potential of their collections via commercial agreements will therefore be expected.

Examples might include re-print deals with publishers for out of copyright books, licensing arrangements with database suppliers for use of library content, or digitisation of library images for use in commercial mobile apps. Non-collection based

assets will also need to be utilised for commercial gain, such as renting library space for external lectures and meetings.

Building an operating model that is sufficiently differentiated from other information providers is critical in this scenario as the libraries will need to attract and sustain a minimum level of usage to succeed. Libraries will therefore focus on consolidating their collection strengths and developing areas where they have a service offer that cannot be easily replicated elsewhere.

In the main, this will mean bolstering collections of unique or rare materials, such as archives or special collections. However, it will also entail moving into new collection areas that have yet to be developed by other libraries, especially within the electronic realm. Examples might include building collections of electronic ephemera or digital data sets.

Allied to this is the need to push information out to external audiences. Libraries will therefore be strong advocates of social media and will use these as core marketing tools. Digitisation will also be especially important. Besides its commercial benefits, digitisation will also be used to help promote physical library collections, and deliver information directly to remote users.

Likewise, extensive use will be made of previously unaffordable electronic resources, in order to make available a broad and comprehensive online offer to library users, the costs of which will be off-set by library revenue raising activities. Emphasis will also be given to ensuring library content is effectively organised and easily discoverable, and so investment in appropriate discovery platforms will be critical, as will the opening up of physical collections so library users can gain quick and full access to the resources they need.

Scenario implications

This scenario would provide national museum libraries with the opportunity to develop a fully commercial and financially sustainable service model that is not constrained and forcibly shaped by their museums' strategies, whilst still benefiting from their museums in terms of the organisational support and brand identity they provide. By utilising collection strengths and other assets, including staff skills, libraries would be able to generate strong market identities as specialist information providers.

By moving in this direction, libraries would therefore be well positioned to attract and retain significant numbers of new users from across targeted sections of the general public. This scenario also offers libraries the chance to expand their global reach, and thus generate more remote users, through expansive, creative, and innovative use of digital technologies, particularly digitisation and social media.

However, this scenario moves national museum libraries dramatically away from what has been a tried and tested, internally focused service model that prioritises museum staff and supports museum programming. This places libraries in a volatile and potentially high risk situation whereby they are having to rapidly create and sell commercially attractive services and products and develop and retain new audiences in sufficient numbers to ensure they generate enough income to deliver value to their museums, which would undoubtedly demand a healthy return on investment for the hosting of the libraries within their institutions.

This would have to be achieved in a highly competitive market place, particularly in terms of competition from online information sources. Should this model fail or if it does not deliver tangible benefits for the museums then it is probable that museum management may decrease or even withdraw support for their libraries.

Scenario indicators and signposts

Indicators and signposts for this scenario are determined by the following factors.

- Complete shift to a commercially orientated, business-focused funding model.
- Development of library business strategies that aim to raise revenue for museums.
- Creation of library resource based commercial information services and products.
- Active promotion of commercial services and products to targeted public users.
- Acquisition of specialist print and electronic collections targeted at public users.
- Increased investment in systems that improve discoverability of library content.
- Internal collaboration on museum programmes that promote library collections.

6.8.3 Contradistinction scenario

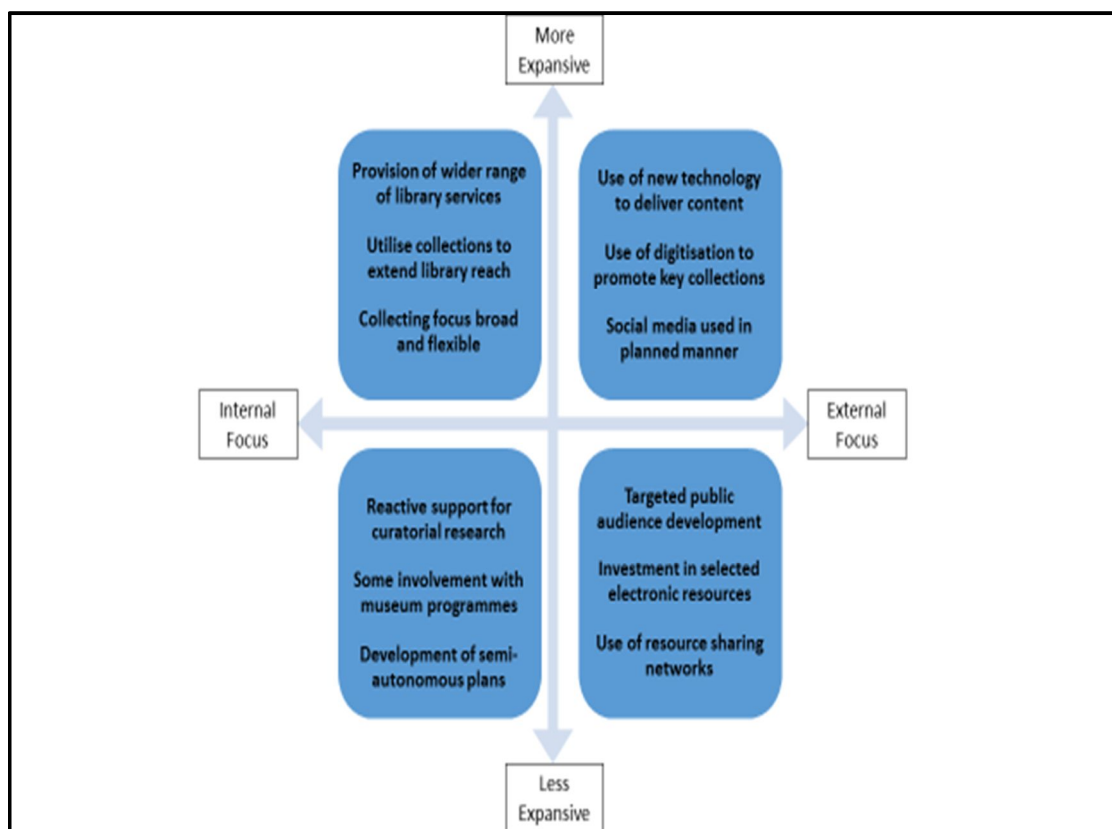


Figure 31 – Contradistinction scenario matrix

In this scenario, national museum libraries adopt a balanced role, with equal weighting afforded to both internal and external audiences. Consequently, they will attempt to provide as wide a range of services as possible to all users, whilst simultaneously being mindful of the fact that resource constraints will limit the extent of these services.

Libraries will be aligned to the strategies of their museums, and therefore will be expected to play an active role supporting museum staff and contributing to museum objectives. But at the same time they will benefit from a degree of independence, which will allow them to pursue some of their own development activities. However, library support for museum activities will be selective, with time-consuming and resource intensive tasks, such as research for museum exhibition planning, undertaken on a case-by-case basis.

Libraries will be able to supplement central museum finding via commercial exploitation of their resources, e.g. sale of digitised images. However, this will only occur if it is clear that there is sufficient pre-existing demand for such resources, and it does not adversely impact upon museum-focused support. Typically these activities will be undertaken in collaboration with commercially focused museum departments, e.g. publications departments, or picture libraries.

Library operations within this scenario will be characterised by their flexibility and breadth of scope, as it will be imperative for libraries to develop business models that appeal to a wide cross-section of existing and potential users with both specialist and generalist interests. It is therefore likely that an array of new services will be provided by libraries in an attempt to try and meet as many of these different information needs and requirements as possible.

These will be diverse in nature, ranging from the production of tailored current awareness products for museum staff, to the delivery of library and archival research skills sessions for school groups. Similarly, libraries will extend their roles as information providers to the public by answering museum visitors' enquiries about museum objects, and as collaboration facilitators, by providing dedicated spaces for scholarly and social interaction.

To support this range of activities, the collecting focus will need to be broad to ensure library collections are as relevant and appropriate to as many users as possible. However, the inevitable drawback here is that the collecting approach may become more superficial and lack depth, and consequently users with specialist information needs may lose out. To off-set this, libraries will need to make more use of collections held by other libraries through membership of inter-library loan schemes.

Maximising the high volume and wide range of electronic content offered through e-journal bundles and full-text databases will also be a way of mitigating this risk. As such, libraries will need to consider joining appropriate library purchasing consortia so that they can afford to access the many different online resources that will be needed to support their various users' needs.

Promotion of library services will be targeted as it is imperative that libraries do not over commit themselves, given that they typically have limited resources. Therefore, communication, especially via social media, will be regulated according to need and will be carefully controlled by libraries. This means that specific internal and external audiences can be identified and communicated to in a focused manner, thereby maximising the chances of audience buy-in and engagement.

Utilisation of technologies to improve the discoverability and accessibility of library collections to external users, many of whom will be remotely based and may never visit in person, will also be important. It is imperative therefore that discovery systems that enable simultaneous interrogation of all facets of libraries' collections are invested in, despite the high cost of such systems, although these could potentially be paid for via library revenue raising activities. These systems will be used to deliver print holdings information, full-text electronic resources, digitised library collections, and born digital content via one search interface. It is also important that maximum value is derived from digital content, so wherever possible it should be repurposed for different internal and external uses, and multiple audiences.

Scenario implications

In this scenario, national museum libraries benefit from being able to deliver services to the widest possible range of users, thereby enhancing their ability to deliver both economic and societal value to their stakeholders. This simultaneous inward and outward looking focus offers the best chance for maintaining a highly visible role and presence, which helps protect and reinforce the libraries' internal profile, whilst also developing their public profile.

This therefore offers libraries a safety net on both sides of the internal / external divide. It also provides them with the flexibility to develop new services and resources, some of which will be commercially focused, and take advantage of the opportunities offered by technologies to deliver content in new and innovative ways.

The main disadvantage of this approach is that it leaves libraries with little in the way of spare capacity, and risks them being over committed. This, allied to the fact that they are having to operate on two fronts, opens up the possibility that libraries will not be able to adequately meet the information needs of either their internal or their

external audiences, thereby disengaging and potentially losing the custom of both. This problem is heightened during periods when central funding is being cut, which in recent years has been a frequent problem for many national museum libraries, as in these situations many libraries may have acquisition budgets reduced, or may even lose staff, which means they may then struggle to maintain their full range of services.

Furthermore, adoption of this model, which attempts to be all things to all people, may dilute the potential of the libraries to create a strong market identity with any specific audience group. This in turn may lessen their ability to make a significant impact when promoting their services, especially to new audiences, and may leave them more vulnerable to competition from other far more focused information providers.

Scenario indicators and signposts

Indicators and signposts for this scenario are determined by the following factors.

- Marked increase in numbers of general public visitors using libraries.
- Libraries engage in targeted marketing of their services to the public.
- Strategic planning and operational delivery less defined by museum objectives.
- Range of new services and resources delivered, some of which are commercial.
- Increased participation in resource sharing schemes and purchasing consortia.
- Increase in number and range of print and electronic format materials purchased.
- Requirement for the implementation of resource discovery systems.

6.8.4 Scenario models prognosis

Whilst it is not the purpose of this thesis to recommend any one of these scenario models over another, it is nevertheless interesting to consider which one of the three might be the most likely to be implemented by national museum libraries over the next decade. Based on the analysis of the data retrieved during the course of this

research, it is felt that the *Contradistinction* scenario model is probably the most likely of the three to be implemented.

The rationale for this is that in uncertain times and periods of change, it is likely that most national museum library managers will want to hedge their bets and try and support as wide a range of patrons and deliver as full a programme of services as possible, rather than focus all their services and resources in one direction only.

And despite the risks associated with this model, which are outlined above, and the many pressures that national museum libraries will face from funders and other stakeholders to prioritise service delivery according to one set of needs over another, e.g. internal versus external audience provision, or print versus digital collection development, it is most likely going to be the case that librarians will want to keep all options open for as long as possible, and do their best to serve the needs of all users.

Each of these three scenarios though offers national museum library managers a suite of different tools that can be used to establish clearly defined roles for their libraries within complex and often challenging museum operating environments, and against the backdrop of a fast changing and unpredictable socio-technological landscape. Likewise, they can help facilitate the delivery of new services and resources that offer demonstrable economic and social value to internal and external stakeholders. And for LIS academics, they outline options that can be considered to aid the study of future developments within this under-researched and little understood library sector.

If this research topic is revisited, it would be interesting and useful to test each of these scenario models to assess their future relevance and value, and to establish which of the three is best suited to the needs and requirements of national museum libraries during the next stage of the digital age.

6.9 Contributions of the study

This thesis builds upon, and adds a new layer of knowledge to, previous academic studies that have examined if and how libraries, in their capacity as traditional information providers, can stay relevant and valued in a modern age increasingly dominated by internet based information resources.

It achieves this by examining this question from the perspective of national museum libraries, which, in common with the subject area of museum librarianship more broadly, constitutes an area of LIS research that is significantly under-represented within the scholarly literature, and across the academic discipline of LIS generally.

This is therefore the first study to analyse the role, purpose, and value of national museum libraries in the twenty-first century. And it is the first to examine how these libraries might prepare for and respond to specific challenges and opportunities that may occur over the next decade of the digital age, particularly in relation to the delivery of services and resources.

In keeping with the pragmatic nature of the research, the findings and conclusions of this thesis are intended to be utilised by both national museum library practitioners and LIS academics. For practitioners, to help guide their development of future strategic plans, business models, and operational policies. And for LIS academics, to inform their understanding of this field of librarianship, and help them consider how these results conform to or differ from those previously identified in research undertaken for libraries in other sectors.

6.10 Limitations of the study

Whilst no major problems occurred during the course of this study, two limitations were encountered, which partially constrained the effectiveness of the research in two specific areas.

The first resulted from the fact that the external socio-technological environment that formed the backdrop for this research is one that is rapidly evolving. Accordingly, it was difficult for research participants to forecast with accuracy the precise nature of any future changes and, more pertinently, how these might impact upon national museum libraries over the ten year timeframe specified for the research. Certain assumptions and predictions therefore had to be made, which could not, in some cases, be stated with total confidence. This in turn may have slightly weakened the plausibility of some of the conclusions that were identified and the scenarios that were constructed from the data.

This situation means that some of the research findings will need to be regularly revisited, and if necessary revised, in order to assess if and how any unforeseen or miscalculated changes may have impacted upon national museum libraries. In hindsight, it may have been more effective to have either slightly shortened the future time period being considered, or conversely, to have undertaken the research over a longer period as a longitudinal study, in order to more accurately observe evolving trends and changing views.

The second limitation was encountered during the case studies phase of the research, and related to the number of case study venues in the sample. It became apparent during the case studies data analysis that the selection of seven case study venues meant that only a limited volume of data was available for analysis and interpretation, both for the semi-structured interviews and the document analysis. Another similar

issue was that the case studies interviews did not include opportunities for the opinions of library users who do not physically visit the libraries, or non-users of the libraries, to be recorded. Both these issues therefore served to limit the breadth and depth of the conclusions that could be drawn, and the scenario options that could be presented from this phase of the research.

Whilst I am of the opinion that these issues did not significantly undermine the validity or quality of the case studies research or the data retrieved, it could nevertheless justifiably be argued that a slightly higher number of case studies, and an opportunity to also interview remote users and non-users of the libraries, would perhaps have produced a richer and more complete set of data. This would also have ensured that the volume of research data from the case studies was more balanced with that from the Delphi survey phase of the research. This is something that should therefore be considered for any similar future research studies.

However, it should be noted that prior to the case studies research being undertaken, it was felt that seven case studies would be an appropriate number for the range and type of data being sought. Furthermore, this number was also considered necessary because of the time and resource constraints of the study.

6.11 Recommendations for further research

This research was carried out across a broad cross-section of national museum libraries in different countries, focusing throughout on themes of common relevance. However, given the issues mentioned in the previous section regarding the rapidly evolving nature of socio-technological change, this research can only effectively serve to reveal a snapshot in time of the operational and strategic approaches being taken by national museum libraries, and of the views of library managers and library users in relation to each of the research questions being investigated.

It is therefore recommended that this research is repeated again in the future so that assumptions and predictions that were made during the course of this study can be analysed to determine their accuracy over a prolonged period, and to assess if and how they may have adjusted in light of changes in the internal and external environment.

And as indicated previously, undertaking two specific elements of the research again in the future is particularly recommended. Firstly, conducting the research in the form of a longitudinal study, in order to obtain a more accurate long-term view of the role and value of national museum libraries. And secondly, testing each of the three scenario models to establish the relevance and value of each one.

Additionally, it is also recommended that the research is broadened to encompass other types of museum libraries, as it is clear that many of the issues examined for this thesis would also be relevant to museum libraries generally. In broadening out the research, it may also be useful to study different categories of museum libraries (e.g. academic, local authority, independent) separately using the same research approach and methodology so that any variations in practice or opinions can be easily identified, analysed, and compared.

Research from this thesis has shown that there is frequent variation in the views of different national museum library users, particularly museum staff and general public users, and in the types of services and resources that are prioritised and delivered by libraries to these users.

It is therefore also recommended that a more in-depth study is undertaken that more accurately identifies these differing future needs and requirements, and investigates the specific ways libraries plan to respond to them over a longer period of time.

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APPENDICES

Appendix One – Delphi survey sample invitation email

Dear Library Director,

My name is Rupert Williams and I am a part-time PhD candidate at University College London in the UK, where I am undertaking research to investigate the role and value of national museum libraries in the digital age.

A key part of my research is to gather the views and opinions of directors of national museum libraries (i.e. those libraries that are part of or are affiliated with national museums) from around the world about the current and future landscape for national museum libraries. I am specifically interested in finding out what library directors think will happen, and what they would like to happen over the next decade, in relation to five areas of activity – library usage, service provision, strategic direction, collections management, and digital access & engagement.

As you are the director of a prominent national museum library, I would be very interested in seeking your views and opinions on this topic, and I am therefore writing to ask if you would be willing to participate in an online survey that I am conducting for my PhD research?

My online survey is based on the Delphi Method, which is a method that is often used as a forecasting technique to systematically elicit opinions (via two or more separate rounds of surveys) from experts in their selected area of expertise. It is also frequently used as a tool for the investigation of areas where no real models or prior data exists.

The survey that I will be conducting will be undertaken online over two rounds over the space of five months, commencing in June 2014. However, the second round will only be sent to those survey participants whose responses fall outside of the overall consensus of views reached in the first round of surveys.

If you are willing and able to participate in this survey then please click on the link on the following page, which will take you directly to the survey. Your participation will be completely anonymous, and no views or opinions that you express will be attributed to you or to your institution. The survey should take circa 40 minutes to complete.

Thank-you very much in advance for your help and assistance with this research. Your views and opinions are greatly appreciated.

Yours sincerely,

Rupert Williams

Appendix Two – Delphi survey round one online questionnaire³⁹

Delphi Survey - Round One

This online survey has been created as part of a PhD study that is being undertaken by at the Department of Information Studies at University College London.

The survey is being conducted to help explore and better understand the role and value of national museum libraries in the digital age. As you are the manager / director of a national museum library, I would be very interested in hearing your views and opinions about this topic.

The survey consists of two parts, as follows:

- **Part 1** consists of 8 preliminary questions, which provides some background contextual information about your library.
- **Part 2** consists of 60 statements, which are divided into five themed sections. Each of the statements outlines a possible future scenario or situation that national museum libraries may or may not face over the next decade (2014 to 2024).

For each statement, you are asked to gauge the *likelihood* of the scenario or situation occurring within *your museum library* during this timeframe, and the *desirability* of the scenario or situation occurring in terms of its overall future impact on *your museum library*.

Please note that this survey is aimed at all libraries that are part of or are affiliated with a national museum or gallery (i.e. museums or galleries that are government funded and/or which contain collections of national significance). The survey relates to libraries that are combined with archives collections, as well as libraries that do not contain archives collections. If you are the manager / director of a combined library and archives service then please answer each question and statement in the context of the whole service, i.e. the library and the archives combined.

Your participation in this survey is strictly voluntary and you may withdraw at any time. If you do not wish to continue you can either leave this website or not click on the **FINISH** button at the end of the survey. In both cases your answers and participation will not be recorded.

All information collected will be used for my PhD research only. The survey is completely anonymous and your confidentiality will be maintained at all times. There will be no specific connection made to you or your library in the results. By clicking **START** you are verifying that you have read the explanation of this survey, and that you agree to participate.

³⁹ The Delphi survey round one online questionnaire shown here has been re-formatted (to a Microsoft Word compatible format) from the original online version that was sent out.

Please click **START** to begin the survey, and then click **NEXT** at the end of each section to move onto the next screen. If you wish to go back to a previous screen, please click **BACK** at the end of each section. If you wish to leave the survey and return to it at a later point, then please ensure you click **SAVE** before exiting.

The survey should take no more than 30 minutes to complete. Please try to complete the whole survey if you can. Thank-you very much for agreeing to participate in the survey. Your feedback is very important and is greatly appreciated. If you have any questions about the survey, please contact Rupert Williams by email at r.williams.11@ucl.ac.uk.

Part 1 - Preliminary Contextual Questions

Please answer the following eight questions, which are intended to provide background contextual information about your museum library.

Once you have answered these questions, please proceed to and complete Part 2 of the survey.

Q1: In which country is your museum library located? Please state in space below.

| |
|--|
| |
|--|

Q2: What type of national museum does your library belong to / is it affiliated with?

| | | | |
|---------------------------------|--|-----------------------------|--|
| Art museum / gallery | | Media museum | |
| Generic / non-thematic museum | | Military museum | |
| History / heritage museum | | Natural history museum | |
| Industrial museum | | Science / technology museum | |
| Main national museum of country | | Transport museum | |
| Maritime museum | | Other type of museum | |

Q3: Approximately how long ago was your library established?

| | | | |
|-----------------------|--|-----------------------|--|
| Since 2000 | | Between 1880 and 1909 | |
| Between 1970 and 1999 | | Between 1850 and 1879 | |
| Between 1940 and 1969 | | Between 1850 and 1879 | |
| Between 1910 and 1939 | | Before 1849 | |
| Don't know | | | |

Q4: How many staff are employed in your library?

| | |
|--------------|--|
| 1 to 5 | |
| 6 to 15 | |
| 16 to 25 | |
| 26 to 35 | |
| 36 to 50 | |
| More than 50 | |

Q5: Approximately how many items does your library hold / have access to? Please indicate approximate figures for printed items (e.g. books, archives); electronic items (e.g. e-books, e-journals); other format items (e.g. audio-visual media, photographs).

| | Printed Items | Electronic Items | Other Items |
|-------------------|--------------------------|--------------------------|--------------------------|
| Below 1,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,000 - 5,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5,000 - 10,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10,000 - 50,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50,000 - 100,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 100,000 - 250,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 250,000 - 500,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| More than 500,000 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Q6: Does your library manage any archive collections on behalf of the museum? Please note, these can be the museum's own archives and/or the archives of external individuals or organisations.

| | |
|------------|--|
| Yes | |
| No | |
| Don't Know | |

Q7: Which museum department does your library belong to?

| | | | |
|------------------------------------|--|---------------------------------|--|
| Collections Information / Registry | | Exhibitions | |
| Conservation | | Information / ICT | |
| Curatorial / Collections | | Visitor Experience | |
| Education / Learning | | Does not belong to a department | |
| Other (please specify) | | | |

Q8: Does your library provide library access and services to the public?

| | |
|---|--|
| Yes, full library access / services to the public are provided | |
| Yes, partial library access / services to the public are provided | |
| No, library access / services to the public are not provided | |
| Other (please specify) | |

Part 2 – Future Scenario Statements

For each of the statements in the following five sections please select **two** answers, one for the *Likelihood* of the statement occurring within your museum library over the next decade (2014-24) and one for the *Desirability* of the statement occurring within your museum library during this period.

Section A - Future Library Users and Usage

Q9: Members of staff who work at your parent museum will be the most numerous and active users of the library.

| LIKELIHOOD | | DESIRABILITY | |
|---------------------------|--------------------------|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | <input type="checkbox"/> | Highly Undesirable |

Q10: University students, scholars, academics will be the most numerous and active users of the library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q11: Members of the general public not in higher education will be the most numerous and active users of the library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q12: Library users will mainly use the Library to carry out museum related research, e.g. finding information for / about exhibitions.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q13: Library users will mainly use the library for academic or scholarly research, e.g. finding information for publications.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q14: Library users will mainly use the library for personal interests or pleasure, e.g. finding information for family history research.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q15: The most frequent return visitors to the library will be those that need to access and use materials that are held by the library and which cannot easily be found elsewhere.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q16: The majority of library users will only be able to source some of the information they need from the physical library or library website and will need to visit another information resource to fulfil their research needs.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q17: Demand from library users will predominantly be for the library's physical / printed format resources.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q18: Demand from library users will predominantly be for the library's digital / electronic format resources

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q19: Over half of the amount of library usage will be by individuals who never come into the physical library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q20: For those users who do come to the physical library, it will mostly be for issues that cannot be easily undertaken elsewhere, e.g. consulting rare items, seeking advice from library staff.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q21: Demand for library support from users will grow if librarians are able to transform their traditional reactive ‘reference desk’ type roles into innovative and proactive ‘information consultant’ type roles.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Section B - Future Library Service Provision

Q22: The library will mainly serve as a print based resource, providing access to specialist, rare or unique printed materials.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q23: The library will mainly serve as a web based resource, providing access to specialist, rare or unique digital materials.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q24: The library will operate in a hybrid print-digital environment but provision of print services and resources will dominate the library's range of activities.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q25: The library will need to provide a more expansive range of services and resources to its users than at present in order stay relevant and competitive.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q26: The library will need to reduce the range of services and resources that it provides to a few core and/or specialist areas in order to maximize efficiencies.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q27: The library will decrease the number of user-generated enquiries it physically answers by investing more in web based systems and databases that users can access themselves.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q28: The library will require fewer staff with traditional library skills and more staff with strong ICT and technical skills as the library provides more technology focused services and resources to users.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q29: The library will adopt a highly agile and flexible approach to the provision of content and resources, including more use of online tools and systems, which responds to changing needs and priorities rather than following a set plan.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q30: The library will become more adept at and will focus more upon delivering information to library users at the time and place that they need it through physical and/or virtual outreach activities.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q31: The library will struggle to keep pace with technological change and will start to fall behind other information providers in terms of its provision of important digital resources and services.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q32: The library will provide more opportunities for visitors to interact with its collections by increasing its participation in the parent museum's public programmes, e.g. exhibitions, learning events.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q33: The library will move increasingly into the realm of providing services and resources that directly support and enhance museum research, e.g. supporting open access publishing.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Section C - Future Library Strategy and Management

Q34: The library will have a visible presence within the main museum strategy and will play an active role in fulfilling core museum strategic objectives.

| LIKELIHOOD | | DESIRABILITY | |
|---------------------------|--------------------------|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | <input type="checkbox"/> | Highly Undesirable |

Q35: The library will play a key role in supporting a few defined museum activities, e.g. curatorial research support, but will only have a limited role supporting other museum activities.

| LIKELIHOOD | | DESIRABILITY | |
|---------------------------|--------------------------|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | <input type="checkbox"/> | Highly Undesirable |

Q36: The head of the library will be included in the strategic planning and decision making process for the wider museum through membership of relevant museum groups and committees.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q37: The library will have a dedicated core strategic plan that is aligned to the museum's main strategic plan and that clearly articulates the library's intended future direction and priorities.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q38: The library will have the capacity and capability to react to emerging technological opportunities that impact upon internal library tasks and professional activities.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q39: The library will spend a significant amount of time planning and delivering data management activities for the museum, such as data curation, digital preservation and digital archiving.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q40: The library will be expected to meet clearly defined targets for increasing library user numbers in order to guarantee its continuing existence.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q41: The library will need to develop and implement a dedicated marketing plan to actively promote itself to members of the public.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q42: The library will plan and deliver an increasing range of services and resources that are designed to generate revenue for the museum, e.g. room hire, evening events, consultancy services.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q43: The library will increasingly need to provide quantifiable evidence to the parent museum and/or funding providers of the value added benefits that the library provides to its users.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q44: There will be a direct correlation between the impact that the library is having on its users and/or on the parent museum and the amount of funding that it receives.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q45: For budgetary as well as efficiency reasons many traditional operations, such as cataloguing and acquisitions, will need to be outsourced to external suppliers.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Section D - Future Library Collections

Q46: The majority of the library's acquisition activities will be devoted to collecting specialized, rare or unique printed collections, such as antique books, manuscripts, archives, etc.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q47: The majority of the library's acquisition activities will be devoted to collecting specialized, rare or unique digital collections, such as born digital or digitised papers, data sets, etc.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q48: The library's overall approach to collecting will be relatively unchanged and will not be significantly affected by external socio-technological factors, e.g. use of mobile devices.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q49: The library's collecting policy will be based around the idea of developing discrete, subject focused collections rather than large, comprehensive collections.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q50: At least 80% of the library's collection will be catalogued onto a library management system and the bibliographic records will be fully searchable by external users via the web.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q51: The library will lag behind libraries in other sectors, e.g. university libraries, in terms of its ability to use web /digital technologies to manage library collections and/or collections information.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q52: The only way that the library will be able to afford to purchase an adequate range of electronic resources for its users is if it enters into consortium purchasing agreements with other libraries.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q53: The high cost of storing and managing library collections will detrimentally impact on the ability of the library to collect a sufficient range of printed materials for the library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q54: Collection development decisions will increasingly be taken with future physical and/or digital storage and management costs in mind.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q55: The library's acquisitions budget will decrease in real terms year-on-year and will adversely affect the ability of the library to purchase all the items that it needs.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Section E - Future Digital Access and Engagement

Q56: The number of digitisation projects undertaken by the library each year will increase as a direct result of the increased demand from library users for digital access to the library's collections.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q57: The number of large-scale digitisation projects (i.e. projects that aim to digitise in excess of 100 items) undertaken by the library will significantly increase.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q58: Digitisation of library collections will only be undertaken where there are clear commercial benefits for the library and/or museum, e.g. sale of high resolution images.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q59: Lack of skilled staff and/or access to appropriate equipment will hinder the development of library digitisation projects and other similar digital access activities undertaken within the library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q60: Collaborative digitisation projects with other libraries or commercial organisations where the costs can be shared or paid for will be far more likely to occur than digitisation projects that are undertaken by the library alone.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q61: Communication via the web will be the most common method for delivering information to library users about new library services, collections and content.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q62: Extensive use of Web 2.0, social media and successor technologies by the library (or on behalf of the library by the museum’s web / marketing teams) across a variety of activity areas will be the norm and will form a key strand of the library's service offer.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q63: Use of Web 2.0 and social media (and successor technologies) by the library will principally be reserved for marketing and related activities.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q64: The library will be an early adopter of newly emerging Web 2.0 or Web 3.0 technologies and will seek to integrate these into their operations as soon as practically possible.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q65: There will be more use of mobile and hand-held technologies by the library to deliver core services and resources to library users.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q66: The library will be far less dependent on maintaining a large physical space as many of its services and resources will be delivered using web based or mobile technologies.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q67: The fast pace of technological change and the challenges associated with that (e.g. new versions, lack of standards, user demands) will pose a significant problem for the library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Q68: The library will be largely superseded and made redundant by the proliferation of information freely available via the web and as a result the parent museum (or other funding body) will take the decision to significantly scale back or close the library.

| LIKELIHOOD | | | DESIRABILITY | |
|---------------------------|--------------------------|--|--------------------------|---------------------------|
| Highly Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Desirable |
| Moderately Likely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Desirable |
| Neutral View / No Opinion | <input type="checkbox"/> | | <input type="checkbox"/> | Neutral View / No Opinion |
| Moderately Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Moderately Undesirable |
| Highly Unlikely | <input type="checkbox"/> | | <input type="checkbox"/> | Highly Undesirable |

Appendix Three – Delphi survey round two email template

Dear Library Director,

A few months ago you kindly completed an online survey that I sent you, which related to my PhD research examining the role and value of national museum libraries in the digital age. Thank-you very much for completing and returning the survey and for the information that you provided.

I am now following-up with a number of survey respondents, including yourself, to see if I can find out a bit more information about some of the responses that were submitted. Specifically, I am interested in finding out further information about any responses that were significantly different from the consensus view of the majority of the survey respondents.

There was one occasion / several occasions where your survey response / responses significantly differed from the consensus view of the majority of the survey respondents.

This question is / these questions are as follows: ***Insert question(s)***. Your response / responses to this question was / were: ***Insert response(s)***.

I would be very interested in finding out if there were any particular reasons why you provided this response / these responses to this question / these questions, as this will help me to identify any important issues that other respondents may have missed or that are specific to your museum library.

If there is a particular reason / are particular reasons for your response / responses then please could I ask if you would mind providing a brief written statement / statements in the space / spaces below to explain what this is / these are?

As with the initial survey, your response / responses will be completely anonymous and no views or opinions that you express will be attributed to you or to your institution.

Thank-you very much in advance for your help and assistance with this research. Your views and opinions are greatly appreciated.

Kind regards,

Rupert Williams

PhD Candidate
Department of Information Studies
University College London

Appendix Four – Case studies sample invitation letter

Rupert Williams
Department of Information Studies
University College London
Gower Street
London
WC1E 6BT
United Kingdom

29th June 2015

Recipient name
Recipient address

Dear XXXXXXXX,

My name is Rupert Williams, and I am a PhD candidate at University College London in the UK, where I am undertaking research into the role and value of national museum libraries in the digital age.

The current phase of my research involves a series of case studies of national museum and gallery libraries in several different countries. If possible, I would like to conduct one of these case studies at the XXXXXXXX Library, as the profile and coverage of the Library fits perfectly with the types of libraries that I am seeking to study. I am therefore writing to request your permission to undertake a case study at the XXXXXXXX.

The case study would be carried out remotely over two days, ideally sometime between September and December this year, and would be split into two parts. The first part would consist of four Skype or telephone interviews – one of which would be with the Head Librarian, who I have already been in touch with, one with another senior library manager or museum manager with library responsibility, and two with regular users of the Library. The second part would consist of document analysis of any strategy or policy documents that I might be allowed to view, where they relate to the Research Library and its future planned activities.

The case study would be completely confidential, and no mention or indication would be given in my final thesis of the name or location of the Library or the names of any interviewees.

Thank-you very much for considering my request and I look forward to hearing from you in due course.

Yours sincerely,

Rupert Williams
(r.williams.11@ucl.ac.uk)

Appendix Five – Case studies interview guide for library managers

Case Studies Interview Guide for Library Managers

Main and Supplementary Questions

1. How do you see the main role and function of the Library evolving over the next decade?
 - a. How will this differ from both a museum focused and a public focused perspective?
 - b. What services and resources do you think library users will most value from the Library during this timeframe?

2. How do you think library users will undertake research within the Library over the next ten years?
 - a. How, if at all, do you think this will be different from the way they currently engage with the collections?
 - b. What role do you think technology will play in this process?

3. What will be the Library's 'unique selling points' that library users will come to the Library for, which they cannot easily find elsewhere?
 - a. How will the Library ensure that potential new library users are made aware of these 'unique selling points'?
 - b. How will the Library ensure that existing library users are made aware of these 'unique selling points'?

4. What, if any, methods will you use to measure your library's value to the museum as a whole and to individual library users?
 - a. Will you be measuring value from a purely financial perspective or will you look at other factors, such as research outputs, learning outcomes?
 - b. How will this be communicated to stakeholders and what will the impact of this be?

5. How will the Library seek to balance the acquisition of print and digital format materials over the next decade?
 - a. What role do you think the Library's print format materials will play in an external landscape that is increasingly dominated by digital information and content?
 - b. How do you envisage provision of digital format materials evolving during this time frame?

6. What do you feel library users will expect from the Library in terms of online access to full-text library and archive collections over the next decade?
 - a. How does the Library plan to respond to and meet these expectations?
 - b. What, if any, role will new or emerging technologies play in delivery of these services and resources?

7. What will be the Library's strategic approach to the digitisation of its collections over the next decade?
 - a. How will digitisation projects be initiated and paid for?
 - b. How and for what purpose will digitised content be disseminated to users?

8. What issues do you think will cause the most problems for the Library in terms of its ability to continue to develop its collections over the next decade?
 - a. What, if any, plans does the Library have to mitigate or minimise these?
 - b. What would be the impact of a major budget cut?

9. What approach will the Library adopt in order to ensure its content and resources are provided to library users in a way that is responsive to their future needs and priorities?
 - a. What do you think these needs and priorities will be and how technology dependent will they be?
 - b. Will this approach differ for internal and external library users and if so how and why?

10. What museum programmes or activities do you think the Library will actively be involved with and contribute to over the next decade?
 - a. How will these encourage museum staff and visitors to virtually engage with library collections and other resources?
 - b. How will these encourage museum staff and visitors to physically engage with library collections and other resources?

11. How will the library's contribution to the delivery of the main museum strategy evolve over the next decade?
 - a. What, if anything, will the Library be doing differently compared to previous years in order to contribute to the delivery of the Museum's programmes?
 - b. What new activities will the library be responsible for undertaking that directly contribute to the delivery of the Museum's programme?

12. What will the Library's approach be to use of Web 2.0, social media and successor technologies over the coming decade?
 - a. How do you envisage these technologies being integrated into both day-to-day and project based library activities?

- b. Will their use be adjusted for different audiences and to what extent will the Library have direct control over social media outputs?

- 13. How will the Library keep pace with the fast rate of technological change over the next ten years and how will it maintain its relevance and value during this time of change?
 - a. How will it maintain its relevance and value during this time of change?
 - b. If it is unable to keep pace with this change what do you think will happen to the Library?

Appendix 6 – Case studies interview guide for library users

Case Studies Interview Guide for Library Users

Main and Supplementary Questions

1. How do you see the main role and function of the Library evolving over the next decade, from both a museum focused and a public focused perspective?
 - a. What services and resources do you think you and other library users will most value from the Library during this timeframe?
2. How do you think you and other library users will undertake research within the Library over the next ten years?
 - a. How, if at all, do you think this will be different from the way you currently engage with the collections?
 - b. What role do you think technology will play in this process?
3. What services and resources do you see as the Library see as its 'unique selling points', which you and other library users will specifically want to come to the library for?
 - a. How would you like the Library to make you and other library users aware of these services and resources?
 - b. What do you feel the Library should be prioritising in this respect?
4. What, if any, methods do you think the Library needs to put in place to measure the value that it delivers to the museum as a whole and to you and other library users?
 - a. Do you think value should be measured from a purely financial perspective?
 - b. Do you think other factors need to be measured, such as research outputs, learning outcomes?
5. How would you like to see the Library seek to balance the provision of print and digital format materials over the next decade?
 - a. What role do you think the Library's print format materials will play in an external landscape that is increasingly dominated by digital information and content?
 - b. How do you envisage provision of digital format materials evolving during this time frame?
6. As a user of the Library what will you expect from the Library in terms of online access to full-text library and archive collections over the next decade?

- a. How do you think the Library will plan to respond to and meet your expectations?
 - b. What, if any, role do you think new or emerging technologies should play in delivery of these services and resources?
7. What do you think should be the Library's strategic approach to the digitisation of its collections over the next decade?
 - a. How do you think digitisation projects should be initiated and paid for?
 - b. How and for what purpose do you feel digitised content should be disseminated to you and other library users?
8. What issues do you think will cause the most problems for the Library in terms of its ability to continue to develop its collections over the next decade?
 - a. What do you think would be the impact to you of a major budget cut?
 - b. What, if any, plans do you think the Library should put in place to mitigate or minimise these risks?
9. What approach do you think the Library needs to adopt in order to ensure its content and resources are provided to you and other library users in a way that is responsive to your future needs and priorities?
 - a. Do you think your information needs and priorities will change over the next decade and if so how?
 - b. How technology dependent do you think your future information needs and priorities will be?
10. What museum programmes or activities would you like to see the Library actively involved with and contribute to over the next decade?
 - a. Can you envisage any new programmes or activities that would encourage you to interact with or use the collection more frequently?
 - b. What, if any, new programmes or activities would encourage you to make more remote use of the Library's resources, i.e. via the Web?
11. How do you think the Library will be able to contribute to the delivery of the main museum strategy evolve over the next decade?
 - a. What new or different activities should the Library be responsible for undertaking that directly contribute to the delivery of the museum's programme?
 - b. How actively engaged do you think the Library should be in museum programming and why?
12. What do you think the Library's approach should be regarding the use of Web 2.0, social media and successor technologies over the coming decade?

- a. How important is the Library's use of these types of technologies to you as a user of the Library?
 - b. How do you envisage these technologies could be best integrated into both day-to-day and project based library activities?

13. Do you think the Library will keep pace with the fast rate of technological change over the next ten years?
 - a. How do you feel it will be able to maintain its relevance and value during this time of change?
 - b. If it is unable to keep pace with this change what do you think will happen to the Library?