

"A qualitative analysis of the issue of discoverability* of Irish digital collections; with a specific focus on medieval Irish manuscripts."

*Discoverability is how easy it is to find an item on-line using a search engine and/or a repository.

Dissertation submitted in part fulfilment of the requirements for the degree of

MSc Information and Library Management

at Dublin Business School

Barry Smith

Declaration:

I, Barry Smith, declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma. In addition, I have referenced correctly all literature and sources used in this work and this work is fully compliant with the Dublin Business School's academic honesty policy.

Signed: B. Smith

Date: 21st August 2017

Acknowledgements

I would like to sincerely thank the interviewees that participated in this research. Their enthusiasm for the topic and their courteousness towards the researcher was exemplar of the level of professional that exists in this industry.

I would like to thank my supervisor Marta Bustillo for her guidance and encouragement.

I would like to thank my brother for his incredible academic acumen which I drew on regularly for suggestions, advice and the dubious honour of proof-reading this dissertation.

I would like to take this opportunity to thank my family and friends and to remind them that I do actually still exist and that they shall be seeing more of me from now on.

Most importantly I would like to thank my wife Clare. She has made the last two years possible with her unyielding ability to look after me. Clare's strength and steadfast encouragement have helped me to conquer this Masters.

And Rupert, a positively essential piece of apparatus for anyone studying whilst working full time: my wonderful golden retriever with the innate ability to dissipate stress with a few simple wags.

Abstract

The artistic output of the monasteries of medieval Ireland is often identified as the high point of Irish artistic achievement, with the spectacular illuminated manuscripts such as the Book of Kells regarded as among the most significant works of medieval art ever produced. With the church acting as the most significant patron of the arts at this time in Ireland, the majority of manuscripts are unsurprisingly religious in nature, but there are also many works, such as the Annals of the Four Masters, which contain substantial amounts of historical information, and in many cases, are the sole surviving historical records of a period. In addition to their obvious artistic importance, medieval Irish manuscripts are objects of immense historic and cultural significance. Their value, therefore, is undisputed and when considered in relation to their age and the fragility of the material, they are ideal candidates to be converted into digital collections.

Indeed, extensive institutional resources and expertise have already been spent on the creation of digital collections to house many of these manuscripts. However, in spite of their importance and the time, effort and outlay that goes into the creation of these collections, they are frustratingly difficult to locate online and, more often than not, arduous to use and exploit. This dissertation seeks to understand why medieval Irish manuscripts, and digital collections in general, are so difficult to discover on-line by way of search engines and propose possible solutions.

In light of an absence of literature on this topic in an Irish context, this research will look establish its own core data by conducting in-depth interviews with current practitioners and experts in Ireland to establish its own conclusions and recommendations, which will be then contextualised within international scholarship on the subject. As a result of these interviews: key issues will be identified that contribute to issue of the discoverability of digital collections, with a focus on medieval Irish manuscripts.

The major contribution of the research will be the establishment a base level of data in an Irish context in the field of Irish digital collections concerning medieval manuscripts in response to the dearth of a pre-existing corpus of literature. This dissertation endeavours to start an important conversation in the area of digital humanities in Ireland over the challenges facing digital collections projects – especially those concerned with medieval Irish manuscripts – and to propose practical and achievable solutions.

Table of Contents

Acknowledgments	2
Abstract	3
Chapter 1 - Introduction	7
1.1 Background	7
1.2 A Note on Digital Libraries and Digital Collections	8
1.3 Research Aim	11
1.4 Research Question	11
1.5 Dissertation Structure	12
1.6 Dissertation Scope and Limitations	12
1.7 Dissertation Contribution	13
Chapter 2 - Literature Review	14
2.1 Introduction	14
2.2 Research Strategy	15
2.2.1 Parameters	15
2.2.2 Search Terms	16
2.2.3 Databases	17
2.3 The Literature	18
2.3.1 Discoverability	19
2.3.2 Usability	21
2.3.3 Quality of Metadata	23
2.3.4 Search Engines and Systems	26
2.3.5 Funding	28
2.3.6 Conclusion	29
Chapter 3 - Methodology	30
3.1 Introduction	30
3.2 Research Philosophy	30
3.3 Research Approach	31
3.4 Research Strategy	33
3.5 Population and Sample	34
3.6 Data Collection, Editing, Coding and Analysis	35
3.7 Ethical Issues and Procedure	37
3.8 Conclusion	38
Chapter 4 - Findings	39
4.1 Introduction	39
4.2 Findings	39
4.2.1 Discoverability	40
4.2.2 Metadata	44
4.2.3 Search Engines	46
4.2.4 Human Resources and Funding	48
Chapter 5 - Discussion	50
5.1 Introduction	50
5.2 Comment on the Literature	50
5.3 Discoverability/usability	51
5.4 Metadata	52

5.5 Search Engines	54
5.6 Funding and Human Resources	55
5.7 Limitations	56
Chapter 6 - Conclusions/Recommendations	57
6.1 Introduction	57
6.2 Terminology of Digital Collection Librarians	57
6.3 Terminology of Discoverability	58
6.4 The Issue of Search Engines	58
6.5 Underlying issue of Funding	58
6.6 Recommendation for Project Management	59
6.6 Future Work	61
Chapter 7 - Reflection	62
7.1 Introduction	62
7.2 Learning Style	62
7.3 Dissertation Topic	62
7.4 Challenges and Experiences	63
7.4.1 Literature Review	64
7.4.2 Methodology	65
7.4.3 Primary Data Collection	65
7.4.4 Findings, Discussion and Conclusion	66
7.5 The MSc	66
7.6 Conclusion	66
Bibliography	68
Appendix A	72

Chapter 1 - Introduction

1.1 Background

This dissertation proposes to examine the issue of discoverability of Irish digital collections, with a specific focus on medieval Irish manuscripts. Discoverable is taken to mean how easily both the general public and researchers alike can find these digitised collections by searching online through search engines.

A manuscript is any document that has been written by hand. It can also mean any typed document that has not been mass printed by automated means. While the topic of specifically medieval Irish manuscripts is quite esoteric and would presumably appeal primarily to a niche community, the researcher believes that there is ample justification for investigation into these cultural treasures.

In a European context, manuscripts superseded scrolls and were usually written on parchment, which was any kind of treated animal skin, particularly goat, sheep or cow. Manuscripts of great importance were written on vellum which was treated calf-skin and was of higher quality. Depending on the size of the manuscript, the number of pages from a single calf skin would either be between two for a large book, and four for a smaller book. One such as the Book of Kells would have required close to 200 calves to provide vellum, which would have meant that the monastery would have needed a very large herd of well over 1000 cattle, demonstrating the great expense that went into their production. The majority of manuscripts concerned the Gospels but there were also works that contained information relating to lay activities. Manuscripts that contained detailed and colourful images are known as Illuminated Manuscripts. Meehan informs us that in early Christian Ireland, the production of manuscripts was a "significant activity" (2005, p.316). Illuminated manuscripts which were created between the 6th and 9th centuries "represented high points in Ireland's artistic history" and more significantly have "helped to define the country in a cultural-historical sense" (Meehan, 2005, p. 316). Illuminated or not, any manuscript produced required considerable patronage due to the amount of resources, time and expertise that was required to produce one, and are therefore often connected to medieval Irish kings and their families.

With the growing scholarly awareness of the potential benefits of digital collections, there has been a greater focus on the digitisation of medieval Irish manuscripts over the last number of years. They are sources of fundamental importance to Irish historical scholarship, with individual manuscripts such as the 17th century Annals of the Four Masters representing the sole record from important episodes of Irish history, in some cases spanning centuries. The more illuminated manuscripts are

recognised globally as pinnacles of medieval artistic expression. However, in spite of their global renown and popularity, Irish manuscripts are frustratingly difficult to find on-line. Despite the painstaking digitisation of dozens of medieval manuscripts, they are not easily discoverable through search engines. Oftentimes, the manuscripts reside in various institutional digital repositories that can only be accessed by the often complicated navigation of the site itself, or with specific permissions, as opposed to the serendipitous manner that are offered by way of a search engine or browsing image results.

Therefore, this dissertation will seek to investigate the discoverability of medieval Irish manuscripts, objects of immense historic, artistic and cultural significance but material that frequently remains hidden and unseen in the digital sphere. In order to do so however, it is necessary to also examine digital collections in general so as to determine best practices but also to identify issues that affect all digital collections and the ramifications they have on medieval Irish manuscript collections.

1.2 A Note on Digital Libraries and Digital Collections

Before a discussion on specific elements of digital collections can take place; it is necessary to establish the context of digital collections in general and the digital libraries that house them.

A digital library is an on-line nexus for a network of various informational repositories designed to provide users with vast amounts of diverse information in real time. A digital library can be a repository for multiple institutions and can be a collaborative venture. Colleges, libraries, museums, archives and independent institutions can possess their own digital library or contribute to a communal digital library. It captures and stores digital resources in order to preserve, promote and disseminate those resources. The digital resources are varied and can include: electronic books and documents, video and audio files. It can also include digitised items such as manuscripts, books, letters, painting, maps and photographs. Digital libraries also have many educational resources such as learning and training videos and various self-help aids. These resources allow users the ability to learn at a time that suits them. It has enabled the evolution of a library to a digital library, from the most democratic place in the world, to the most universally accessible, democratic place in the world. They function as computerised hubs of unceasing and rapid knowledge exchange where the depth of potential information available is unfathomable, limited only by the users own abilities, energies and time.

Digital libraries have become as important as their physical counterparts – in some cases, more important due to their ease of access. They allow patrons to browse for material at a time and place that suits them; on a multitude of electronic devices. This unrestricted access suits many users, especially the younger generation who arguably have an impatience for waiting on information, but also older people or those outside urban centres, where travel is an issue.

Digital libraries have been born out of necessity rather than creativity. The Digital Age has spawned information users who rely (or over rely) on digital resources. These users are unable or unwilling to extract their information needs from traditional sources such as a physical library. Rather, they require, or demand, an information repository at their fingertips at any given time of the day or night. Digital libraries therefore require modern librarians to possess a high degree of technical proficiency in order to manage the digital library and all of the resources it houses and to meet the demands of its users.

Users log into a digital library in order to locate what they require. However, this engagement is a two-way process whereby the digital library can take this opportunity to entice users to engage with other resources that the library possesses. Thus, the digital library enables users to experience material that they otherwise may not have; either through lack of time or even the awareness of the existence of the material. These materials would include digital collections.

A digital collection is a term for a set of cultural heritage material that has been digitised in order for the collection to be available and viewed on-line. As Hughes surmises: digital collection are the surrogates of the physical cultural heritage items (2004, p. xi). These cultural heritage materials encompass a broad range of items from a nation's past. They include recorded information and artistic expression such as: manuscripts, documents, letters, books, drawings, paintings, posters and photographs; as well as objects such as: weapons, armour, clothing and tools.

The material originates from a wide variety of sources such as paper, vellum, papyrus, birch bark, wood and other substances. There is a multitude of mediums on which images can be represented such as paper, canvas, negatives, glass plates, microfilm and microfiche. Sound and moving image have been stored on film, videotape, audiocassette and LP records (Hughes, 2004, pp. 3–4).

Digitisation does not always involve scanning items. It can be data conversion from one of the aforementioned formats to digital. For example: Corpus of Electronic Texts or CELT is a digital collection of transcriptions from over 1,500 mainly Irish historical documents including several of the annals of Ireland made available on-line – therefore the text is digitised, not the actual manuscript pages themselves as images.

Digital collections are often the result of the endeavours of individuals and institutions to promote an aspect of the country's heritage. A digital library is a wonderful medium by which to increase the exposure of digital collections compared to their original and stationary being in a physical exhibition or storage. A digital library can promote a digital collection on its homepage in an effort to encourage visitors and users to explore the collection.

Two key questions must be considered here: firstly, why are these materials considered relevant for or worthy of digitising to begin with, and secondly, why is the subsequent digitised material not discoverable?

Originally, Irish manuscripts were digitised in an effort to negate the need for scholars to physically handle the item, thereby damaging them, but also to allow for wider access to the material through the bypassing of conservational concerns. Over time the emphasis has shifted to promotion and dissemination of manuscripts as well as preservation.

However, if dissemination is now a driving factor in digitisation of these collections, then why is their discoverability not a greater priority? This raises the issue of the quality of metadata being employed during the digitising process. At its core, metadata enables digital objects to be discoverable on-line through the addition of digital markers to each digitised item. Search engines can seek out those markers, allowing for users to locate the digital objects with ease. A digitised object without metadata is invisible to search engines and therefore will be undiscoverable, rendering the digitisation of the item redundant.

1.3 Research Aims

The primary aim of this research is to examine the level of discoverability of Irish digital collections and medieval Irish manuscripts in particular. In order to realise this objective, this dissertation will seek to answer the following aims:

- To ascertain if discoverability is an issue - perceived or otherwise.
- If discoverability is an issue, then why? What are its obstacles?
- To seek to understand how important metadata is to digital collections.
- To gather current practitioners' views and opinions on the subject as they do not exist in the present literature.

1.4 Research Question

"A qualitative analysis of the issue of discoverability* of Irish digital collections; with a specific focus on medieval Irish manuscripts."

**Discoverability is how easy it is to find an item on-line using a search engine and/or a repository.*

The subsequent objectives of this dissertation are:

- To firstly establish if Digital Collection Librarians in Ireland perceive that there is a discoverability issue with digital collections.
- To investigate if there is sufficient metadata attached to digital collections in Ireland and if it is of a sufficient standard for the Digital Collection Librarians.
- To explore if rich metadata is one of the best ways to promote discoverability.
- To discover what is the current level of training that Digital Collection Librarians possess.
- To investigate the level of training for those working on the field of digitization of manuscript collections, but who are not digital collection specialists, e.g. historians, art historians and archaeologists.
- To determine the level of consultation with metadata experts to ensure the most up-date techniques are implemented.
- To determine what strategies exist to enhance discoverability, both in institutions and nationally.

1.5 Dissertation Structure

Chapter one will discuss the background and justification for research into this area. It will also provided the research aims, question and objectives as well as the scope, limitations and contribution it hopes to make to this field. Chapter two is the research strategy and literature review which will provide a comprehensive analysis of the existing literature on the subject, assessing the current corpus of Irish material on the subject and placing it within an international context. Chapter three details the research methodology, including the philosophy, approach, strategy, population, data collection and analysis. Chapter four will examine the findings from the interviews and present them thematically. Chapter five will then discuss these findings and further analyse them while considering the results of the literature review. Chapter six draw conclusions from the research as a whole and offer recommendations. Chapter seven will present a critical self-assessment of the researcher's experience of the dissertation and Masters programme.

1.6 Dissertation Scope and Limitations

The scope of this dissertation is to examine the discoverability of medieval Irish manuscripts but will not be a comparison to collections abroad. It will not look at late medieval or early modern Irish manuscripts. It will view Irish digital collection in general but only as a means to ground the research on medieval Irish manuscripts.

It will view literature from the UK and North America and contextualise it from an Irish perspective.

This dissertation will create a solid core of data from specifically chosen experts in a variety of fields that interact with, create or curate digital collections in an effort to redress the absence of an body of literature on the subject in Ireland. It will not engage with experts from outside of Ireland or those working on projects abroad.

This research will assess the application and impact of metadata in digital collections.

This research will also look at the role of search engines in the discoverability process.

This research will not comprehensively analyse the issue of funding in the literature with regard to digital collections, owing to its vastness and complexity. It will assess the impact of funding based primarily on the interviews.

1.7 Dissertation Contribution

The major contribution of the research will be to establish a base level of data, in an Irish context, in the field of Irish digital collections concerning medieval manuscripts, which is otherwise devoid of such literature. At present, only the practitioners, and those who are involved with digital collections, understand how they work and can identify any issues they may have. That is why the conducting of interviews is a core component of this research. This dissertation will be a starting point for researchers – both established and new to the field - who are looking to research medieval Irish manuscripts in their digital collection environment. It will critically assess the impact of metadata on the discoverability, and therefore, use of a collect. It will address key issues concerning the field internationally and attempt to discern whether those issues are relevant in the Irish context from a multidisciplinary perspective. In essence, this thesis will seek to demonstrate the value and importance of digital collection of medieval Irish manuscripts, and why they need to be identifiable, usable and present avenues for further exploration and discovery of further collections. It will answer the question: If a digital collection cannot be found, used or shared, what is the point?

Chapter 2 - Literature Review

2.1 Introduction

To fully engage with the themes of online discoverability, digital collections and medieval Irish manuscripts, this research began with a broad and thorough survey of available sources on the subjects. Although the research question is specifically examining the issue of discoverability of medieval Irish manuscripts - literature on this exact topic is extremely scarce. As a result, the literature review encompasses digital collections in general and focuses on manuscripts when possible. In an effort to understand best practice policies relating to digital collections, it was important to understand the place of Irish material within the greater global field. However, surprisingly, this research uncovered an absence of any substantial body of literature on digital collections, discoverability and medieval Irish manuscripts examined from these perspectives in Ireland. As a result of this state of affairs, an alternative approach to the subject was required.

The lack of a corpus of Irish material has meant that a greater onus was placed upon international material, in an effort to develop an understanding of the subject. The UK is an obvious choice for comparative analysis due to the long history of Ireland following examples of British invention; for example, the nineteenth-century movement towards centralisation and preservation of public records in Britain led to the establishment of the Public Records Office in Dublin in response. However, the British literature on discoverability and digital collections is not as substantial as would have been expected, with an over reliance on American material evident. For this reason, and with an awareness of time constraints, the primary focus of the literature review of this thesis has been on British and American material.

An overreliance on international literature in the absence of Irish material would diminish the scope and potential of this research. To ensure the grounding of this thesis within an Irish context, a base line of data of digital collections, metadata, manuscript collections and cultural heritage in Ireland was created by the author through extensive interviews with experts in a number of interrelated fields in Ireland.

The following literature review represents not only the initial research carried out as part of this thesis, but is also reflective of the substantial material that was revisited, reviewed and re-examined of this research following the analysis of the interviews carried out with industry experts within the field in Ireland.

2.2 Research Strategy

The research strategy employed in this literature review closely follows the model put forward by Saunders et al (Saunders et al., 2015, p. 114).

- The initial parameters of the literature review were set by using the research question and the objectives above to define the subject area, language, geographical area, publication period and literature type.
- The search terms were established by using the common and recurring themes that came about from initial reading and discussing the topic extensively with lectures, academic contacts and peers.
- A comprehensive study of online catalogues and databases was carried out initially to establish a core body of literature from a variety of sources, beginning with the Dublin Business School Library on-line catalogue. This was trawled first in order to gather an initial batch of literature to act as a starting point.
- Online search engines were also used in order to try and find current research that might not yet have been published.
- The first draft of the literature review was based upon this preliminary investigation.
- Further literature searches emerged from analysis of the interview findings.

2.2.1 Parameters

The parameters for the search follow those established by Bell and Waters (2014, cited in Saunders et al., 2015, p. 70):

- Language of publication.
- Subject area.
- Business sector.
- Geographical area.
- Publication period.
- Literature type.

Adhering to Bell and Water's search parameter categorisations, only English language based literature was consulted. Cultural heritage, computer science, humanities and information technology were identified as subject areas within the library and heritage business sector. Due to

the limited material specifically from Ireland, the search was broadened to the UK and North America. Initially a period of fifteen years was chosen, but this was reduced to five years when the rapid pace of development within the field was considered, as material older than five years can be regarded as potentially obsolete. In light of the speed of change within the field, online academic journals were chosen as the primary resource to be consulted, with published books considered unsuitable due to the lack of a substantial corpus of literature in published book form, and the length of time taken to reach target audiences by comparison to online journals.

2.2.2 Search-Terms

Identifying search terms is a crucial element in planning a search of the literature review (Bell and Waters, 2014, cited in Saunders et al., 2015, p. 91). In this review, the research question and objectives provided the core search terms. Synonyms and advanced search techniques such as the wildcard and truncation symbols were used, where there may be multiple spellings and various endings. Below is an example of the variety of the search terms that were used:

- Digital Collection Librarians
- Discoverability
- Digital collections
- Metadata/catalogue
- Manuscript
- Search engine optimisation
- Google algorithms

The term "Digital Collection Librarian" was removed from the list at an early stage in the literature review due to the lack of one specific term to describe the multitude of specialists in the field of digital collections, with the term primarily used in North America only (Bradley, 2007; Han and Hswe, 2010; Work, 2015).

In an effort to improve the search results, Boolean operators were employed in order to link terms together and to limit or restrict the search parameters. In general, they serve to broaden or narrow a search. For example, using the DBS library search function, without selecting subject fields and employing some of the most desirable search terms associated with this research above; whilst

using the Boolean operator 'AND' yielded 7 results (Fig. 1.). Conversely, employing some of the most desirable search terms associated with this research above whilst using the Boolean operator 'OR' yielded 20,464,213 results (Fig. 2); highlighting the careful consideration and planning required when using Boolean operators.

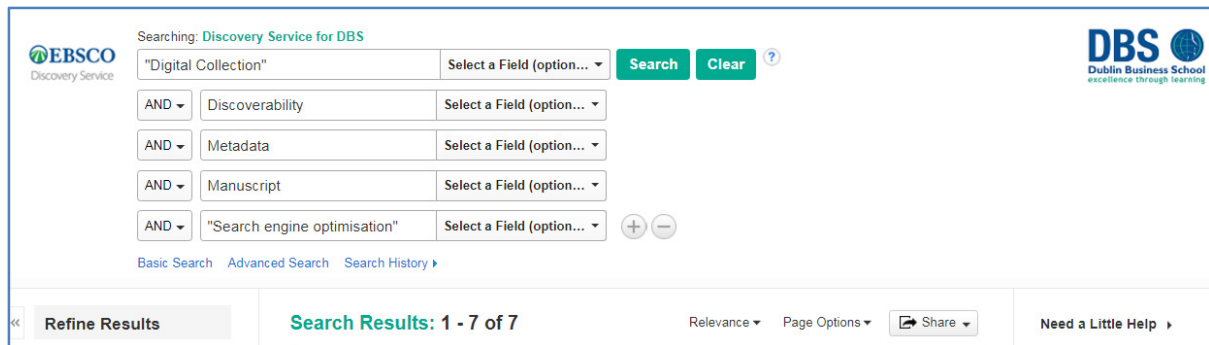


Fig. 1

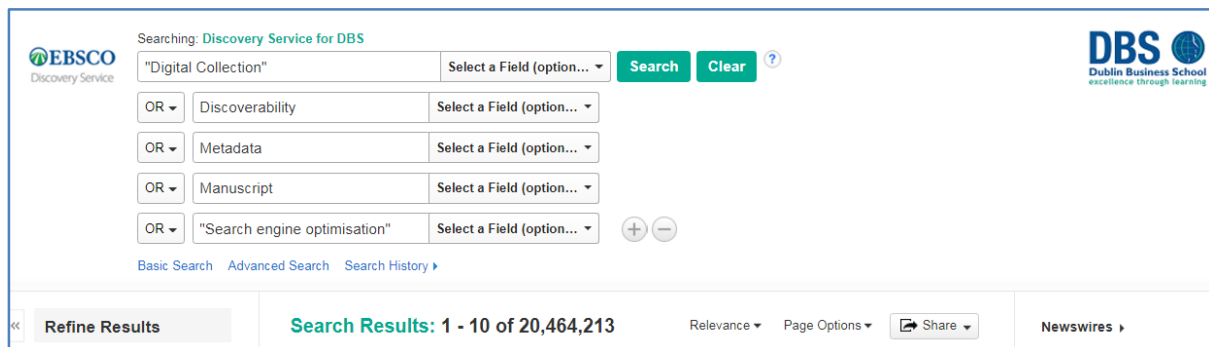


Fig. 2

2.2.3 Databases

The use of databases formed a fundamental part of gathering data for the literature review. This was primarily due to the absence of books on the subject, owing to the rapid pace of development of this field. The Dublin Business School Library catalogue was used first in order to assemble a foundation of relevant literature. The host that sits behind the DBS discovery catalogue is EBSCOhost. EBSCOhost acts as a portal to a variety of databases including some specifically related to library studies. It provides access to the Library & Information Science Source Database as well as the

Library, Information Science & Technology Abstracts Database. These databases proved extremely valuable by way of familiarising the researcher with general trends and the current state of librarianship. The database provided a broad and current general reading material that was necessary to orientate the researcher with the subject field. By using the advanced search functions within these and other such databases, the researcher was able to find pertinent and up-to-date articles relating to the research topic.

Owing to a post-graduate research background in history, other databases that are more inclined to the humanities, such as Jstor were consulted. However, they did not produce many relevant returns and was not consulted further.

2.3 The Literature

The most apparent issue faced when researching this topic was the absence of a substantial body of literature on the subject from Ireland or even the UK. While North America provided the bulk of relevant material, it is worth noting that there is copious material available from North America in relation to the individual aspects of this research such as: digitisation, metadata, search engine optimisation but there is very little material that investigates the sum of these aspects. The most relevant literature found focused specifically on the North American context; this research aims to do address this imbalance and do the same in an Irish context.

It is worth noting that an article by Le Yang entitled: "Metadata Effectiveness in Internet Discovery: An Analysis of Digital Collection Metadata Elements and Internet Search Engine Keywords" (2016) examined the issue from an American perspective. Yang was persistent in the belief that metadata was the overriding factor to digital collection discoverability. This dissertation argues that metadata is but one element in the discoverability issue. Yang's article highlights that there is a dearth in research in this area.

In light of an absence of a corpus of pre-existing literature on this topic, material of a similar nature but differing focus has been examined to provide insight and establish parameters in this study. The subject of digital collections is broad ranging and incorporates several different professions.

The key themes identified in the literature review are:

- Discoverability
 - Usability
- Quality of Metadata
- Search Engines and Systems
- Funding and Human Resources

2.3.1 Discoverability

Discoverability is the driving theme behind this research, yet there is no literature from Ireland that can be found. This dissertation intends to begin this discussion in an Irish context.

Discoverability is a significant issue at present due to the tremendous communal effort over the past 20 years across Europe and America to digitise cultural collections, such as Europeana. This revolutionary period in cultural heritage has not had the luxury of following any well-established rules and guidelines as the process is still in its infancy (Davison, 2009, p. 37). However, a result of this is that there now exists an ever-growing amount of digitised collections on-line. Many of these collections followed ad hoc procedures and as a result, standards vary wildly. This is true to such an extent that Steiner et al lament that "after digitisation, these collections are typically monolithic, difficult to navigate, and can contain text which is of variable quality in terms of language, spelling, punctuation and consistency of terminology" (Steiner *et al.*, 2014, p. 53).

There is a considerable amount of literature on the issue of discoverability of digital collections in North America (Prochaska, 2009; Hubbard and Myers, 2010; Blouin Jr., 2010). There is an awareness of the sheer amount of digitised content on-line and the increasingly pressing issue of its discoverability. There are active academic discussions by both scholars and librarians on how to increase discoverability of digital collections; such as Woolcott, Payant, Skindelién (2016), who investigated the disconnect between finding aids and digital content, and the merits of inserting digital links between the two in order to promote discoverability. More than just academic discussions however, special committees have even been established, such as the Association of Research Libraries Special Collections Working Group who's responsibility it is to advise ARL on special and digital collection issues (Prochaska, 2009, pp. 14–15).

However, there seems to be very little written about discoverability from an Irish and UK perspective. What is available is predominantly report based. It would appear that the same year in which the British Library released their ten-year strategy on digital preservation in 2006, the Irish Government commissioned a similar undertaking. The Irish Manuscript Commission (IMC) was tasked with drafting a policy document on the subject (Irish Manuscript Commission, 2007).

Experts from North America, Canada and Europe were invited to a seminar in 2007 in an effort to impart current best practices on digital policy. IMC cites Irish reports from 2007 that begin to stress the need for greater digitisation endeavours (Higher Education Authority, 2007). The Royal Irish Academy refers to a new initiative - *Digital Humanities Observatory* - which subsequently ceased in 2013 (2007, p. 2). Unfortunately the following the year brought with it the economic down-turn and many such programmes were shelved due to financial issues. Very little has been written since. The IMC, in their Strategic Development Plan 2012-2016, continue to promote digitisation of Irish material as well as aggregate for Europeana (2011).

While the UK is in the process of highlighting and taking steps to promote the issue of discoverability, a suitable analysis of the discoverability of digital collections has not yet happened in Ireland.

The Joint Information Systems Committee (JISC) along with Research Libraries UK (RLUK) and Society of College, National and University Libraries (SCONUL) conducted research across the UK's academic community in 2012. One of their primary findings was that almost 50% of all items within digitised collections are not discoverable on Google search results by their name or title (Kay and Stephens, 2014, p. 5). As a result of this JISC has embarked on a programme to try and raise awareness of the need for institutions that creates or looks after digital content to ensure that they are discoverable. Over the past few years JISC has released several reports highlighting the desperate need for the issue of discoverability and good quality metadata to be tackled (Chowcat, 2015). David Prosser of JISC and Research Libraries UK is a champion of this crusade and has been consistently raising awareness of it (Prosser, 2013) and (Prosser, 2014). Although this dissertation does not propose to try and raise the same level of awareness of discoverability here in Ireland as Prosser et al. have done in the UK; it does represent a possible, albeit ambitious, future path that this researcher could possibly take.

Based on the above, it can be argued that the literature regarding discoverability of digital collections in Ireland is meagre, if non-existent. This dissertation will be an attempt to better explain why there is a gap in the literature.

2.3.2 Usability

Literature concerning usability of special collections does not exist in Ireland, resulting on the need to rely on the perspective of the UK. Recent reports note an increase in user considerations by libraries in general in terms of physical and digital space (Appleton, 2016, p. 224) (*The value of libraries for research and researchers. A RIN and RLUK Report., 2011*). Appleton notes the current practice of ethnography which involves observing users in order to better understand their experience (Appleton, 2016, p. 224). Libraries then attempted to incorporate these observations into meaningful changes that will benefit users. However, these considerations do not yet appear to have filtered down to the library's digital special collections. Appleton's references to practices in North America demonstrate that the US is still viewed as leading the field. For that reason, this literature review made use of several reports originating from North America, which commented on the lack of investigation into the issue of poor usability of digital collections.

Usability is a common theme with regard to internet websites but not concerning digital special collections (Dowell, 2008, p. 18). Dowell highlights the issues that digital collections presented in 2008 and many of which still exist today. She notes some of the diverse, and user discouraging, resources that digital library special collections exhibit: "descriptions of manuscripts, finding aids in HTML or PDF formats, Encoded Archival Description findings aids, short-tide lists, and home-grown databases" (Dowell, 2008, p. 18). Dowell considers issues facing users such as: how navigable is the special collections site, how easily can they find the information they require and whether users understand the terms and vocabulary that are used by libraries when referring to rare books and manuscripts (Dowell, 2008, p. 18).

Dickson iterated this in 2008, by commenting on the advances in digital library technologies that aim to provide better access to special collection - she noted that: "the evaluation of the usability of these technologies has not kept pace with technological developments, however, and the end-user has in some cases been left behind (Dickson, 2008, p. 339). Dickson's review of the literature in 2008 noted that there is a "dearth of interest" in how digital library systems and tools "perform with the actual users for whom they were developed" (Dickson, 2008, p. 372).

Unfortunately, there does not appear to have been much change since 2008 and the literature is still devoid of this kind of usability study.

Dickson's work was, and still is beneficial, as it provided a snap-shot of current practices by examining the digital collection management system in the University of North Carolina to determine if:

- The system met user needs?
- The interface was intuitive?
- The experience exploring the digital collection satisfying?

Dickson's main finding was that, although the digital collections were useful and desirable, the system was confusing even for those with "considerable experience using the internet" (Dickson, 2008, p. 339). Dickson also made recommendations that "links to digital collections should be accessible from other pages" and "there should be more than one point of entry to any given digital collection (Dickson, 2008, p. 372). These issues were echoed in this research's interview finding and shall be discussed in chapter five.

Both Dowell (Dowell, 2008, p. 181) and Dickson (Dickson, 2008, p. 373) stress the need for user consideration when special collection websites are being constructed.

Recent examples of conscious promotion of usability in the literature is limited. However, what is available appears to be heading in the right direction. Cusworth et al. commented on the National Library of Wales actively trying to promote the usability of a digital collection of Welsh wills (Cusworth *et al.*, 2015, p. 246). Basic metadata, including parish, date and testator, have been added and linked to document images, allowing users to search and view over 190,000 wills (Cusworth *et al.*, 2015, p. 246). There is also active encouragement by the NLW to have this digital resource used and investigated by researchers and the community (Cusworth *et al.*, 2015, p. 246). Cusworth et al. summarise what a digital collection should aspire to be:

"To be valid and essential, digital delivery of special collections must form the basis for an enriched and alternative engagement with content and offer research opportunities not available through using the analogue original on its own" (Cusworth *et al.*, 2015, p. 242).

This statement about what a digital collection should be is one of the more pertinent that has been uncovered in the literature review. The reason being that the statement is based on the usability of the collection, rather than digitisation for digitisation's sake - as appears to be the case with many projects.

2.3.3 Quality of Metadata

Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use or manage an information resource. It is "key to the functionality of the systems holding the content enabling users to find items of interest, record essential information about them, and share that information with others" (Riley, 2017, p. 2).

The quality and role of metadata to digital collections is quite a common theme (Davison, 2009; Jung-ran Park and Tosaka, 2010). The importance of metadata in relation to information discovery on the world wide web has received much focus over the past two decades (Yang, 2016). Metadata's importance does not appear to be in question – but the extent to which it is used in digital collections is. There currently exists a divide between the traditional library attitude of good level cataloguing and the more modern practical and realist approach that metadata must be compromised if librarians are ever going to process, digitise and make available the astonishing amount of special collection materials that exist around the world.

Erway and Schaffner (2007, p. 4) advocate making compromises on image resolution as well as detailed metadata. They suggest that high-level descriptions are better than no on-line collection at all. Their primary reason for this is access; and they conclude that when it is known what collections are most popular, more resources are put into re-visiting that collection. Although Erway and Schaffner's reasoning appears sound, their method could be perceived to be flawed on two accounts. Firstly, with poorly detailed metadata, the collection might not be found at all and it will thus be difficult to determine if it is popular or not. Secondly, with institutional resources alarmingly thin in general - the likelihood of staff being allowed to revisit a digitised collection is remote. However, Erway and Schaffner offer a very real new direction as to how digital collections could be catalogued. So much so, that the ARL Special Collections Working Group have to stress and make recommendations that "there should be no digitization without metadata" as "discovery, that

primary function of research in special collections, is not possible without description and guidance" (Prochaska, 2009, p. 23).

From an archivist's point of view, Zhang and Mauney would caution the approach of Erway and Schaffner, and would argue that standards should not be compromised when attempting to combine archival description with descriptive metadata (2013). This debate is relatively new as Zhang and Mauney note that very little literature exists that discuss the relationship of archival description and descriptive metadata of digital material (2013, p. 174).

Erway and Schaffner appear to be subscribing to MPLP, or: More Product, Less Process as defined by Greene and Meissner (2005).

Greene and Meissner issued a challenge in 2005 for archivists to stop being so meticulous in their cataloguing and to start rapidly churning out material - challenge that remains in current debate (Sutton, 2012). Greene and Meissner argued that "cataloguing is a function which not working" and in order to make it work, radical steps must be taken by way of changing how cataloguers operate (2005, p. 254). This view would run contrary to Windnagel who states that: "the success of a digital repository depends, in large part, on the quality of its metadata" (2014, p. 77).

Greene and Meissner's practical suggestion goes against the very nature of the archivist whose job requires a meticulous approach.

This dissertation would agree with Greene and Meissner's reasoning but also urge caution. Although more collections do need to be digitised, procedures must be standardised in order to make the digitisation process worthwhile and discoverable so that it can be used. The implementation of creative techniques such as Crowe and Meagher's experiment at Denver College provide good foundation techniques should an institution subscribe to Greene and Meissner's theory. Crowe and Meagher (2015) detail how the librarians at Denver College teamed up with technical specialists in an effort to develop subject-based access to large groups of items. This new technique allowed the digital collections librarians to use a metadata template which would attach to a batch of digitised items and automatically input basic data. This would then allow the librarian to input more detail information on each item - in theory, at least. Crowe and Meagher admit that this did not guarantee a high quality of metadata but it did guarantee basic level which level that is significantly more than most collections receive.

This sort collaboration between librarians and technical specialists is the kind of forward thinking that was outlined in the JISC report (Kay and Stephens, 2014).

Similarly, there are other similar creative ways in which the issue of metadata quality can be addressed. Harvey et al (2017) examine the concept of inputting metadata considerations into repository design. The key with this and the example above is that it is trying to take the more mundane aspects of metadata entry away from the librarian so that he/she can concentrate on inputting high-end and detailed metadata.

Such attempts at standardisation are actively being encouraged by the Digital Repository of Ireland (DRI), which is a consortium of Irish institutions established in 2011. The DRI conducted an extensive survey of cultural institutions, libraries and higher-education institutions to determine their digital preservation and access practices (O'Carroll and Webb, 2012). The DRI have since been promoting digital preservation and open access by way of publications relating to metadata best practices (Bustillo, Cassidy, et al., 2016) and metadata guidelines (Bustillo, Grant, et al., 2016).

There are other bodies within the UK that are concerned with quality metadata. Keinan-Schoonbaert and Lewis (2015), who were leading a digitisation project of Hebrew manuscripts in the British Library, created rich metadata for each individual item that was digitised. This good quality descriptive metadata included "technical characteristics, intellectual property rights and relationships between images and record digital preservation information" (Keinan-Schoonbaert and Lewis, 2015). This effort to attach quality metadata to digital collections is linked to providing global access to these cultural resources. However, caution should be urged when taking examples from well-funded bodies such as the British Library, as they set unrealistic standards for smaller, less well-resourced institutes.

Much of the debate on discoverability appears to hinge on the quality and amount of metadata that is employed in digital collections. The interviews suggested that this is not necessarily the case and that discoverability cannot be pinned to metadata alone. Some of the literature would reflect this with institutions developing creative ways to increase discoverability other than their use of metadata. Galloway and DellaCorte (2014) undertook a project at the University of Pittsburgh

whereby they edited the digital collection's items on Wikipedia. By locating a Wikipedia page dedicated to one of the college's digitised items, Galloway and DellaCorte added hyperlinks that would bring the traffic from Wikipedia back to the college's digital collection homepage. This illustrates one of the findings this dissertation - metadata is not the only cause of, nor is it the only solution to discoverability.

Some authors have examined the varying quality of metadata with regard to different groups of users such as: researchers and the general public (Agosti and Orio, 2012). This will form a question for this research's interviews and censuses. Namely, do digital collection librarians differentiate between both groups when they are applying metadata? Do they use specific and narrow terms that a research is likely to know or do they use broad terms that will allow for members of the public to find the item?

2.3.4 Search Engines and Systems

The importance of search engines to digital collections and in particular medieval Irish manuscripts is beyond question. Search engines do not appear to be viewed as a primary concern by libraries and other institutions that maintain digital collections. These institutions collectively spend millions of euro and dollars developing websites and digital repositories but "optimizing for search engines is too often an afterthought and makes digital library use a fraction of what it could be" (Arlitsch, O'Brien and Rossmann, 2013, p. 177). Search engine optimisation generally tends to be a "disjointed and unproductive program that is viewed as a limited domain rather than a primary concern of the entire organization" (Arlitsch, O'Brien and Rossmann, 2013, p. 177).

This literature review has focused on Kenning Arlitsch, Patrick O'Brien and various collaborators with regard to search engine optimisation and digital repositories due to their extensive research into the area; and also to the lack of other similar literature by other authors. This research was due to a very farsighted grant by the Institute of Museum and Library Services that was bestowed on the aforementioned authors. The grant came about after the realisation that ten years of digitisation at the University of Utah had resulted "in a large corpus of material that was barely indexed by common search engines, and thus not easily discoverable to the majority of internet users" (Arlitsch and O'Brien, 2017, p. 947). A project with similar origins but with a far larger scope was

conducted by JISC in 2012-2013. One of their primary findings was that: "nearly half of all items within digitised collections are not discoverable via major search engines by their name or title" (Prosser, 2014). Any similar sort of survey has not happened in Ireland.

The issue of closed systems was raised in both the literature and interviews. Discoverability of digital collections is hampered by institutions holding onto the material and denying search engines and aggregators access to the content. Erway and Schaffner propose that the emphasis should not be on distributing the material but to make it "harvestable, collectible, and indexable by others who are more successful at reaching broad audiences" (Erway and Schaffner, 2007, p. 7). Arlitsch et al. agree that search engine crawlers should be able to navigate repositories without "running into design, metadata and systems barriers that negatively impact index ratios or rankings in search engine results pages" (Arlitsch, OBrien and Rossmann, 2013, p. 177).

A common perception found in the literature and the interviewees is that very few people truly understand how search engines actually work. This is due in part to search engines providers not wishing to divulge their intellectual property. However, Arlitsch et al. state that: "slow websites, over-use of graphics, dead links, and poor-quality content or redundant metadata" are some of the reasons that search engines choose not to send users to a particular site (Arlitsch, OBrien and Rossmann, 2013, p. 177).

Google do however, on occasion, give indications and recommendations as to how best to increase a websites rankings. In 2015 Google announced that it would begin to favour websites, in its search results rankings, that use the secure hypertext transfer protocol (Askey and Arlitsch, 2015, p. 49). The reason behind this was security based. However, Askey and Arlitsch ponder if libraries will heed this recommendation due to similar ones being ignored in the past (Askey and Arlitsch, 2015, p. 49). In 2008 Google announced that it would no longer support Open Access Initiative Protocol for Metadata Harvesting as it was not worth the return. Askey and Arlitsch concluded that digital repository managers who "relied on OAI-PMH to get their metadata into Google's index" either ignored or did not notice the announcement until on-line traffic to the repository began to suffer (Askey and Arlitsch, 2015, p. 49).

As can be seen above, search engines are a life-line to libraries and their digital collections. However, their importance does not appear to be a high priority for many libraries. This also seems to be the case within an Irish context, as there is no literature on the subject. To neglect this aspect of on-line discoverability appears to be a wasted opportunity for libraries to draw in audiences.

There are other elements to this topic. Search engine providers such as Google also supply tools, which have the potential to greatly aid digital collection managers. Google Analytics can be used to identify the collections that generate the greatest traffic. Biswas and Marchesoni argue that evaluating this data is important for decision making regarding digital collections, and how to better serve the needs of users (Biswas and Marchesoni, 2016, p. 19).

2.3.5 Funding

Funding is both the lifeblood and the bane of digital collections and it would warrant an entire study in its own right. However, it is beyond the parameters of this research to comprehensively analyse the topic of funding for libraries and digital collections in the literature. Rather, consideration will be given to funding during the interviews. This research will use that information to reflect on how funding impacts on the work of the current practitioners who will be interviewed.

There are many aspects to funding found in the literature. It is accepted that that funding is ever dwindling. A common theme is for librarians to spend what little resources they have more wisely: "before we are forced to do less with less, we should try and do more with the same" (Green, 2011). For this reason, Nichols (2011) flirts with the idea of cataloguers and archivists merging professions - something that would have been unheard of previously. Other libraries may seek to generate income from elsewhere and begin to charge "licensing or use fees" when patrons publish works concerning special collection material (Light, 2015, p. 48). As Light argues however, this act can actually hinder the "progress of our culture" (Light, 2015, p. 58).

This research will look at a particular aspect of funding that presented itself in the literature (Erway and Schaffner, 2007) but more so in the interviews: that funding allocation - and indeed the mentality behind it - needs to change. Grants must stop being awarded for stand-alone digital projects; instead, long-term funding for digital programmes is required so that digital collections can grow and evolve rather than being a snap-shot in time on a forgotten webpage or repository.

2.3.6 Conclusion

Due to the severe lack of literature in Ireland, this research was compelled to search further afield in order to be able to fully engage with the subject of on-line discoverability and digital collections. However, the focus of this research is on medieval Irish manuscripts so caution must be used when referencing literature from North America and the UK. The relevance of such literature has limited application to Ireland. Thus, it will only be used in so far as it enables a better understanding of digital collections in general that can then be applied to medieval Irish manuscripts. International literature will be used in order to draw-out general themes which will then be used to form the basis of the interviews that will be conducted. These interviews will be essential in generating original data that is relevant to digital collections and medieval Irish manuscripts. Thus, this research will address the gap in the literature and bring the discussion of discoverability of digital collections into an Irish context.

Chapter 3 - Methodology

3.1 Introduction

The term methodology is used to specify the theory of how this dissertation's research was undertaken (Saunders et al., 2015, p. 4). The methodology will follow an inductive approach which allows for alternative explanations to be derived from the data during the process (Saunders et al., 2015, p. 147). Unlike a deductive approach, it does not conform to a ridged structure or framework (Saunders et al., 2015, p. 147). This approach allowed the dissertation to explore and evolve with the data it revealed through the literature review and the interviews.

The research philosophy will be put forward and critically evaluated. The research approach will then be stated and justified. The research strategy will then be explored stating the appropriate methodologies and rational for their choice. The population and sampling will be stated including sampling techniques and sample size. The process of data collection, data editing, coding and analysis will be explained, followed by ethical issues and procedures. Finally, the limitations to the research will be described.

The methodology has been an iterative process during this research. The relevant sections below will discuss how they have been altered during the research.

3.2 Research Philosophy

Brown states that "research is the process of systematically gathering and analysing or interpreting information in order to gain knowledge and understanding" (2006, p. 18). How one gathers, analyses and interprets that information is based, on some level, on a type of research philosophy. The philosophy that is employed in research leads directly to the research strategy, methodological choice and data collection techniques (Saunders et al., 2015, pp. 124–125). After exploring and considering various research philosophies such as positivism, this research deems that interpretivism will best suit the approach of this dissertation.

This research does not seek to revisit established facts or redefine theories - thereby excluding positivism – instead looking to investigate and create new data relating to social and interpersonal aspects of this area. This is the essence of modern interpretivism as confirmed by

Saunders et al to: "create new, richer understandings and interpretations of social worlds and contexts" (2015, p. 140).

Interpretivism has its roots in Max Weber's *Verstehen* which describes sociology as a "science which attempts the interpretive understanding of social action in order to arrive at a causal explanation of its course and effects" (Bryman, 2012, p. 29). This is the core of what this research is trying to achieve, through understanding the conduct around the digitisation of medieval Irish manuscripts and their current undiscoverable state.

The first philosophy was subconsciously employed before the research began in earnest. The researcher engaged in axiology through the very act of choosing a research topic. Axiology concerns itself with values and ethics throughout the research process (Saunders et al., 2015, p. 128). A researcher being guided to a topic by his/her own values is fundamentally axiological. However, this research endeavours to be unbiased so any further axiological practice will not be consciously pursued.

An interpretivism approach is essential for this research, as qualitative methods will be used. These methods will draw rich insights from the individuals who will be interviewed. An understood disadvantage of interpretivism is its subjective nature, which can lead to research bias. In order to counter any such bias, elements of reflexivity will be employed. Being reflexive entails "reflecting on how the assumptions of our background discipline have prompted us to create a particular version of reality through our research" (Cassell and Symon, 2004, p. 6). This approach is vital for this research as the interviewees are from varying disciplines, including: librarianship, academia, information technology, engineering and business. The inability to recognise the influence of one's disciplinary background can lead to the researcher subconsciously making people fit into their discipline; thereby denying other meanings and interpretations (Cassell and Symon, 2004, p. 6).

3.3 Research Approach

Having outlined the research philosophy, this proposal will now delve into the approach that this dissertation will take. Detailing this approach is significant, as the style of approach will impact

directly on the methods that will be employed in this research. The two accepted forms of approach are deductive and inductive, which will be considered in light of the scope of this research.

A deductive approach involves formulating a theory or a hypothesis and then conducting research to prove said theory/hypothesis. Alternatively, an inductive approach involves investigating a topic with objectives and the expectation that meaningful data will present itself and allow the researcher to construct a theory based on said data.

As deduction is "a form of reasoning in which the conclusion must necessarily follow from the reasons given" (Cooper and Schindler, 2014, p. 655), it is beyond the capacity of this research to infer hypothesis. This dissertation will thus present multiple objectives in an effort to arrive at conclusions through the process of analysing the data gathered and experiences learned throughout the dissertation. Taking this approach will lead this research to its conclusions by inductive means.

By using an inductive approach, this research is prepared - if not expecting - some of the objectives to change as a direct result of the data collected during the dissertation process. The inductive approach allows the researcher greater flexibility by seeking to find special meaning in and between the data and the research participants (Saunders et al., 2015, p. 571).

Notwithstanding the above, it is worth noting that this dissertation cannot claim to subscribe entirely to the inductive model. A true inductive approach would lead the researcher to begin collecting the data and then to analyse it in an effort to find issues and themes which in turn could be further investigation (Saunders et al., 2015, p. 570). However, this research came into existence through deductive means. Hypotheses were formed which in turn led to the creation of the research question. It was only through suggestions from the Research Methods lecturer and investigations of research approach concepts that it was decided to pursue an inductive model. Objectives were extracted from the hypothesis as it was realised that the research was in its infancy and not in a position of authority to deduce on the specifics of the topic. This was a beneficial evolution for this research as the initial deductions enabled solid objectives to stem from the proposed hypothesis.

3.4 Research Strategy

During the proposal stage of the dissertation it was decided to utilise pluralistic or mixed-methods, making use of both quantitative and qualitative research methods. The strategy was based on the understanding that there were relatively few Irish institutions conducting digitisation projects concerning medieval Irish manuscripts. It would therefore be achievable to try and survey all the Digital Collection Librarians in said institutions. The proposal then anticipated that 3 to 5 interviews with senior individuals in selected institutions which would provide in-depth views and opinions that surveying is unable to acquire. During this stage, the researcher was aware that mixed-methods are not universally accepted and are, in fact, discouraged by some authors. Highlighting the main arguments against mixed-methods, Bryman (2012, p. 629) argues that the two methods are irrevocably rooted in their respective epistemological and ontological fields and there is no credible way to combine the two. He views both methods as paradigms, impossible to merge these concepts with epistemological values and methods.

Having considered these potential pitfalls, the proposal still intended to objectively and carefully utilise any aspect of any method that would advance it. It was for that very reason that the methodology changed during the dissertation. Pluralistic methods were originally chosen as it was believed that they offered the best opportunity to gain a full understanding of the intended field. Upon realisation of the difficulty/issues of surveying Digital Collection Librarians as discussed in section 3.5, it was decided to pursue a purely qualitative approach in order to gather as much information as possible to fully understand the area.

Another reason to pursue purely qualitative methods was the lack of source material from Ireland. Quantitative methods such as surveys would not offer the opportunity to explore the respondent's views and opinions. Only through interviews can the insights of current practitioners be fully mined and explored. This was proven to be correct as the initial interview questions evolved slightly over the course of the 11 interviews due to interviewees' comments. The changes were slight but fundamental. The focus shifted from perceived purely metadata driven issue to one of indented audiences and the creator/user divide, which will be discussed later on.

This research deems it essential to conduct interviews in an effort to better understand the topic from the point of view of several authorities, combining the practical experiences of digital collection specialists with theoretical analysis of the subject.

The interviews will not be highly formalised or rigidly structured, using semi-structured interviews. This typology, which uses themes and some key questions, allows for flexibility and natural exploration of the topic between the interviewer and interviewee.

Highly formal interviews would usually be used in order to gather data for quantitative analysis (Saunders et al., 2015, p. 392), while unstructured interviews require the interviewer to possess significant knowledge of the topic and with no pre-scribed questions, the interviewer must be confident in his/her ability to orchestrate an in-depth discussion with the interviewee. At present the interview structure will broadly resemble the hitherto stated objectives. Future discussions with the dissertation supervisor will help to configure the interview structure more appropriately as said supervisor will be a peer of the interviewees.

3.5 Population and Sample

This section is yet another example of the iterative process of this dissertation. During the proposal stage, it was believed that there was a clear population and sample. Digital Collection Librarians had been identified and it was believed that they were employed by all the relevant institutions that were to be examined. Researchers and the general public were not thought to be particularly relevant to this study as the research question examined *why* the public and researchers cannot locate digital collections. It was believed that the question could only be answered and explored by the individuals who created the digital collections. It was also believed that Digital Collection Librarians could be surveyed as a collective and easily identifiable unit of professionals with a similar background.

As stated in the Literature Review: this notion of a designated role of Digital Collection Librarian was quickly expelled by the dissertation supervisor. Upon realisation that the position was made up of many different specialists originating from different education and career backgrounds, it was decided that these individuals must be interviewed as their unique experiences could not be captured by a generic survey.

In order to determine what sample should be chosen that would best represent the broadest range of opinions, a sampling frame was first required. A sampling frame is a complete list of all cases in the population (Saunders et al., 2015, p. 727). The sampling frame must be complete, accurate and up to date (Saunders et al., 2015, p. 277). This sampling frame was constructed by researching all the universities and institutions that engage in digitising collections of cultural significance and in

particular manuscripts. The frame also included institutions and individuals who promote best practice. Constructing the sampling frame began with identifying the well-known universities that publically promote their digital collections of manuscripts.

A list of 23 individuals spanning 12 institutions was selected; this was distilled to the down with the aid of the research supervisor. Where several individuals were identified in the same institution, their positions and roles were varied. For example a software engineer, digital archivist and a director were chosen from a known institution as their experiences of digital collections would be varied. It was also decided to cherry pick some individuals that had created extremely good digital collections, in an effort to have examples of best practice.

The inclusion of academics was a fundamental addition to the research as they are the primary users of digital collections. For the purpose of anonymity, the names of the interviewees and the institutions they work for have been removed. However, in order to reflect the cross-section of professionals that have been involved in this research, a list of their professions - in no particular order -is as follows: metadata librarian, metadata practitioner digital archivist, digital administrator, digital data curator, professor of computing, digital resources specialist, cultural heritage officer, historian, academic and scholar.

3.6 Data Collection, Editing, Coding and Analysis

Data Collecting

Data collection was conducted by way of interviews in a qualitative fashion. 11 interviews were carried-out, 8 of which were reordered with the interviewees permission for the purpose of note taking. The interviews were transcribed within 24 hours of their completion and the recordings were deleted. Recording was not possible for two of the interviews due to technical difficulties prior to the interview. One interviewee submitted answers by way of e-mail as a meeting and a phone-call was not practical. A choice was offered to all accepting interviewees of a face-to-face meeting or a phone call.

The majority of the interviews lasted the intended 30 minutes but two interviews lasted one hour. Attention was drawn to the extended time as the researcher did not wish to take advantage of the interviewees but in those two cases the interviewees were happy to continue the interview.

The interviews consisted of 9 questions, each with several sub-questions to act as prompts if required. A conscious decision was made to ask the same questions of all the interviewees rather

than to tailor questions for each interview. A result was that some questions did not apply to some individuals. For example, a question on Government funding may not have been particularly relevant to a cataloguer. However, the researcher hoped to gain an insight into each interviewee's opinion on digital collections as a whole and thus the questions were broad ranging.

Editing

As stated above: transcription of an interview was undertaken with 24 hours after the interview itself. For those that were not recorded, the interview notes were reviewed and expanded upon immediately after the interview. When all the interviews were successfully conducted, they were represented by 11 separate word documents.

A master document was created with the 9 interview questions listed. Under each question was inserted the relevant answer by all interviewees. Thus, for each question in the master document there was 11 responses. However, some responses were simple 'N/A' as the question was not applicable to the interviewee.

Some interviews did not require many prompts and addressed many of the questions out of order of the interview format. This was by no means a negative; in fact it was the intention of the interview to encourage a free-flowing discussion.

For the purpose of anonymity all interview names were removed and replaced with L1, L2, L3 etc. 'L' stands for 'Librarian', even though several of the interviewees were not librarians. All institutional and place names were also removed lest they convey the identity of the interviewee. In place of institutional names, the word 'institution' was inserted. Where specific projects were mentioned, the word 'project' was inserted. Particular statements, regardless of the level of editing, that clearly identified an individual or an institution were removed. A version of the original transcripts with identifying information was retained and made available to the dissertation supervisor, should they be required.

Coding and Analysis

The approach to coding and analysing was conducted in unison and was thematic in nature.

The research question and objectives were instrumental in reducing the amount of time it required to code the transcripts. Having a defined question and objectives allows a researcher to code only the data that relates to said question and objectives (Saunders et al., 2015, p. 582). Without the aid of a defined question and if using a purely inductive approach, a researcher would be required to code every piece of data before a specific research focus presents itself (Saunders et al., 2015, p. 582).

Coding was conducted on the master word document that contained all 11 interviews. The act of cutting the relevant sections of the interviews and pasting them under the appropriate questions was a form of high level coding. All 11 interviews were given their own colour so that even when they were spliced between 9 questions, they could still be identified.

Familiarity of the data was deemed essential so each interview was read several times. The amalgamated interviews were then read twice with themes noted. Each question was then read with all the amalgamated answers. Again, notes/themes were taken. This process is called funnelling which adheres to the objective of coding: to "rearrange your original data into groupings for the next stage of analysis" (Saunders et al., 2015, p. 582). This constant distilling of information allowed the researcher to narrow down the most pertinent themes.

3.7 Ethical Issues and Procedure

The issue of ethics is of substantial concern for modern academic research (Bryman, 2012), (Saunders et al., 2015). Cooper and Schindler state that the purpose of ethics in research is to "ensure that no one is harmed or suffers adverse consequences from research activities" (2014, p. 28).

There are several acknowledged stances on ethics. This research will only conduct itself according to a Universalist stance; whereby "ethical precepts should never be broken" (Bryman, 2012, p. 133). The other stances, which on some level call into question ethical conduct are 'situational', 'ethical transgression is pervasive' and 'deontological versus consequentialist ethics' (Bryman, 2012, p. 134).

This research will carry out its investigations, collect data and present its findings whilst adhering to a high degree of honest ethical standards.

A by no means exhaustive list of broad ethical criteria will follow as taken from Sue Greener (2008):

- Honesty and avoidance of deception
- Following the ethical codes of Dublin Business School
- Full disclosure of the purpose of the study and the researcher's role and status
- Not to cause harm (including embarrassment, stress, discomfort, pain) by any action or omission of the research
- Gaining informed consent to participate
- Respecting participants right to refuse to take part at any stage
- Respecting participants need for anonymity and confidentiality
- Maintaining objectivity during data collection, analysis and report stage

In order to implement the above: detailed e-mails were sent to all the potential interviewees explicitly detailing who the researcher was, the research in question, what the interviewee was being asked to do and the structure of the interview. After the interviewee agreed to participate, consent forms were issued which required the interviewee to review and sign.

3.8 Conclusion

The methodology discussed above is the most appropriate style of research to achieve the aims of this dissertation. Due to the severe lack of literature on the subject, interviews are essential in gaining an understanding of the field. Thus, an interpretivist approach to the interviews is crucial as the information presented will be new and the researcher must keep an open-mind when exploring and analysing original data. Following an inductive approach will allow this research to evolve with the data and find special meaning between it and the interviewee. The lack of literature determined that the research strategy would have to be qualitative in nature; in order to gather and explore the views and opinions of current practitioners. The above approach will enable this research to tackle the its stated aims as comprehensively as possible.

Chapter 4 - Findings

4.1 Introduction

This chapter will simply present the findings of the interviews. The 11 interviews, when transcribed, came to just under 30,000 words. The following findings are deemed to be the most pertinent views and opinions that were presented and which best address this research question. A discussion of the findings will take place in the following chapter.

4.2 Findings

During the interviews, the majority of the nine questions posed were interrelated. Four major themes were identified, some having several sub themes. They are as follows:

- Discoverability
 - Intended Audience
 - Usability
- Metadata
- Search engines and Systems
- Human Resources and Funding

A note on Digital Collections.

All 11 interviewees concurred that the reasons for digitisation of cultural heritage were access and preservation.

The matter of access was identified as one of the key issues mentioned by interviewees, who highlighted the importance of helping researchers access material regardless of where they are in the world. L10 also comments on the speed of access that digital collections allow. L2 noted that while archives are still very important, "research has moved out of the physical archive" and digital collections are "opening research up to a whole host of new kinds of researchers". L4 stated another reason for the importance of digital collections being the act of "digital re-unification" where a dispersed physical collection of cultural heritage can be reunited in digitised format.

With regard to the importance of preservation L1 commented that it is: "not just saving on hard drive but continuous integration and integrity of the data over the long-term and into the foreseeable future. Maintaining the data but also the context around the data." From a conservation point of view, L3 draws attention to the "time and energy spent on conserving them so that they survive in their original state". L3 advocates to "minimise handling and control the environment", thereby enabling a "better return in investment".

From a scholarly stance, L6 commented that digital collections have "revolutionised" work that can be done on medieval manuscripts. Whilst remaining in the office, a researcher can examine the hand of a particular scribe through a collection of manuscripts that are spread over several countries. L11 notes the use of digital collections for teaching purposes but also stresses the importance of using the original manuscript in order to get a sense of it – one that escapes the digitisation process. L8 notes that libraries are also "getting demands from people around the world to digitise specific collections for funded research where travel is not part of that funding."

4.2.1 Discoverability

The question of discoverability was a broad one and raised several sub-themes during the interviews. On the face of it, this question largely resulted in two answers; the first, concerning digital collection in general, which had very mixed responses; the second related to the discoverability of Irish medieval manuscripts, which was more commonly acknowledged.

When asked if there was an issue with the discoverability of digital collections in general there was a varied response. L1 supposed there was on the basis of collections being submitted to a digital repository but also noted that some contributors may just be using the repository for its preservation element. L2 did not think there was a major issue with discoverability of existing collections "given the kind of money that has gone into" them but said there was a real issue with "making archives into digital format". L3 and L7 agree that there is an issue with discoverability of digital collections and point to the difficulty that new researchers have in finding material. With regard to finding material, L3 states that "so much of it comes down to luck than you would like to think" and L7 noted the necessity of being pointed in the right direction and word of mouth. L7 also comments on the difficulties of inter-disciplinary research: "Your own research interests are setting

your own research parameters and research boundaries". As established scholars, L6 and L11 confirm the above by recognising their existing knowledge of databases and repositories that they have built-up over many years of academic work. L6 states:

"I will know where to find things but on-line resources don't necessarily teach you that. You still have to go through your catalogues – if the catalogues are on-line well and good – you still have to go and trawl your way through manuscripts and sources to build up that knowledge. It cannot be done overnight - on-line, digital or paper – to be a scholar that's what you have to do. That's how you build it up."

Intended Audience

The discoverability of digital collections "depends on who is looking for them" (L10), or, the intended audience. There exist two very distinct types of audience that have very different needs: scholars/researchers and general public. L6 draws this distinction quite clearly:

"The British Library have very fine on-line public access material which is what the public is looking for but that is quite different to what a scholar is looking for and we have to make that distinction always."

As special collections are undoubtedly academic in nature, special amendments are required in order to make them accessible to the public. L1 notes how repositories may build exhibitions on top of existing collections that are more "public facing to create a more friendly exhibition space". By way of accessing the audience for their digital collections, L4 cites the Open Archival Information System - a "model for setting up theories and policies in digital libraries". L4 states that [college's] "primary community is scholars and academics and secondary community is the world". L4 continues and points to the "collection profile document" which is used to profile a new digital collection in order to determine what audience the collection should be aimed at. Once the audience is identified, the collection is tailored "in terms of metadata and services".

L8 draws attention to what is a "suitable level of access" for the general public and the academic community: "a gallery of highlighted illuminations from the Book of Kells would be more than

enough. But for a scholar you want the entire volume." The intended audience also directly affects how a collection is built. L7, speaking about the database of physical sites relating to cultural heritage which had a "tourism, schools and scholarly focus", noted that "as the project has gone on we have been told that it is not academic enough". Due to this change in audience, the project will develop an additional level - "a lower section, a deeper section for scholars".

L8 echoes this by giving an example of the 1641 Depositions and varying levels of structure that are required depending on the audience:

"If you were presenting that project to school children you wouldn't want them reading about rape, murder. You would want to give them a broad base of what happened culturally, you know a lot of fighting and a lot of bad things but you would not want to go into the details. With college age you would need more detail and need more structure, more templates. With advanced research you would not want templates, you would want all the detail and in its free form where a person has to do the work to determine what they want to organise to make those decisions."

When considering the intended audience, a certain level of skill is still required to access collections. L10 states that although there is a lot of information on-line for the public, "in general, researchers are going to be better equipped to dig out what they are in interest in as they have got post graduate training". In agreement with this statement, L3 notes that "early career researchers or the public ... don't necessarily have the skills to lead them to it".

Usability

Once discoverability is achieved, it is a matter of being able to use the material. Usability is an "absolutely enormous problem" for the scholars who were interviewed (L11).

"Usability should be at the beginning [of the digital collection process] because everything should be designed around how the user gets it; and if you pushed it the end, then you haven't been planning it the whole way through." (L11).

L11 continues: "you have to understand how people use it to be able to design a system for them to find it". L11 puts this down to librarians having a "very different way of organising material" which makes it difficult for other professions, such as scholars, to locate said material.

Just as the issues of discoverability, intended audience and metadata demonstrated that two very distinct needs exist for the scholar and the public - the issue with usability is perhaps even more difficult with general public. The comments of L3 could perhaps be seen to support the above notion that usability is not foremost consideration of digital collection creators. L3 expresses reservations about all digital collections being discoverable:

"if tomorrow everyone could discover all Irish manuscripts in digital form on-line, you would have a lot of question about script and language, about how to understand those texts in their context. There is a lot of other elements other than discoverability. Discoverability is very important but you need to be able to use [the material]".

L3 gives examples of providing the public with images and data but "they don't know what to do with it; they will look at it and leave it as it has no meaning for them. They can't connect it with something else or build something with it". L3 concludes that "some stuff is just not for the public; [it] doesn't need to be out there". L8 agrees with this and suggests that "if you are exposing the general public to Irish manuscripts it needs to be done in a very different way [to how an academic would use it]". L8 maintains that in order to enable the general public to successfully engage with Irish medieval manuscripts, something like the Trinity Science Gallery would need to be developed. L8 comments that the Science Gallery has done a great job of "straddling the divide" and "at crossing boundaries and making things interesting for everyone".

L8 explains that "something like manuscripts is exponentially more difficult [to make accessible to the general public] because of the nature of it. It is in a language that most people can't read, it is handwritten rather than typed, it is old and fragile - you can't touch and fiddle with it. Usually they are about the bible or something that is less accessible for most people in many ways". However, L8 concludes that the public are interested in manuscripts and cites the Book of Kells exhibition. L6, speaking as a scholar, explains that highly decorative manuscripts such as the Book of Kells needs to be viewed as separate from other manuscripts.

"There is no hunger for manuscripts. We have to accept that as scholar . . .we think that everyone is as enthusiastic as we are. [What are the] chances of the public wanting to see a 15th century prayer book or some small man with an illuminated capital?"

L6 maintains that the success of certain manuscripts such as the Book of Kells has a lot to do with promotion rather than the content of the manuscript itself.

L7 offered a different angle and commented that "people might misinterpret the information if they get too much . . . if everything is discoverable it is nearly like nothing is discoverable". L7 maintains that a value needs to be placed on the work of the creators and that "control is very necessary with digital collections. You should be able to define [and] identify the kind of user you have".

4.2.2 Metadata

The question of whether metadata contributed to the issue of discoverability received extremely varied responses. A prevalent sub-answer was whether or not there was the time and resources to devote to metadata entry. A major element to this question related to metadata's relationship with search engines which will be view separately.

From an academic user perspective, L11 commented that metadata is by and large of poor quality and it makes it extremely difficult to locate digital material. L11 noted that metadata creators do not consult the academics that use the material. This is evident from a poor selection of vocabulary. L11 continues and states that in order to get metadata right "a lot of expertise is required" as well as "subject knowledge". L4 concludes that the disconnect "scholarship is lifelong but digitisation is frequently just a short term project".

When L9's comment that: a lot of metadata is not necessary for medieval Irish manuscript digital collections and scholars know what they are looking for, was put to L11, the latter disagreed completely. L11's rebuttal was "I have very specific things I am looking for in a manuscript that I need for teaching", however once they tried to delve into another research area outside of their specific interest, there was not sufficient metadata available in the collections that allowed them to do so. L11 admitted that they did not expect all manuscript pages to be individually tagged but

stressed that the point remains: "Yes, established scholars will know where to go, but we should also be able to find other stuff that we don't know about. That's the purpose of scholarship: to find what we don't know."

This notion that lack of quality metadata can restrict research was echoed by L7 who commented that: "your own research interests are setting your own research parameters and research boundaries."

The above demonstrates a very real disconnect between the creators of digital collections and their users. It is something that is not prevalent in the literature. L6 confirmed this by giving an example of an active debate in Spain after a specific website was designed for scholars and resulted in many scholars not being able to use it - as discussed in usability above.

On the contrary, when cataloguing, L4 would always identify the audience and subsequently consult and use "controlled vocabularies, or subject headings that would be recognised by the wider community" during metadata creation. L4 commented on some of smaller digital collection projects that were received into the institution which required work to their metadata. L4 noted that an "academic or a computer person may do the metadata. Might not have even occurred to you to hire a librarian or get the librarian involved or get an archivist involved to do the metadata".

In contrast to that again, L2, reflecting on a past project, comment that "the first thing we did was, we sat down and built up a list of the kind of metadata that we wanted". The result of this conscious decision to begin a digital project with detailed subject metadata was to create an exceptional and very discoverable website that would champion best practices. What is evident from the above is that standards are vitally important as expressed by L6.

In contrast to the well-structured procedures that L4 exhibits, L7 acknowledged that even though metadata was a fundamental aspect of their work, very little in the way of training was provided. This was iterated by L10.

Some interviewees possessed a less dramatic outlook on metadata. L1 stated that the quality of metadata was "relevant to the particular portal that you are looking on". If you cannot find something on a website then that is " due to the metadata and how well or poorly that is

catalogued" on that website or collection. L3 took a more middle-ground stance and did not deem metadata essential to discoverability; it is certainly an issue in terms of quality "there is a lot of infrastructural issues also". L3 states:

"You can have the best quality metadata but if you're not sharing it in a way that will get indexed but not sent to a portal then the person still has to know to come to your institution and use a finding aid."

L3 iterates the point that researchers will know the repositories to go to. Ultimately, L3 concludes that "metadata won't solve everything on its own ... [it is] a dual discoverability and skills problem and they each feed each other and [I] don't think you can separate them".

The creators of digital collections and those that catalogue and create metadata believe that their hands are tied to a point. L1 states that "you can't be too descriptive in the sort of metadata that you want people to put in because they will then not deposit their collections."

L4, in agreement, comments that "our platform that we have build and the metadata policies and procedures that we have need to suit a wide range of collections from a wide range of repositories."

There exists a divide between those who create the metadata and those who use it. The interviewees were from both camps and thus had differing opinions on metadata and how the other side use it. This difference in experience is a snapshot of the disconnect between both professions. The interviews revealed a lack of structured and regular communication between cataloguer and academic user. The topic of metadata served to highlight it and will be discussed further in the analysis of chapter 5.

4.2.3 Search Engines

Questions on discoverability, metadata and usability that were posed to the interviewees regularly came back to search engines. Several interviewees believe that search engines are intrinsically linked to the discoverability of digital collections. L8 states that: "Google is the number one discovery tool

for advanced academic researchers and for lower level researchers and the general public". L3, L8 and L10 agree that if the material you are looking for does not appear in the first few pages of a search engine - it may as well not exist. L11 would disagree and state that "I've been moving away from Google because it's not good enough" as a result of the digital material they seeks not being discoverable.

Several interviewees agree that "no one understands how Google indexes material" and "they won't tell you as that is their intellectual property. Those are the jewels in the crown as it were" (L8).

L4 spoke of the "Google Bubble" and "if you don't clear your cache Google will send what it thinks you want to see". Although confident in the quality of the digital collection's metadata, L4 noticed that:

"that if you do the exact same search - through Google and other search engines - using brackets etc you will get different results on different machine - different results and ranking tailored to you - based on your history".

L4 concluded that:

"We can't control that or what browser or SE they choose. All we can do is make sure that our metadata is as rich as appropriate for the college or the community that we are trying to serve and hope that that is good enough for them to find it!"

However, rather more than hope, L4's institution employs a programmer to work alongside L4 and together they try and ensure that they remain "aware of how search engines work and make sure we are optimising our results and our metadata". While the programmer maintains the institutional search interface, L4 tries to strike the balance of ensuring that "my metadata is being represented properly in the search results" while at the same time not going "so far as to tailor too much what I am doing to fit in because I need to be tailoring my metadata to international standards and to what my user community needs".

L4 sums up his/her experience: "it is not a science - it is an art - a creative act. Creating metadata is creative."

L8 suggests possible shortcomings on the side of librarians rather than search engines. L8 remarks on possibly outdated practices of librarianship that is not particularly in sync with modern technological search functions:

"[libraries are] using things like Boolean searching, where interfaces like Google are using natural language - prioritising natural language . . . libraries tend to drive library-centric standards irrelevant to the search engine that is being used against those standards. Standards need to be directly tied to the algorithms that sit within the search engine."

4.2.4 Human Resources and Funding

This was a prevalent theme throughout the interviews. Funding seemed to be the root cause of many of the issues discussed above, including the ability to hire more staff. Something that was ascertained from the interviews is the exemplary work being done by many in this industry with very little resources.

L2, L7 and L10 all described the incredible work done by very few people to create a very successful digital collection projects. Due to very limited resources, the available staff is required to perform many functions and take on multiple roles in order to advance the project.

Due to the varied nature of some digital collection projects, a multitude of professions from both humanities and technology backgrounds can come together to form a team (L3). One of the results of these interdisciplinary teams is that training for the role will have to be learned on the job or be self-taught. L10 suggests a CPD model be introduced but L8 commented that "you can't just re-skill someone even with a six month training course to be an advanced technical developer, computer programmer. You just can't do it; you need someone with a 4 or 6 year degree and 3,4,5,6 years experience in the work place - before you get to the level of someone who would be considered to be highly proficient."

L8 notes that "aside from a handful of well funded projects this field is remarkably understaffed for the importance that it has in a normal library moving forward into the future". "L8 continues: "when you consider the importance of on-line resources and digitised content . . . the levels of staffing are woefully inadequate".

L6 and L8 stress the urgent need to alter the mind-set of those who supply the funding. At present, funding "tend[s] to be project-centric" but it "needs to be a programme" (L8). L8 continues: "rather than to have a big push of development and have them [digital collection] die . . . if you want them to be sustainable and want them to grow properly . . . these kinds of activities need to be programmatic in their structure".

L6 and L11 iterate this view from a scholarly perspective stressing the need for academic curatorship of the digital collection once it is built. L6 states that "you get the money for the technical side but you don't get it for the side that will convert that into a scholarly resource; or then even further beyond that: convert[ing it] into scholarship".

L6's experience, in relation to funding from the Irish Government is that "cultural matters . . . [are] just never prioritised". L6 believes that there is a "massive gap in funding and where it is being allocated" and also that there is a lack of understanding in the government as to what exactly the funding is required for. L6 concludes that: "we need money for people".

This lack of subject expertise is what leads to L11 question how a digital collection can be sufficiently catalogued if the cataloguer cannot consult an expert of said collection.

Chapter 5 - Discussion

5.1 Introduction

This chapter will interpret the research findings from the previous chapter and address the principal research question of this thesis. This chapter will discuss the implications of the findings in comparison to the literature review. The analysis will also consider how this research has contributed to the area of digital collections. Finally, the limitations of this research will be highlighted and discussed. The concept of Project Management will be mentioned several times in this chapter as it impacts on all the themes mentioned below. However, it will be discussed in the proceeding chapter in its own right along with general conclusions of the findings and discussion. In order to allow a structured flow to permeate the dissertation, the subheading in this chapter will be the same as the themes discussed in the previous chapter:

- Discoverability
- Metadata
- Search Engines
- Funding

5.2 Comment on the Literature

A significant finding from this research has been the distinct lack of literature from an Irish perspective. To achieve perspective in response to this absence of Irish material, internationally focused literature was relied upon. However, its application to Ireland is limited as circumstances and attitudes are different here than they are in the UK or North America.

During this research, it was interesting to note the amount of literature emanating from India on this subject. It was not used in this research as much of it is not peer reviewed. However, it is an essential building block for greater discussion on the topic by professionals. This research proposes that this is the route that Ireland should take and that new entrants and students should begin to research the specific

5.3 Discoverability/Usability

Prior to beginning this research, the terms *discoverability* and *usability* were considered separate, and indeed chronological. However, this research, through the interviewees and the literature review, has demonstrated that these two terms are inextricably linked.

The researcher originally intended to look at the usability of medieval Irish manuscripts. This would have involved similar investigations into script and character recognition as have been undertaken with regard to Arabic manuscripts in Morocco (El Makhfi and Benslimane, 2011). It was then brought to the attention of the researcher that discoverability of digital collections would naturally come before usability of said collections. This suggestion was taken up with the intention that the original research question on usability would be investigated at a later time. For that reason, the interview question only contained one question on usability at the end.

However, it proved difficult to separate the terms as expected and discoverability appeared to be open to diverse use. Discoverability, usability and indeed the intended audience are all firmly intertwined. This is true to such an extent that L11 was surprised to see that there was only one question on usability at the end of the interview. L11 commented that it "says so much about the way that libraries deal with digital material". This sentiment was echoed in the literature where it was commented that two trends of information organisation are now at work. Librarians remain "highly influenced by their profession's classical principles" while the expectations of end users are based on their "experiences of how information is organized on popular web sites" (Calhoun and Cellentani, 2009, p. vi). This highlights the lack of communication that presently exists between the creators of digital material and the users. This is the fundamental issue that leads to problems with discoverability and usability.

This disconnect between user and creator was extremely prevalent in both the interviewees and the literature. What is apparent is that no adequate forum exists where ideas and suggestions can be voiced and exchanged between creator and user. This finding is a significant first step in raising the discussion here in Ireland. Paralleling, albeit on a different scale, to the current state of affairs in the UK where a much larger survey of digital collections revealed that: "people search for digital resources in ways not fully understood by those charged with looking after resources" and that creators " need to put ourselves in the shoes of researchers and students, to develop a deeper understanding of the ways that they think, work and interact with digitised materials" (Prosser, 2014).

The first objective of the dissertation was certainly not answered in the intended sense but it was addressed: *To firstly establish if 'Digital Collection Librarians'* in Ireland perceive there to be a discoverability issue with digital collections.* Discoverability would appear to depend on an individual's perspective, profession and career span. This question produced a variety of responses which could not satisfactorily be pinned down to a single issue. Rather, the term discoverability is relative and there are many factors that contribute to or limit it.

This dissertation would make the same argument as Dickson that "usability testing should be built into the development stage of digital collection creation, rather than as an afterthought dependent upon time and resources" (2008, p. 372). The same sentiment was expressed by L6 that: "the scholar has to be on-board from the beginning trying it out". This kind of productive interaction would allow digital collections to come on-line having been user-tested and approved.

5.4 Metadata

Before conducting the interviews, it was assumed that the reason for the lack of discoverability was primarily due to the quality of the metadata that was attached to the digital material. This assumption was based off informal conversations with both library and academic professionals as well as concrete statements from the literature such as NISO that stated: "metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use or manage an information resource (Understanding metadata, NISO, 2004)".

The initial literature review did not dissuade the researcher from the above assumption. It was during the interviews that a variety of opinions on metadata emerged. These ranged from metadata being vital to being simply necessary. The initial focus of the interview questions related most of the questions back to the issue of metadata as it was believed that it was the root cause of the research question. However, after a couple of interviews it was apparent that there were other equally important issues to the subject of discoverability other than metadata. This had the effect of re-aligning the subsequent interviews to present to the interviewees with multiple issues that affect discoverability as well as metadata.

However, though not the sole element in the topic of discoverability, metadata is still of great importance and it appears to be a contentious issue; one that also feeds into the lack of

communication that exists between creator and user. There is evidently different perceptions between users and creators of the exact function, application and limitations of metadata.

A perfect example of this can be found by looking at L7 and L11's frustration at not being able to find certain material as it is outside the researcher's usual confines; and then to view one library professional advising the industry to: "stop obsessing about describing at the item level . . . researchers do not mind looking through a number of images to find the right ones" (Erway, 2012). This is utterly contrary to the views of some academic users. However, Erway's reason is in order to increase the output of digital collections for the benefit of the users. What is apparent is that collaboration is required between creator and user. Does the creator know the users minimum requirements that they need in order to use the resource? L11 admits that academics do not expect "everything to be tagged", however "how can I not search a date range?". Collaboration with the intended audience prior to creating the digital collection, would allow the user/academic to impart how they would search for the resource and what vocabulary they would use. This would only be formalising what some extremely diligent librarians already do such as L4 who uses a subject reference book when creating metadata for a collection.

There are best practices in use such as L2, L4 but in those cases it is due to the quality of the librarian rather than institutional procedures.

Other factors emerged over the course of the interviews as to the quality of metadata. L1 reminds us that due to the ad hoc nature of metadata creation, a repository cannot demand a high level of metadata as they will simply not get deposits.

The Digital Repository of Ireland has produced many reports and guidelines on good metadata creation. However, these guidelines cannot be an optional resource. They must be policy implemented at director/cabinet level. L6 echoes this by stressing how important standards are. This also feeds into the issue of metadata training. Several of the interviewees who currently create metadata in their roles, have had no official training in how to do so. This dissertation argues that the issue of standards and training comes down to a project management issue; which shall be addressed in the proceeding chapter.

The findings of this dissertation addressed the second objective of this research, which was: *To investigate if there is sufficient metadata attached to digital collections in Ireland and if it is of a*

sufficient standard for the Digital Collection Librarians. The research has found that it is not a straight forward issue. Metadata is certainly a matter of perspective for both the creator and user. The creators also have many constraints levelled against them. However, what is apparent is that, by and large, there is little communication between the two parties.

Objectives three and four have also been addressed: *To discover what is the current level of training that Digital Collection Librarians possess* and *To investigate the level of training for those working on the field of digitization of manuscript collections, but who are not digital collection specialists, e.g. historians, art historians and archaeologists*. The research has found that there is a significant variation in the levels of training that metadata creators possess. There exists both highly-qualified metadata librarians and also individuals from, for example, a humanities background who are creating metadata for digital collections.

5.5 Search Engines

The issue of search engines is a vital component in this dissertation. The questions posed to the interviewees regularly came back to search engines; they are after all "the number one discovery tool" (L8). The literature also confirms that a lot of research begins on Google. For that reason, the researcher found it surprising that all institutions do not have dedicated teams working on search engine optimisation. This went some way in answering the last objective of the dissertation: *To determine what strategies exist to enhance discoverability, both in institutions and nationally*. Although the interviewees were all aware of search engine issues, there did not appear to be a top-level down strategy for search engine optimisation.

L4 commented on how a programmer works alongside them, part of who's role is to be "aware of how search engines work". However, L4 admits that "search engine optimisation seems to be a dark art" and that "[we] don't always understand the algorithms behind search engine rank and how they generate search results". L4 works for a very prominent institution and the responsibility of search engine optimisation for the digital collections of said institution being incorporated into the role of a programmer appears to be something an afterthought. This is mirrored in the literature where Arlitsch and OBrien state that "it is usually considered a technical issue and is left to IT with little consideration of strategy, goals or reporting" (2017, p. 948).

The issue of search engines and the life-line that they represent to digital collections and institutions appears to the researcher to fall under the recurring cross-theme idea of project management. It is the view of this dissertation that something as important as search engine optimisation cannot be left to a member of staff, most of whom appear to be over-burdened already. It deserves "cabinet-level attention because of its potential to help libraries reach more users" (Arlitsch, OBrien and Rossmann, 2013, p. 178). This recommendation of greater project management will be discussed in the next chapter.

5.6 Funding and Human Resources

The issue of institutional funding difficulties is nothing new and this research does not attempt to add to that discussion. The literature and interviews provide ample evidence of the problems that libraries have with funding and the impact that has on its resources. What this research does offer is a platform for a discussion on the apparent imbalance of funding allocation and also for the actual mind-set of funding itself. Both of these issues feed into each other.

While funding is limited, it is available from Europe and the Irish Government. It has been noted by L10 that it is perhaps easier to attain funding for more technical related projects rather than purely humanities based ones. The issue that has presented itself through this research is that the funding seems to stop once the technical aspect of the project is completed. However, in order to turn a digital collection, for example, into a functioning academic resources, additional funding is needed for people to manage, curate and promote the resource. There appears to exist a substantial gap in where funding is allocated and perhaps an uncertainty on the part of granting body as to what exactly will be achieved with the funds that are granted. To build a digital resource yet have no one to curate the information contained therein would appear to lend itself to the recurring notion of poor project management. Indeed, a project could not be called successful if the user at the end cannot fully use the resource.

The second issue that presented itself through this research, which has direct links to the aforementioned issue, is the need for a change in the mindset of those granting funds. Funding models, be they: "national, international, endowment, philanthropy, tend to be project centric" (L8). L6 and L8 comment that a lot of funding is equipment based; that those who grant the funding do

not understand the need to permanently hire qualified people to firstly use the equipment and secondly to maintain the resource that the equipment has produced. This is a common problem that can be found repeated in the literature where, regardless of “significant investments in the digitization [of special collections]” (Maron and Pickle, 2013, p. 4), “the entire scope of a digital library includes far more than scanning objects and loading them into a database . . . the cost of developing and sustaining a digital library requires substantial funding” (Arlitsch, O’Brien and Rossmann, 2013, p. 2).

It is worth stating that the notion of sustainability is slowly being introduced to funding applications (L10); as can also be seen in the literature where “funders have become increasingly interested in thinking about the ongoing impact of the content they help to create” (Maron and Pickle, 2013, p. 4).

5.7 Limitations

The limitations of this research are many due to the unexplored nature of the topic in Ireland. By posing questions, many answers have been achieved, with even more questions presented. Limitations is not taken in a negative context. Rather, it demonstrates the value of this research that so many topics have emerged from the interviews that warrant further investigation - this is the tip of the iceberg.

Digital collections cannot be viewed in isolation; they are part of the institution that maintains them. Thus, institutional issues such as funding become digital collection issues. Many of the topics also seemed to have multi-faceted issues as could be seen with funding, its allocation and the mind-set behind it.

This research has only touched on the broad topic of digital collection and medieval manuscripts. It was limited into how far it could delve into each of the themes that presented themselves. However, all the themes mentioned above are worthy of individual research in their own right.

Chapter 6 - Conclusions/Recommendations

6.1 Introduction

The aim of this dissertation was to explore the issue of discoverability of Irish digital collections; with a specific focus on medieval Irish manuscripts, which remained the principal research focus throughout this research. To explore is to "travel through (an unfamiliar area) in order to learn about it" (*Oxford Dictionaries*, 2017). This subject has no literature devoted to it from an Irish perspective, as evident in the literature review. Therefore, there was a need to look outside of Ireland to the existing literature of the UK and North America to establish initial parameters for this research. As highlighted throughout, this dissertation forms the beginning of a discussion about digital collections in general in Ireland and more specifically medieval Irish manuscripts.

This research was determined to establish why medieval Irish manuscripts and digital collections in general are not easily discoverable by way of search engine. It proved unfeasible to determine this through the literature simply because none of it related to Ireland specifically, let alone Irish medieval manuscript collections. Thus, this research had to rely on in-depth interviews with current practitioners and academics to establish its own conclusions and recommendations. This was accomplished by highlighting and drawing attention to the key factors that determine discoverability. The predominant factors, from which general conclusions can be drawn are:

- Terminology of Digital Collection Librarians;
- Terminology of Discoverability;
- The Issue of Search Engines;
- The Underlying Issue of Funding.

6.2 Terminology of Digital Collection Librarians

To understand the current state of Irish digital collections, it is essential to identify and explore the role of those working in the field, in theory, Digital Collection Librarians. However, there does not appear to be a specific role that creates or maintains digital collections in Ireland. The individuals that do these tasks, perform many other functions as well and seem to originate from a diverse range of disciplines. The importance of this, is that these individuals, whom the researcher inaccurately labelled Digital Collection Librarians, have varying and differing views and opinions owing to their diverse backgrounds. This means that when a researcher is approaching this profession, they are not addressing an established role but a multitude of highly educated

professionals who are performing similar tasks but from a great variety of backgrounds, approaches, and ultimate end goals. Thus there is no one unified answer that can come this body of professionals.

6.3 Terminology of Discoverability

The second conclusion is that discoverability is a relative term. It cannot and should not be viewed in isolation as it is firmly and inextricably related and reliant upon usability. To separate the two is to fuel the current unsatisfactory situation where creators of digital collections - by and large - do not have a clear idea of how the user will actually use the recourse. The interviews and literature have demonstrated that users feel left out of the digital collection creation process. As a result, there can be difficulty in a user navigating the resource as the material that is relevant to them is structured in an unfamiliar manor.

6.4 The Issue of Search Engines

The third conclusion is that search engine optimisation is drastically unappreciated at a policy level in the relevant institutions and bodies. The literature and interviews stress the importance of search engines as means of reaching new users, yet consideration to search engines is either nonexistent or left as an afterthought to a member of staff employed in a different role. With this in mind, this research would recommend that institutions stop perceiving search engine optimisation as an additional luxury that cannot be acted upon due to funding. The mind-set needs to change as a policy and they, rather than an IT department, need to establish how their digital collections are integrating with search engines. Search engine optimisation is a "dark art" (L4) but, rather than a deterrent, this provides even greater reason to dedicate resources on it in an effort to utilise the potential of technological giants like Google.

6.5 Underlying issue of Funding

The final conclusion of this research does not related to the amount of funding that institutions receive for their digital collections; rather is relates to the conversation that needs to happen within institutions about what to do with the funds they have. There appears to be substantial gaps in funding allocation. These gaps appear to favour the technical side of a project. This results in the

scholarly side of the project being chronically underfunded and thus calls into question the rational of the funding the project in the first place if it is unusable.

This debate needs to happen in tandem with another pressing funding issue: altering the mind-set of those granting funds. In general, digital collections are view - and funded - as once off projects. This understanding needs to change in order to appreciate digital collections as programmes in their own right that will evolve over time. Funding thus needs to be allocated appropriately and with a vision not only to create but also to maintain the digital collection into the future.

6.6 Recommendation for Project Management

Examination of the above issues led the research into a hitherto unknown theory that many of said issues stemmed from a lack of communication; either within an institution or between parties who create and use digital collections. Using the later as an example, blame is not laid at the feet of either party. On the contrary, this research has had the privilege of interviewing a substantial and measured selection of individuals involved at all stages of digital collections, and can confidently report that each and every one was a professional of the highest class as well as being courteous, open-minded and honest. This demonstrated to the researcher that there is no inherent flaw in either the library side as creators or the academic side as users. Both sides are doing what they believe they should be doing and to the highest standard possible, depending on circumstances. What is missing however, is an intermediary. Apart from individual cases, there is no common bridging point where both of these professional bodies can connect. This is a vital finding of this research. And more than simply identify it, this research will recommend a solution.

Rarely can one addition solve multiple problems. However, it has been noted over the course of the literature review and the interviews that many of the issues stem from a policy making level origin rather than a personal one. Thus, this research will advocate for a Project Management aspect to be included, or at the very least considered, for future digitisation projects. A Project Manager will provide oversight and direction, beginning a project by setting the perimeters, asking what this project hopes to achieve, why it hopes to achieve it, who is the intended user, how it will do it, when it will do it by and how much it will cost. A Project Manager, to this researcher's mind, borrows fundamentally from Rudyard Kipling (1902):

I keep six honest serving-men,
They taught me all I knew;
Their names are What and Why and When,
And How and Where and Who.

This research recognises that there is a need for a Digital Collection Project Manager (DCPM) who understands both the librarian stance and the academic/user position. The DCPM can act as an impartial intermediary that only has the success of the project as their sole objective rather than any personal, departmental or institutional motives. A DCPM would also be able to use their experience to better scope the project in terms of costing and time. While the cost associated with hiring of a designated DCPM would obviously not be feasible for all digital projects under current practise, it should be an essential component of future digital projects. DCPM's cost should be factored into Irish Government or European grants for Irish projects in the same manner as other key roles, such as principal investigator, research fellow, research assistant, IT specialist, etc. Some of the bigger institutions could also look to employ a full time DCPM as ultimately it should save them money, provide them with a successful project and ensure efficient use of resources and adherences to best practice in the rapidly developing field. Or conversely, a number of bodies or companies with similar requirements, but limited budgets could employ a DCPM collectively, with one company providing full time employment and the other partners providing partial funding annually to effectively sub-contract the DCPM on an agreed basis.

For those projects that could not afford a DCPM, a member of the team could be allowed to attend a two-day Project Management course. This course is more than sufficient for initiating a new way of approaching a project. It would help to develop a macro view and understanding of a project rather than only perceiving the micro aspects. The course provides tools that can be applied to any and all projects, regardless of size, industry, budget. These tools include drafting a project charter, scope and work breakdown structure and project closing doc. These documents ensure that everyone involved in a project understands the projects aims, their roles and where they fit in to the overall structure. The Project Scope deters scope creep by setting in stone the parameters of the project. This document acts a fall back if the project manger comes under pressure to include more elements into the project that have not been incorporated into the initial workings.

This research believes that the inclusion of a Project Manager would alleviate many of the common pit-falls that projects are subject to.

6.6 Future Work

This research has demonstrated the dearth in literature concerning this subject in Ireland. It has highlighted several prominent issues which warrant more detailed investigation in their own right.

This researcher intendeds to address some of the issues discussed above but would also welcome and encourage other researchers to delve into this area and begin investigations of their own and indeed, build on this present work.

This research deems the problem of digital collections project management as mention above as one of the greatest hindrances to truly successful digital collections. This is potentially be an area, not just for future research but for future employment within the industry.

Chapter 7 - Reflection

7.1 Introduction

This chapter will consider my learning style that was employed throughout this dissertation. Examples of the challenges and experiences that I faced during the dissertation and MSc will help to provide evidence of that learning style.

7.2 Learning Style

Concepts such as learning styles were not something that I had ever considered prior to undertaking this MSc. The Personal and Professional Development module was extraordinary in its ability to make the student to reflect on all aspects of their lives. In order to apply the same model with this research I consulted Honey and Mumford at the behest of Saunders et al. (2015, p. 13). Four distinct learning styles exist and I believe that I subscribe firmly to that of an Activist (Mobbs). The other styles - Theorist and Pragmatist, do not reflect my learning style due to the ridged structure they place on learning. A Reflector on the other hand is a natural observer and collector of data. The Activist is someone who is open-minded and enthusiastic about new experiences. This was certainly evident with the interviews I conducted, where I approached them energetically and without preconceived bias.

I do not believe that my learning style has changed throughout my academic career but, by completing the MSc, I have developed a greater awareness and appreciation for my strengths and weaknesses, in essence developing an understanding of my learning style itself. This awareness of my own proficiencies will ensure a greater ability to plan future academic endeavours more effectively and realistically.

7.3 Dissertation Topic

I had a broad idea of what my dissertation topic would be before I even began this MSc. I enrolled in the course with the intention of combining it with my enthusiasm for Irish history that I developed academically during my BA in History and Archaeology and my MA in Early Irish History in 2009. I had always intended writing my dissertation on some aspect of medieval Irish manuscripts but I had slight reservations about whether it would be feasible to do an entire dissertation on something so specific. However, during a lecture in Management for Information and Library Professionals in first

year, we were shown a TedTalk where Helen Shenton, now head librarian in Trinity College, gave a talk on the digital re-unification of the Codex Sinaiticus - a fourth-century Christian bible manuscript. This ignited my enthusiasm for the kind of exciting roles that a librarian could pursue. Also, upon seeing the enthusiasm for ancient manuscripts on TedTalk, I was determined to try and do my part in an effort to promote Irish manuscripts. It was not difficult to focus the topic to the discoverability of manuscripts, as they are very difficult to find from a non-scholarly perspective.

7.4 Challenges and Experiences

This dissertation presented me with some seemingly insurmountable challenges but also some of the most rewarding experiences of this year. The dissertation began with a seemingly good alteration to the research question but that quickly stumbled into a dilemma.

On the 29th May I received the e-mail from DBS assigning me my supervisor and allowing me to begin work on the dissertation. However, on Thursday 1st June I began to reconsider the focus of the dissertation. This was based on an informal conversation that I had at the Academic and Special Library AGM. Whilst there, I was asked what I was doing my dissertation on and I explained that it was on the discoverability of Digital Collections. It was commented that it was quite a broad topic. I agreed and said that I had originally intended only looking at medieval Irish manuscripts. It dawned on me then that my dissertation was guilty of scope creep. The activist in me decided to narrow the focus of the dissertation back to the original concept. The main reason being that my immediate interest was medieval Irish manuscripts and to look at digital collections as a whole would require considerably more space than this dissertation could accommodate.

However, this alteration at the beginning of the dissertation process had an adverse affect. From the 6th to the 18th of June, I found it extremely difficult to refocus. Although the research question was only changed slightly, it completely threw out the dissertation proposal. The literature review now included several redundant themes and many irrelevant sources. The methodology was also off kilter as it was based on pluralistic methods and the introduction itself was geared towards digital collections in general and unfit to use for the new direction the dissertation was headed in.

Thus, I felt quite overwhelmed at the prospect of having to re-work my proposal after pouring so much effort into it. It was not an option to remain with the original proposal as the more I considered it, it would not be feasible to satisfactorily investigate digital collections in general in only

20,000 words. Thus, I stayed the new course and as a result, a much more focused dissertation emerged; one that was also more rewarding to research.

7.4.1 Literature Review

The literature review proved to be a considerable challenge during the dissertation. As noted above, the literature review from the proposal was ill equipped to form part of the new dissertation direction. The reason being that I had approached the proposal literature review from a different angle and thus had come to an untenable position on which to structure the new direction I had chosen. Most of the themes from the proposal were unworkable, as they no longer had direct relevance to the new direction. The themes were:

- Time lapse of the debate between North America and UK/Ireland
- Digitisation vs. Discoverability
- Quality of Metadata
- Digitisation in Ireland
- Looking to the Future

I had considered starting the review anew several times but the obvious time constraints dissuaded me. However, it was the beginning of August when, after attempting to revisit the review multiple times in an effort to try and impose the new dissertation structure upon it, I finally decided to start from scratch. It was a very difficult decision to make as I was not only adding more work to an already pressed time-scale but I was also cutting out many sources that I had taken the time to find, assess and incorporate into the proposal. However, while some of the literature I had originally researched was now irrelevant for my research topic, I had gained valuable insights into the wider topic during this process and had developed a more critical eye as a result.

I have certainly learned lessons from this episode. If for whatever reason a research trajectory is altered; firstly, analyse the pros and cons of such an alteration. If warranted, press ahead with the amendment but not before reviewing all previous work to ensure that it is still relevant to the new direction. This requires a highly critically and ruthless approach, which can be difficult with your own work when you are aware of the effort expended on it.

The end result is that the present literature review is not as comprehensive as I would have initially anticipated but it is a more accurate literature review of the current research question, rather than if I had of forcefully amalgamated the previous literature review onto this one.

7.4.2 Methodology

Due to the changing nature of my research topic, the methodology also evolved during the dissertation. In spite of this shifting of method, it was still a very enjoyable process. I thoroughly enjoy research and it was fascinating to delve into the mechanics and philosophies of research methodology.

I would have felt relatively confident approaching the methodology having completed a MA in History in 2009. However, the approach required from a librarianship perspective was far more rigorous and scientific. I enjoyed this challenge and as a result I feel that I have gained valuable research skills that can be applied to more than simply academic work. It was also very exciting to conduct interviewees, as it was not something I had ever had to do.

7.4.3 Primary Data Collection

During the Research Methods module we were repeatedly warned that we might have difficulty in finding willing participants. Thankfully, my experience was the complete opposite. The positive response rate was a paradigm of the cooperative and accommodating nature of the library industry that I have experienced over the last two years. The academics that I asked were also happy to take part. All invitations, bar three, replied in good time to say that they would be happy to participate. The three that did not, contacted me or had someone in the office contact me or offer their apologies that they were unable to participate.

The interviews themselves were priceless experiences. I was quite nervous for the initial few but upon realising the energy and enthusiasm that the interviewees had for my research, I began to settle down into them and actually enjoy them. The information that emerged and the different views and opinions expressed were nothing short of fascinating. My interview skills greatly improved over the course of the interviews, moving between leading the interview and letting the discussion

flow naturally, depending on the context, and this will stand to me when I begin to search for jobs in the library industry in the near future.

7.4.4 Findings, Discussion and Conclusion

Once the interviews were complete, I began the lengthy process of transcribing those that were recorded. I transcribed each interview within 24 hours. The eleven interviews spanned nearly three weeks so it an intense period that required severe concentration. Transcribing the recordings was a great way of becoming familiar with them. Throughout the process, I was constantly jotting down themes and recurring opinions. Although the final transcriptions came to just under 30,000 words, I enjoyed comparing and contrasting the findings owing to and suiting my history background. However, it was a challenge sorting through that much information, all the more due to the high quality of it.

Arriving at my core data then required me to discuss it and draw conclusions from it. This was a very enjoyable experience as I appreciated that I was in the process of contributing to the field of librarianship. I was introducing literature, albeit grey, to an area that was devoid of such work. The completion of the dissertation brought with it a great sense of satisfaction.

7.5 The MSc

Completing the dissertation was a fitting end to an incredibly rewarding two years of the Information and Library Management MSc at Dublin Business School. The programme was extremely demanding but that was due to the exciting variety of modules that were thought. Each module delved comprehensively into the subject, to such an extent that I now posses many skills that I did not before, such as cataloguing, IT, records management, information literacy to name but a few. The intense level of detail that I experienced in these modules, as well as the level of ability that DBS expected, ensured that I am now competent if not proficient in many of these skills.

7.6 Conclusion

I began the MSc with a view to changing my career and to try and align it with my enthusiasm for history. My experience has been extraordinary but also hard-won. The work required for the programme as a whole and especially the dissertation was at times daunting, given that I also work

full time. Having come to the end of both the MSc and dissertation I can say that it was an incredibly worthwhile experience and it has only fuelled my intention to secure employment in this industry as soon as possible.

The MSc is designed to challenge and encourage the student and it has done exactly that. My recommendation from the previous chapter for the establishment of a Digital Collections Project Manager is something that I will actively peruse in the hope that I could, not only source employment in this industry, but also actually create a role for myself. This would be an exceptional result from my endeavours the past two years.

Bibliography

- Appleton, L. (2016) 'User experience (UX) in libraries: let's get physical (and digital).', *Insights*, 29(3). Available at: http://insights.uksg.org/articles/10.1629/uksg.317/?toggle_hypothesis=on (Accessed: 13 August 2017).
- Arlitsch, K. and O'Brien, P. (2017) 'Introducing the "Getting Found" Web Analytics Cookbook for Monitoring Search Engine Optimization of Digital Repositories', *Qualitative and Quantitative Methods in Libraries*, 4(4), pp. 947–953.
- Arlitsch, K., O'Brien, P. and Rossmann, B. (2013) 'Managing Search Engine Optimization: An Introduction for Library Administrators.', *Journal of Library Administration*, 53(2–3), pp. 177–188. doi: 10.1080/01930826.2013.853499.
- Askey, D. and Arlitsch, K. (2015) 'Heeding the Signals: Applying Web best Practices when Google recommends.', *Journal of Library Administration*, 55(1), pp. 49–59. doi: 10.1080/01930826.2014.978685.
- Biswas, P. and Marchesoni, J. (2016) 'Analyzing Digital Collections Entrances: What Gets Used and Why It Matters.', *Information Technology and Libraries*, 35(4), p. 19. doi: 10.6017/ital.v35i4.9446.
- Blouin Jr., F. X. (2010) 'Thoughts on Special Collections and Our Research Communities.', *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage*, 11(1), pp. 23–31.
- Bradley, J. (2007) 'Zen and the Digital Collection Librarian.', *Against the Grain*, 19(1). doi: <http://dx.doi.org/10.7771/2380-176X.5229>.
- Brown, R. B. (2006) *Doing Your Dissertation in Business and Management: The Reality of Researching and Writing*. London: SAGE (SAGE study skills).
- Bryman, A. (2012) *Social Research Methods*. 4th ed. Oxford ; New York: Oxford University Press.
- Cassell, C. and Symon, G. (eds) (2004) *Essential guide to qualitative methods in organizational research*. London ; Thousand Oaks: SAGE Publications.
- Chowcat, I. (2015) *Spotlight on the Digital. Recent trends and research in scholarly discovery behaviour.*, JISC. Available at: <http://repository.jisc.ac.uk/6599/1/recent-trends-and-research-in-scholarly-behaviour-2015.pdf> (Accessed: 5 April 2017).
- Cooper, D. R. and Schindler, P. S. (2014) *Business Research Methods*. Twelfth edition. New York: McGraw-Hill/Irwin (The McGraw-Hill/Irwin series in operations and decision sciences business statistics).
- Cusworth, A. et al. (2015) 'What Makes the Digital "Special"? The Research Program in Digital Collections at the National Library of Wales', *New Review of Academic Librarianship*, 21(2), pp. 241–248. doi: 10.1080/13614533.2015.1034805.
- Davison, S. (2009) 'If we build it, will they come? Strategies for teaching and research with digital special collections.', *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage*, 10(1), pp. 37–50.
- Dickson, M. (2008) 'CONTENTdm Digital Collection Management Software and End-User Efficacy.', *Journal of Web Librarianship*, 2(2/3), pp. 339–379. doi: 10.1080/19322900802190852.

- Dowell, E. (2008) 'Web Site Usability for Rare Book and Manuscript Libraries.', *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage*, 9(2), pp. 168–182.
- El Makhfi, N. and Benslimane, R. (2011) 'Platform of transcription the old arabic manuscripts.', *International Journal of Engineering Science and Technology*, 3(6), pp. 5353–5365.
- Erway, R. (2012) 'Increasing Access to Special Collections', *Liber Quarterly*, 21(2), pp. 294–307.
- Erway, R. and Schaffner, J. (2007) *Shifting Gears: Gearing Up to Get Into the Flow*. Dublin, Ohio: OCLC Programs and Research. Available at: <http://www.oclc.org/programs/publications/reports/2007-02.pdf> (Accessed: 8 April 2017).
- Greene, M. and Meissner, D. (2005) 'More Product, Less Process: Revamping Traditional Archival Processing.', *The American Archivist*, 68(2), pp. 208–263.
- Greener, S. (2008) *Business Research Methods*. Frederiksberg, Denmark. Ventus Publishing Aps.
- Han, M. and Hswe, P. (2010) 'The Evolving Role of the Metadata Librarian.', *American Library Association*. (Library Resources Technical Services.), 54(3). Available at: <http://www.ala.org/alcts/sites/ala.org.alcts/files/content/resources/lrts/archive/53n3.pdf> (Accessed: 18 August 2017).
- Higher Education Authority (2007) *Research Infrastructure in Ireland - Building for Tomorrow*. Available at: https://ec.europa.eu/research/infrastructures/pdf/roadmaps/ireland_national_roadmap.pdf (Accessed: 12 August 2017).
- Hubbard, M. A. and Myers, A. K. (2010) 'Bringing rare books to light: The state of the profession.', *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage*, 11(2), pp. 134–151.
- Hughes, L. M. (2004) *Digitizing Collections: Strategic Issues for the Information Manager*. Facet Publishing.
- Irish Manuscript Commission (2007) *Irish Manuscripts Commission, Digitisation policy*. Dublin. Available at: <http://www.irishmanuscripts.ie/downloads/IRISH%20IMC%20DTF%20report%20210607.pdf> (Accessed: 12 August 2017).
- Irish Manuscript Commission (2011) *Irish Manuscript Commission, Strategic Development Plan, 2012-2016*. Dublin. Available at: http://www.irishmanuscripts.ie/pdf/IMC%20SDP%202012_2016%20EN.pdf (Accessed: 12 August 2017).
- Jung-ran Park and Tosaka, Y. (2010) 'Metadata Creation Practices in Digital Repositories and Collections: Schemata, Selection Criteria, and Interoperability.', *Information Technology & Libraries*, 29(3), pp. 104–116.
- Kay, D. and Stephens, O. (2014) *Improving discoverability of digitised collections: above-campus and national solutions. Recommendations from the Spotlight on the Digital co-design project (summary), JISC Report Spotlight on Digital WEB*. Available at: http://repository.jisc.ac.uk/5569/1/JISC_REPORT_spotlight_on_digital_WEB.pdf (Accessed: 2 April 2017).

Kipling, R. (1902) *Just So Stories*. Available at: <http://www.gutenberg.org/files/2781/2781-h/2781-h.htm> (Accessed: 20 August 2017).

Light, M. (2015) 'Controlling Goods or Promoting the Public Good: Choices for Special Collections in the Marketplace.', *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage*, 16(1), pp. 48–63.

Maron, N. and Pickle, S. (2013) *Appraising Our Digital Investment: Sustainability of Digitized Special Collections in ARL Libraries*. Washington, DC: Association of Research Libraries. Available at: <http://www.arl.org/storage/documents/publications/digitizing-special-collections-report-21feb13.pdf> (Accessed: 18 August 2017).

Meehan, B (2005) 'Manuscript Illumination' in Duffy, S. (ed.) *Medieval Ireland, An Encyclopedia*. New York: Routledge, pp. 316-318.

Mobbs, R. (no date) *Honey and Mumford.*, University of Leicester. Available at: <http://www2.le.ac.uk/departments/gradschool/training/eresources/teaching/theories/honey-mumford> (Accessed: 20 August 2017).

Online catalogs: what users and librarians want: an OCLC report. (2009). Dublin, Ohio: OCLC.

Oxford Dictionaries. (2017) *Oxford Dictionaries | English*. Available at: <https://en.oxforddictionaries.com/definition/explore> (Accessed: 18 August 2017).

Prochaska, A. (2009) 'Digital Special Collections: the big picture.', *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage*, 10(1), pp. 13–24.

Prosser, D. (2013) *Fighting for discoverability*, *Jisc*. Available at: <https://www.jisc.ac.uk/blog/fighting-for-discoverability-09-oct-2013> (Accessed: 5 April 2017).

Prosser, D. (2014) *Action on discoverability*, *Jisc*. Available at: <https://www.jisc.ac.uk/blog/action-on-discoverability-03-jun-2014> (Accessed: 5 April 2017).

Ridley, D. (2012) *The literature review*. 2nd ed. Thousand Oaks, CA: Sage Publications.

Riley, J. (2017) 'Understanding Metadata. What is Metadata, and what is it for?' National Information Standards Organization. Available at: http://www.niso.org/apps/group_public/download.php/17446/Understanding%20Metadata.pdf (Accessed: 1 July 2017).

Royal Irish Academy (2007) *Royal Irish Academy Annual Review 2006-2007*. Dublin: Royal Irish Academy. Available at: <https://www.ria.ie/sites/default/files/royal-irish-academy-annual-review-2006-2007.pdf> (Accessed: 12 August 2017).

Saunders, M. N. K., Lewis, P. and Thornhill, A. (2015) *Research Methods for Business Students*. Seventh edition. New York: Pearson Education.

Steiner, C. *et al.* (2014) 'Evaluating a digital humanities research environment: the CULTURA approach', *International Journal on Digital Libraries*, 15(1), pp. 53–70. doi: 10.1007/s00799-014-0127-x.

The value of libraries for research and researchers. A RIN and RLUK Report. (2011). Research Libraries UK and Research Information Network. Available at:

http://www.rin.ac.uk/system/files/attachments/value_of_libraries_for_screen_1.pdf (Accessed: 14 August 2017).

Windnagel, A. (2014) 'The Usage of Simple Dublin Core Metadata in Digital Math and Science Repositories', *Journal of Library Metadata*, 14(2), pp. 77–102. doi: 10.1080/19386389.2014.909677.

Woolcott, L., Payant, A. and Skindeliën, S. (2016) 'Partnering for Discoverability: Knitting Archival Finding Aids to Digitized Material Using a Low Tech Digital Content Linking Process.', *The Code4Lib Journal*, (34). Available at: <http://journal.code4lib.org/articles/11997> (Accessed: 12 August 2017).

Work, L. (2015) 'Show me the Data. Analyzing item level metrics from CONTENTdm reports to aid digital collection assessment.' 2015 Southern CONTENTdm User Group Meeting., 7 August. Available at: https://www.oclc.org/content/dam/community/CONTENTdm/SummerCDMUG/Work_FinalCDM_2015Presentation.pdf (Accessed: 18 August 2017).

Yang, L. (2016) 'Metadata Effectiveness in Internet Discovery: An Analysis of Digital Collection Metadata Elements and Internet Search Engine Keywords', *College & Research Libraries*, 77(1), pp. 7–19. doi: 10.5860/crl.77.1.7.

Zhang, J. and Mauney, D. (2013) 'When archival description meets digital object metadata: a typological study of digital archival representation.', *The American Archivist*, 76(1), pp. 174–195.

Appendix A - Interview Questions

Digital Collections

- Why in your view are digital collections important?
 - To the academic community
 - To the public
 - Cultural significance
 - Medieval Manuscripts in particular

- Do you/ your institution think that there is an issue with discoverability of digital collections and manuscripts?
 - Has this issue been raised internally?
 - Has it been raised externally by the public?

Metadata

- Do you think that the issue of discoverability is due solely to the quality of metadata that is employed in digital collections?
- Facility allowed for metadata entry – does it get time and resources?
 - What value is placed on metadata
 - Is it a high priority for a) them and b) the institution
 - Is time allocated to metadata entry
 - Is metadata discussed at the planning stages of a digitisation project
 - Is there a member of staff who's primary role is metadata entry
 - Do you differentiate between Descriptive Metadata and Admin/Structural?
 - Is the focus still on the original medium/format/item
 - is the focus on the digitised copy as an object in its own right
 - is the focus on the digitised object as a component of a larger corpus/body

Human Resources

- Staffing - Have you found on in your experience the issue of staffing to be a positive or negative impact on digital collection projects? (e.g. dedicated IT department to alleviate tech burden).
 - Does a member of staff has an established amount of time allocated to metadata entry
 - What is the disciplinary make-up of the team
 - In terms of training - Do all staff have metadata training
 - Are staff trained internally
 - Do staff have to self-train

Systems

- On projects you have worked on: was there an awareness of best practice standards, interoperability of internal and external systems and the future proofing from the inception of the project.
 - collaboration, interoperability and sustainability

- Were there different cataloguing standards in use within the department within the organisation
- Is there cross-collaboration between departments

Funding

- Who is funding digitisation? Government or Irish/European grants .
- Is the funding sufficient?
- Do the objects of the project change to suit the funding limitations? Does this affect the integrity of the project?

Intended Audience

- Does metadata take into account varied audiences (e.g. scholar vs. school children)

Obstacles

- What do you believe to be the key impediments to effective metadata/discoverability?
- To what degree is internal/external politics a factor?

Assessment/Analytics

- How do you judge the success of a digital collection project? Is it on analytics?
- What happens to the project after completion?
 - Does someone test the project after completion to see how accessible it is to users outside the institution?
 - Has digitisation of manuscripts improved awareness?

Looking forward to usability

- Do the public understand what they are looking at? Will anyone but specific academics understand what they are looking at? Is digitising only half the battle – does there need to be accompanying explanations?
- Do we need to develop a palaeographic application?