An investigation into the existence and structure of

Irish Public Art Museums' Online Collections

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Dissertation submitted in partial fulfilment of the requirements for the degree

of Master of Science (MSc) Information & Library Management at Dublin

Business School

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August 2020

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Declaration

I declare that this dissertation that I have submitted to Dublin Business School for the award of Master of Science (MSc) Information & Library Management at Dublin Business School is the result of my own investigations, except where otherwise stated, where it is clearly acknowledged by references. Furthermore, this work has not been submitted for any other degree.

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Acknowledgments

Thank you to everyone who participated in this research, I was helped by so many wonderful museum and gallery staff. Thank you also to my lecturers, and the library staff at DBS for helping me though this dissertation.

Special thanks to my supervisor Marta Bustillo, my classmates, my family and to Mark. I couldn't have done it without you.

Abstract

This dissertation aimed to examine public art museums and galleries online collections that are available to the public and the quality of those collections. The research was completed using an online survey, sent to public art museums and galleries in the Republic of Ireland. Sampling was unnecessary due to the size of the population. The survey contained questions relating to online collections and their structure. Opinion on issues relating to collections and the impact of Covid-19 on online services were also surveyed. It was found that a slightly greater amount of the museums surveyed did not have an online collection. The greatest problems found in maintaining and creating were a lack of funding, staffing, and training. These issues are leading to a low level of online collections and a huge variation in the quality of their designs. Despite these issues, it was found that there is still a high priority and interest in creating an online collection for Irish public art museums.

Chapter 1. Introduction

1.1 The Art Museum and Online Presence

This dissertation aims to investigate art museum online collections within the Republic of Ireland. The standard of the online collections and their public availability have become increasingly topical issues within the museum and gallery world. There are many aspects to consider in an online collection, and this dissertation aims to paint a picture of the current Irish landscape, examining the structure of online collections and the opinion of the museum information professional of the online collection.

Art museums, alongside other cultural centres, are a cornerstone of public interaction with heritage, culture, and history. The International Council of Museums (ICOM) defines a museum as the following:

"A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment."

This definition has also been adopted by the Irish Museums Association (IMA). The crux of this definition is that the museum is an environment that exists to serve the public by educating and connecting them with heritage. According to the definition, the art in museums is 'communicated' to the public. Art museums can connect people to new ideas and culture heritage but in a modern world, they are trapped within the museum walls. The interaction with the art (the 'education, study and enjoyment' aspects) is the heart of

museum purpose, but true interaction is often blocked by institutional, societal, and individual factors (Beaudoin, 2020; Batat, 2020).

In order to fulfil the definition of the museum, it can be argued that public art museums should embrace modernity and create a digital space for the public to interact with art (Simon, 2010). In their book, Simon (2010), argues that the future of the museum is that of increased audience participation, both digitally and physically. Recently, because of the Covid-19 pandemic, most institutions have been forced to move to a completely online space. To meet public demand and fulfil their role as public art institutions, the co-creative projects and collaboration suggested by Simon (2010) would require an online collection space.

To interact with their digital audience, the institutions need to look at digitising a collection and making it accessible. This is a significant undertaking, involving the creation of an online collection platform, as well as organising it, selecting a metadata schema and creating metadata for what could be thousands of art objects. Museums may not have the staff, funding, or resources to undertake a project of this nature. As an important part of the modern-day museum, this dissertation will attempt to understand the issues facing art museums in online collection creation and curation. Although it sounds as if the task of digitising is daunting for museums (especially the smaller museums) there has been growth in the area and a global push toward online curation.

1.2 Online Collections

This section will use relevant literature to discuss the logistics behind maintaining and creating an online collection, the benefits of doing so, and the role of the museum information professional in online collection curation.

For the sake of clarity throughout this dissertation, the term 'museum' shall be used, as opposed to 'gallery'. The difference may seem negligible but in fact, the difference in definition is important to the shape of this research. As previously noted, ICOM provided a standardised definition of a museum. A gallery, on the other hand, has a looser definition. A gallery lacks the well-defined meaning of a museum, providing less context for this research.

Of course, it is also necessary to define the online collection; however, this is not as straight-forward as it may seem. For the viewer or individual, the online collection is used as a method of aggregating and displaying an institution's collection. It is also a digital tool used to preserve art and cultural objects. Digital preservation "is the acquisition, organization, and distribution of resources to prevent further deterioration or renew the usability of selected groups of materials." (Conway, 1996). The available collection should, at minimum, display the art piece and basic information (such as the title and artist).

For the institution, the definition of an online collection is a bit more complicated. There are many factors to consider in the creation and maintenance of an online collection, and no concrete roadmap for the construction, so what the online collection means to each institution can vary.

In their study of over 170 digital collections, Palmer et al. (2007) attempted to better define the online collection and understand the ambiguities surrounding the concept. The

research conducted by Palmer et al. (2007) consisted of a range of data collection methods (content analysis of collection registry records, survey, and interview data, and focus groups). The multi-method study was thorough and lengthy (beginning in the 1990s) but over the years that it was conducted technology continued to change. By the time the research was finished it could be argued that it was already out-of-date.

In relation to this research, the study is comprised of a large-scale American project completed in 2007 and concerns many different types of collections in various institutions, so whilst there is useful information in the findings, it is also necessary to remember that it may not directly translate to current-day Ireland. Both the technology and structure are different, but not so different that they are completely separate entities. It was found in the study that there was "considerable diversity in the understanding of the concept of collection within and across projects" Palmer et al. (2007). The reasons behind the diversity lie within the differences between institutions. Each gallery or museum, once given an online space, will not necessarily use it the same way. More recently, Beaudoin (2020) also found that American art museums' online collections varied heavily in their approach to collection management because of the unique user and item combinations in each museum.

In her research, Beaudoin (2020) acknowledges that, "little is known about the overall state of online access to U.S. art museum collections". Research on online collections is generally available however, there is not much supporting research for the study specifically about U.S. museum online collections. Furthermore, the basis for this research was the 2018 Museum Data File. It is possible that museums were overlooked as they were not part of this data file, however the methodology for analysing the museums in this collection was very detailed.

The findings do echo the situation in Ireland, where there is no definite guide or structure that any one institution should employ when curating their online collection. However, the technology used and interaction by museums and galleries with online resources has increased since Palmer et al.'s 2007 research. Better technology and resources such as metadata schemas are more readily available to institutions, but the ambiguity of the online collection is still present. This research will explore the situation of the online collection and review the issues surrounding the online collection.

The other definition that must be explored is that of art. This is a notoriously difficult definition, as each person conjures up their own separate image when thinking of art. Whilst some will only think of classical pieces, historical and famous statues and paintings, others will push the boundaries for defining what is or isn't art. Adajian (2007), states that the contemporary definitions of art, "attempt to make sense of two different sorts of facts: art has important historically contingent cultural features, as well as trans-historical, pan-cultural characteristics that point in the direction of a relatively stable aesthetic core." If art has evolved past the traditional definitions, museums must do the same. In the online collection, this translates to curating a space that can support the various types of art that exist. Multimedia can be a struggle for some museums but is important for the proper display of art online.

1.3 Benefits of the Online Collection

Whilst there is some debate over the nature of the collection and the form it should take, there is a very solid argument for the existence of the online collection. Hirtle (2002) discusses the positives of digitization, naming three major benefits. However, the main argument presented in his findings is that digitization of special collections has a negative effect and will remove the importance of the physical object and suggests technology will replace traditional print. And although his analysis of the positives effects is still true, the main argument is an out-dated viewpoint, and technology has not diminished the desire of the public to visit collection physically.

The first benefit discussed by (Hirtle, 2002) is an increased number of people viewing the collection. Even if they cannot view it physically, awareness will increase with the online access. Online access to material also brings the benefit of round-the-clock access, in any location (schools, for example) and can reduce physical maintenance costs, if the exhibit or collection is solely online. (Khoon & Ramaiah, 2008). From the art museums' perspective, a greater online collection may lessen the pressure of the physical maintenance of the art. If the art is fragile, a large number of visitors may endanger the well-being of the objects. Physically smaller museums can also benefit from online collections if they do not have the exhibition space for all their art (Patel et al., 2005).

Secondly, researchers can find new information. The dissemination of new information online will allow greater numbers to study it in a new setting. Online collections can also be more useful for research purposes than a physical visit, as the information is self-contained and easily accessible (Hirtle, 2002; Ross & Terras, 2011).

Lastly, the online collection can widen the scope of research and recontextualize collections or exhibitions (Hirtle, 2002). The widening of the reach of art can benefit many different groups, not just researchers. Whilst it is not as impactful to view a collection online, there can still be benefits in the area of art therapy (Roberts et al., 2011), and an increase in interaction with technology can help to bring younger people into museums (Batat, 2020). When adding historical collections and art is also important to give them context. The context can be used to educate and maintain the meaning of the original item, according to Quan Liu (2004), who reminds us that,

"Digital collections allow the public and researchers to view, and hear, for themselves photographs, speeches, and documents that offer a response to the Web sites of those organizations that are attempting to re-write history."

Despite the factors that may be hindering the creation of an online collection, the benefits can be felt by a much larger community, and it can be argued that online services are paramount to the museum's survival.

1.4 Online Collection services globally

Internationally, there have been efforts to digitise by the museum communities. America has been a long-time investor in the move to increase technology in public museums. In their comparison of the web presence of art museum libraries of North America between 1999 and 2011, Abbey (2012) found that a far greater amount (75%) of the sampled museums had an online presence and the majority also contained a finding aid resource. Given that this survey was conducted in 2011, we can assume that this number has increased again throughout the decade. Furthermore, this research was in the form of a

case study created using a small pool of AMICO-affiliated art museums in America. Results were very detailed, and the case study produced viable results, but the range is lacking and may not be reflective of all art museums in America.

For the collections, the online presence is lower. Beaudoin (2020) found that only 32% of the public art museums surveyed had online collections available to the public. Abbey (2012) also noted that the most comprehensive online services came from the better-funded institutions. López et al., (2010) found that the well-funded British and American museums were better equipped than their other European counterparts. For example, in Britain, the high-profile museums have incredibly well-developed online user resources. For this research, the museum research population was created from lists of museums from the most populous areas from each included country (i.e. the capital city and second most populous city). The data excludes rural populations and small-town museums and galleries. The more populous areas are more likely to have increased tourist presence and funding for their museums, meaning this study may not accurately depict the scale of online collections for each country.

The British Museum's online collection, according to its website, "offers everyone unparalleled access to objects in the collection. This innovative database is one of the earliest and most extensive online museum search platforms in the world." Whilst the Tate Museum sees website traffic of around 1.5 million visitors per month and has a dedicated plan to improve user services (Villaespesa, 2015). From this research, it can be concluded that the funding of museums has direct impact on the online services.

It should be noted that just because funding is a dramatic and obvious factor affecting online collections, that does not mean that there are no other factors that can

affect an online art collection. In their study, López et al., (2010), noted that although French museums were well-funded like their British and American counterparts, there was less uptake in Web 2.0 features. Organisational and cultural differences can also affect the shape and quality of an online collection.

1.5 Online Collection services in Ireland

In Ireland, the population is much smaller than the previous examples, and the museums are of a smaller scale. This does not mean that they cannot have online services. Fitzgerald (2016) conducted a survey of all museums in the Republic of Ireland and Northern Ireland. Although this survey was not directly relating to art museums, they were included in the survey, which found that "Nearly all Irish museums (97.5%) have a website, although only 40% have a digital strategy." This is an impressive figure and indicates that museums are willing to embrace the digital requirements for modern establishments. Lack of a digital strategy is not necessarily a sign that a museum will have poor online services, however a good strategy can propel a website from basic tool to fully functional resource, if managed correctly. It should also be noted that this research refers to the whole of Ireland, not just the republic. The data from the Northern Irish museums may be slightly different due to the fact that they are part of the United Kingdom and will therefore not necessarily adhere to the same standards as the museums in the Republic of Ireland.

However, in terms of online collections, the numbers are lower than the general website figures. 21.1% of the surveyed establishments had digitised more than 80% their collections, although a much smaller amount had actually been made available online. This means that the items had been digitally catalogued, they had not been added to an online

viewing platform. This figure indicates that while technology is being used to benefit the information professionals in museums, it may not be being utilised to fulfil the public need for interaction outside of the physical building. Fitzgerald (2016) gave the following recommendation in relation to the poor online collection statistics:

"We recommend additional training and resourcing be offered in the areas of digitisation and the development of digital and online strategies, including enhanced collaboration with colleagues working in the library, archives, and digital humanities."

As noted by Abbey (2012) and Fitzgerald (2016), funding is needed for the increase in online services by museums and galleries. Although an online collection can be a cost-effective method of displaying a collection (Khoon & Ramaiah, 2008), if the project must be created from scratch, it may be too costly for a museum to create on their own.

As well as the costs involved in creating the online space and populating databases with metadata, there are environmental factors to consider, such as or political and technical restraints, so it is important to realise the scale of the project, and budget accordingly (Duval & Hodgins, 2002; Bruce & Hillman, 2004).

To assist with the digitisation of art and cultural objects in Ireland, in 2017 a €1 million Digitisation Scheme was announced for the sector, to allow greater access to cultural heritage collections. A grant like this is important for museums to continue to increase their digital presence. Elsewhere, there is always an interest in museum programmes, with projects such as the Arts Council's 'Making Great Art Work Strategy (2016–2025)'. Through the Making Great Art Work scheme, the Arts Council has awarded €6.8 million to various projects. Furthermore, the IMA launched their hashtag #IrishMuseumsOnline to get

museums involved in online collections and to raise awareness of their existence for the public.

In light of the Covid-19 pandemic, museums and cultural institutions have had no choice but to move to the completely digital interaction. There is a lack of knowledge about the Irish art institutions and this pandemic has highlighted some of the inconsistency of the online services of Irish art institutions.

The various projects and research, both international and in the Republic of Ireland, suggest that museums should be strongly considering creating and maintaining an online collection. To examine this level of interaction and discover the effects of the aforementioned funding, this research has been created.

1.6 Creation and Maintenance

In the case that a museum has received funding, they still need to create and curate their online experience. An online collection can be a large undertaking for a museum. Given the percentage of Irish museums that lack online resources, it is clear that there are many blockers and issues facing museums who wish to create this kind of resource. This section will analyse and discuss the key areas in online collection creation in an effort to evaluate the complexity of the online collection.

1.6.1 The information professional in the museum.

First it is important to acknowledge the information professional in the role of creator and curator of the museum online collection. Like their counterparts in libraries, they exist to serve and educate the public and control, maintain and expand their digital collections. Modern adaptation is a key issue that is faced by both services. Museum

curators, like public librarians, must also make choices in regard to their online services not only based on resources (budget, work force etc.) but also user experience. According to Gilliland-Swetland & White (2004),

"Museums and other cultural institutions such as libraries and archives are interested in how audiences (staff and public) use digitized museum materials in their work, education or other activities in order to make sound decisions about online content and design to justify allocation of resources for such projects."

Museum information professionals' role as custodians of the online collection means they must identify, track, and present their content. This large workload can present issues, especially for the less-well equipped art museum (Gilliland-Swetland & White, 2004). However, despite the challenges, embracing the online can lead to a new way to interact with users.

By embracing the technology available, curators can experiment and push the boundaries using their unique art collections. They can construct a platform that is educational, interactive and enables users to build a unique experience (Soren, 2005). The opportunity for the museum information professional to experiment is the creation of the online collection. The nature of the museum means that all the objects that have been digitised may not be stored in the same location, meaning that the online collection has the opportunity to be more expansive than the actual museum (Johnston & Robinson, 2002).

A prime example of an art museum using their digital space to interact with the public is the Rijksmuseum's Rijksstudio. The Rijksmuseum is a national institute located in the Netherlands and features Dutch art and history, as well as a selection of European and Asian art. What makes the museum special however, is the online collection that they have

created. Their collection features 680,000 works available to view online in over 540,000

'Rijksstudios'. The Rijksstudios are collections created by both the staff of the museum and

the public. Any member who signs up to the website can create a collection from any

combination of the available works. The capacity for discovery and user interaction is vast.

There is some criticism of this intense user freedom and ability to pick and choose a

personal art experience. Grau (2017, p. 47) describes the creation of the "Cultural snacker"

in relation to the endless creation of Rijksstudios. The art can lose mean and become

decontextualized as the descriptions given are minimal and users cannot add extra text for

the works (Garu, 2017, p. 44-45). However, the unique and well-curated experience still

succeeds in creating the user experience that was envisioned by Soren (2005). The project

has been in place since 2012 and the improvements in technology and user design have

made the experience easier to replicate for other institutes and museums.

Finally, the role of curator as an educator can be embraced in a new way using

online services. As well as the online collection, the curator can use social media to connect

to the public. The curator can become a champion of knowledge for their art collection,

using their online services to make their collection visible to the public (Proctor, 2010).

1.6.2 Online collection development.

However, before the museum information professional can benefit from the online

collection, they must first create one. In an online collection, the first and most important

aspect is getting the art objects digitized. Without a digital version of the object, users

would not have anything to interact with on the website. In some cases, multimedia files

may be necessary to portray certain aspects of exhibitions, however not all museums are

equipped with multimedia formats. Palmer et al. (2007) and Beaudoin (2020) both found in their work that there is a large discrepancy in the nature and presentation of online collections because of the differences between institutions and the lack of guideline or planning. As well as the digital versions of art objects and their presentation, physical objects in the museum should be taken into account when creating online collections; the two do not exist in a separately. The object can become decontextualized because the scale, behaviour and/or functionality cannot accurately be portrayed in a digital medium (Hamma, 2004, Beaudoin, 2012). The nature of the items will inevitably change the structure of the online collection.

López et al., (2010) found in their research that although the vast majority of online collections offered static images, less than half were equipped with multimedia tools. This statistic comes from museums across several countries and is now slightly out-dated but highlights the difficulties museums have in creating multimedia files for online collections. If large multimedia files are not possible and there are only static images, ideally, they should be clear, and large enough for user interactions like zooming in (Beaudoin, 2020). The images should also be the focal point of the site. Text-heavy pages describing the art are not user-friendly and will not attract users (Dalrymple et al., 2004; Soren, 2005).

As well as multimedia contained on the site, online collections may consider Web 2.0 tools. López et al., (2010), found in their study that "There is a low overall percentage of museums offering tools to personalize information." Users may be looking to share and interact with online art and museums should be doing their best to accommodate users. This can include social media presence and interaction or something more similar to the 'Rijksmuseum style' of allowing the user to interact with the media of the collection

themselves. Building online collections that have the capacity to interact with the user can be a benefit to both the public and the museum. Sharing images to other sites, such as the image-tagging site Flickr, can be an important tool for museums. Beaudoin & Bosshard (2012) found that museums were using Flickr to their advantage to disseminate information about current events using fun, engaging images. In their study, Beaudoin & Bosshard (2012) were examining the way in which museums are using Flickr, but the average user can also use the site and create a photo collection. However, as mentioned previously an online collection should strive to maintain as much of the context and history of the art as possible. Museums should strive to balance social interaction with disseminating information and making sure that the art is not completely decontextualized.

1.6.3 Metadata.

After the files for the collection have been created and the design of the online space is finalised, the next area to evaluate for an online collection is metadata and how it affects the technical functions of the collection (browsing, searching, retrieval, etc.). The function of metadata in a collection is to make the resources (digitised art objects) discoverable. The context of the object has a bearing on the type of metadata produced, so art museums have a unique approach to design and creation and smaller projects may have little to no structure. In Beaudoin's survey (2020) it was found that the major characteristics of the online collections were a means to perform a keyword search and providing browsable object categories. This means, at the minimum, the user should be able to find the object that they are looking for using a relevant search or find the object in a structured category list. Without any metadata or structure in place, users will not be able to search

and view the collection as intended and the very existence of the collection may go unnoticed. (Attig et al., 2004; Dougan, 2004)

In basic terms, there are seven factors to consider for metadata creation, according to Bruce & Hillman (2004). These are completeness, accuracy, provenance, conformance to expectations, logical consistency and coherence, timeliness, and accessibility. Most of these factors are straightforward and tie into the standards section below. However, for accessibility, the creation of a new metadata for a collection can be an opportunity. Diversity and social awareness should also be considered as part of the metadata creation (Clarke & Schoonmaker, 2020). As noted previously in the benefits section, being more inclusive and aware can help to bring art to new audiences. Public spaces, art museums should take into consideration the implications of the wording and semantic choices for metadata.

1.6.4 Tagging systems.

An option for art museums to increase social interaction and inclusivity is to let the public create tags to serve as metadata. Social media and interaction with museums on a multitude of platforms can bridge the gap between audience and cultural heritage. They can also be used to further improve museums' education and interactive capacities (López et al., 2010, Simon 2010). Matusiak (2006), argues that "Social classification does not have to be seen as an alternative or replacement of traditional indexing, but rather as an enhancement. These two approaches can supplement each other."

Although this dissertation will not be focusing on social media's role in the online collection, it is important to note that it is a key factor in the marketing strategy for art museums, especially for online collections. As always, strategy and adaptation are key for

the information professional in any environment (Knell, 2003). However, for technical reasons, or because of the wishes of the museum, some museum websites are not embracing the potential for social media participation (Lotina, 2014).

If the institution does allow users to create their own tags, it can increase the level of organisation within a collection. It also allows the collection to have a close connection with the users and more informal language. Beaudoin (2020) found that retrieval effectiveness was dependent on metadata provided by museum staff and public users, but that the tags provided by the staff were a 'poor match' for the user searches, meaning user tagging could bridge the semantic gap present in online collections. Furthermore, Ross & Terras (2011), found the primary methods of finding material in the British Museum Collection Online were by object type as well as free text.

However, this social tagging system must be built correctly and monitored, so it may be above the technical capabilities of some institutions. The collection must first be structured and uploaded to the web in an appropriate form.

1.6.5 Metadata structure.

The structure of metadata refers to the organisational practices within the collection. In order to give users the best experience whilst using the collection there should be a coherent structure to the collection.

There are various tools and documentation to help this structure, for example, controlled vocabulary. These tools are essential for users to find what they are looking for in a collection. Field labels are essential to avoid semantic confusion in the collection (Beaudoin, 2020) and documentation or collection guides are excellent finding aids for

providing context (Gilliland-Swetland & White, 2004). There is another benefit to using metadata documentation; according to Shreeves et al. (2005), publicly available metadata documentation can help aggregators better interpret harvested metadata, making information easier to find on web searches.

A standard can be used to create metadata- allowing for simple creation that follows the standard's ruleset. There are a number of metadata standards that are designed for museums and archives - VRA core, CIDOC Information Categories, Open Archives Initiative Protocol for Metadata Harvesting, CDWA (Categories for the Description of Works of Art), and CIMI (Consortium for the Computer Interchange of Museum Information).

VRA (Visual Resources Association) separates the artwork from the digital representation, treating them as separate entities. There are elements specific to art disciplines, which is a benefit for museum cataloguers. However, Patel at al. (2005) notes that the work/image differentiation makes it impossible to translate this metadata into standards that do not have the same structure. This can be seen as an issue as cross-collection content between museums can be highly lucrative (Lewis et al., 2004). This point can be less relevant to smaller institutes that are just creating their own online collections. Building a cohesive individual collection is more important at the beginning than trying to synergise with potential cross-collection projects.

Dublin Core can also be used to create metadata for art museums. But, it can be too simplistic and not as art-focused, as Kirkland (2018) notes;

"While Dublin Core is valued for its simplicity, it can be problematic in that multiple specific fields are mapped either to the Description or Subject fields, losing their functionality for sorting or search filtering. For known object searches, keyword searches across large

freetext fields as found in catch-all Dublin Core fields may suffice. However, when trying to find something "new," the ability to use granular fields to gradually refine a search by different characteristics is extremely valuable."

The simplicity of Dublin Core can be a benefit. The standard can also be used with The Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), which is used to harvest metadata and make it visible on search engines.

As well as the basic structure of the metadata, linked data should be included in the conversation for a museum online collection. Linked data is defined by Bizer et al. (2011) as "a set of best practices for publishing and connecting structured data on the Web." For a museum, this means creating and shaping metadata about the objects in the museum in a way that is findable and linkable with other similar data. Using linked data, the metadata can become Linked Open Data (LOD), meaning that it is stored in a cloud database to be used and linked to other data. Examples of these databases includes DBPedia and GeoNames.

Having metadata that is findable is of great use to a museum and is important in other ways as well. For example, the Europeana project uses a Europeana Data Model to aggregate metadata from European cultural institutions and make them findable in a database. There are over 50 million items digitised and stored in the database, making it hugely culturally important for European and Irish art. So, the benefit is two-fold; the institution will receive more recognition and structure for their online collection and more users will be able to explore their collection. As Hooland & Verbough (2014, p.88) note, "Over the years, we have witnessed how cultural heritage institutions have become increasingly dependent on how their products and services are consumed…cultural heritage

institutions also have a preservation role to play: therefore they should not take into account only the needs of their current users."

Some museums may have reservations about the creation of linked data. It may seem complex and daunting, but Szekely et al. (2013) lay out the three steps to creating linked data: Map the data to RDF (Resource Description Framework), link to external sources and finally curate the linked data. To assist with this, there are several tools that an institution could use. Szekely et al. (2013) developed the Karma integration tool for mapping data to RDF, whilst De Boer et al. (2012) developed the XMLRDF tool for conversion and the Amalgame tool for alignment.

Overall, an information professional will make a decision about the metadata standard to use based on their own judgement and current situation. No matter what style is employed to create metadata, it is important to give enough information to give context and meaning to the art object. Beaudoin (2012) argues that contextualisation for digital art objects requires effort because of all the physical and cultural aspects of art.

Ideally, metadata should be flexible, and the metadata elements would be in a state that could be combined with different schemas easily and robust enough to give the objects appropriate context. This would allow for the attachment of a variety of descriptive records and extensions that accommodate the needs of the object types as well as the users seeking information (Duval & Hodgins, 2002; Attig et al., 2004). Hillman (2008), agrees with this sentiment, arguing that "the critical piece is not necessarily obeisance to "standards" but instead making intent transparent—documenting what we do and have done to create and transform, so that others can determine the suitability for re-use in their environment".

There is no need to make decisions and elements overly complex for the sake of it, but without structure and context, art can become lost and forgotten.

1.7 Conclusion

Online collections are a complex mix of factors - they can be difficult to set up and require knowledge of metadata and its structures to create a useful resource. Palmer et al. (2007) and Beaudoin (2020) found inconsistency in the construction and even the definition of the online collections in their respective studies. Even when an art museum has the art resources available it can be difficult to create a cohesive online collection because of other factors (Duval & Hodgins, 2002; Bruce & Hillman, 2004).

Hirtle (2002), Ross & Terras (2011) and Batat (2020) found that there was significant benefit to more information and art being available online and that the public can benefit from online collections immensely. There is a strong case for art in public museums to be made available to as many people as possible.

When it comes to creating and maintaining an online collection there are several methods for creation. Social tagging systems may be of use to those institutes looking to interact with the public as much as possible, and various metadata schemas are available to make the metadata as useful as possible. In terms of schemas, art museums are varied so it is more likely that systems will be unique compared to a normal library collection. Information professionals in art museums must make informed decisions regarding the selection of metadata standards. There is no wrong answer as long as the collection becomes a useful tool for both researchers and the public. Factors like user input, findability and context should all be considered; it is difficult create enough information when

resources are limited. Web 2.0 and linked data structures should be considered by a museum - they are a good method of engaging with an audience (or potential audience) and making the metadata as wide-reaching as possible.

1.8 Lack of Irish literature

There is a lack of knowledge about the current situation of Irish Art Galleries and Museums. As highlighted by FitzGerald (2016) their research was the first "quantitative and qualitative survey of Irish museums (north and south) for more than a decade." Their research indicated that the development of digital services and online collections was increasing, but the rate of growth is unknown. There is no regulatory body that oversees the museums in Ireland FitzGerald (2016) making cohesion between the institutes more difficult.

Funding is a major issue for the development of online resources and collections globally (López et al., 2010; Abbey, 2012 and Fitzgerald, 2016). Although there has been interest in the area and funding allocated to the development of online resources for cultural institutes in Ireland, it is not yet clear what the effects of this funding have been.

1.9 Research Aims

Based on the themes and information appearing in the literature the research question has been defined as the following:

Do Irish Public Art Galleries and Museums provide adequate online collection services?

Sub-questions have also been created to further define the research question. The following questions will also be answered by the research:

a. What percentage of art museums have an online collection?

b. If the art museum does not have an online collection, what are the reasons?

c. Has the museum received funding for developing an online collection?

d. What is the internal perception of online collections?

e. What metadata schemas are being used for art museum collections, and how detailed is it?

Chapter 2. Methodology

2.1 Participants

The target population will come from the Visual Arts Ireland list of galleries and museums. The website includes a full list of all galleries, public and commercial, with a map to highlight geographic area. If the commercial services are removed from the search, 81 galleries and museums are left.

The list will be checked to make sure that the organisations involved are appropriate for the research. All the organisations have visual art spaces, collections, or exhibitions. It should be noted that a lack of an online collection is not a reason to discount the gallery or museum from the survey. The research aims to provide an overview of the presence of online collections and review possible reasons an organisation may not have one. For this reason, the survey allows for both positive and negative responses.

The list of organisations will be added to a Microsoft Excel spreadsheet with their location and contact email for organisation purposes. The list will then be modified as some of the organisations listed are located in Northern Ireland. In order to assess the state of Irish art museums and galleries it is necessary to remove the Northern Irish art organisations as they are not part of the Republic and therefore adhere to different standards and are funded by the United Kingdom government. The data gained from these organisations would have to be judged using different criteria and they therefore should not be included. There were 20 such museums and galleries in Northern Ireland, leaving the total research population at 61.

After the population was created, it was not necessary to further reduce it through sampling. As the population is of manageable size, it is possible to collect data from the whole population (Saunders et al., 2019, p. 294). If the population were to be sampled, the response rate may be too low to collect conclusive data.

The research project has a relatively small target population, and it is hoped that the number of respondents will be high enough to produce satisfactory data. The Republic of Ireland has a relatively small population and therefore, a small number of art museums. For quantitative data, the more data received the better, and researchers should try to collect as much data as possible (Denscombe, 2017, p. 270).

This research project will also take place during the summer of 2020. The Covid-19 pandemic has caused a lockdown and gallery and museum workers will, most likely, not be able to work from their respective organisations. It is uncertain if the museums will re-open during this period because of the pandemic. Because the project will be undertaken mainly via email, it is hoped that the respondents will be able to assist, but the priority is to ensure that any respondents are not under any risk to health. The closure and uncertainty of the galleries and museums means that the staff are under pressure and it should be expected that response numbers may be lower than under normal circumstances.

The research has also been limited to online resources because of the pandemic, all libraries and public spaces have been closed and travel has been restricted during the course of this research. The data provided will still be analysed as normal, but with the knowledge that the pandemic has led to difficulties in many areas.

2.2 Design

To represent and explain the research design, Saunders' et al. (2019) diagram of the research onion will be used (see figure 1 below). Each layer represents an aspect of research, moving from broader philosophy to techniques. The research methods chosen for this dissertation have been highlighted in the diagram and has been designed as a non-experiment.
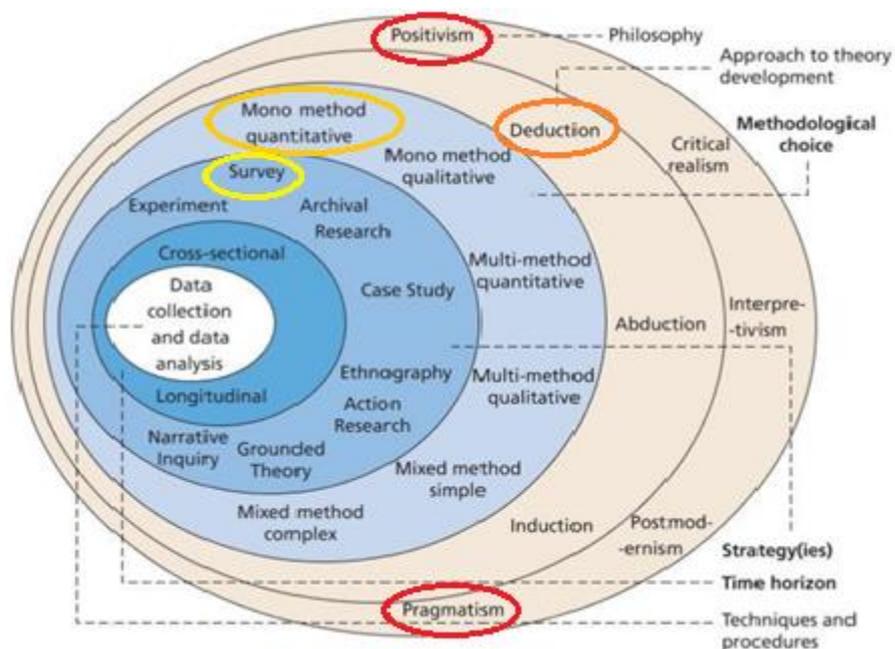
Figure 1: The Research Onion (Saunders et al, 2019, p. 130)

In research terms, philosophy is "system of beliefs and assumptions about the development of knowledge." (Saunders et al., 2019, p.130)

As the philosophy will underpin the methodology, strategy, and data collection, in order for the philosophy to be credible, it must be consistent and well-thought-out. (Saunders et al., 2019, p.130) For this research, the theories of pragmatism and positivism

will be used. Positivism relates to unambiguous and accurate knowledge and attempts to yield pure facts and data that are not influenced by biases (Saunders et al., 2019, p.143). Positivism contains the following aspects that are relevant to this research: "It typically suits deductive and quantitative research; a neutral and detached researcher and it obtains measurable data." (Saunders et al., 2019, p.143) Pragmatism "strives to reconcile both objectivism and subjectivism, facts and values, accurate and rigorous knowledge and different contextualised experiences" (Saunders et al., 2019, p.151).

Focusing on these aspects will help to fill the knowledge gap about the state of online collections in Irish art museums. This is a practical approach and contains relevant aspects such as problem solving. Pragmatism focuses on problems and practices and informed future practices. It is also sustained and initiated by researcher's doubts and beliefs, which are created and supported by the literature analysis in chapter one. Furthermore, there is an emphasis on practical outcomes which combines well with quantitative research. (Saunders et al., 2019, p.144).

This research will use a deductive approach, as opposed to inductive or abductive. The deductive approach is used to test a hypothesis and commonly uses quantitative data. The approach is suitable for the research as it is highly structured to allow for data reliability and the approach synergizes with positivism philosophy. Finally, if the sample size is sufficiently high enough it can be used to generalise (Saunders et al., 2019, p.153-54). Given the synergy with the philosophy and strategy, it was decided that the deductive approach would be most suitable.

2.3 Materials

The research strategy is used to lay out the details of the researcher's plan for answering the research question. The strategy is guided by the question, but also discusses the practical constraints (Saunders et al., 2019, p.189-190). Based on the research question, the philosophy and approach, it was decided that the best possible course of action for this research was a quantitative research approach in the form of a survey.

"A survey is a research method used by social scientists to empirically and scientifically study and provide information about people and social phenomena" (Lavrakas, 2008, p. 860).

The survey was selected as it is a low-cost method for collecting large amounts of data that suits a small-scale research project (Denscombe, 2017, p. 30). Quantitative data is based on precise measurements that try to separate from researcher bias. It is hard data that presents as facts (Denscombe, 2017, p. 301). Quantitative data is also used to measure relationships between variables (Saunders et al., 2019, p.178), for example the existence of a metadata standard in an online collection and the museum curator's perception of the online collection.

The questions are divided into sections (refer to Appendix C); first, general questions about the nature of the museum's online services and confirming whether the participant has an online collection. The survey asks also for the opinion of the participant regarding the online collection and website. The first half of survey functions as the main part, gathering data on both those with and without online collections. The reasoning behind the lack of an online collection, questions about whether the institute has ever received funding and the

priority of developing an online collection are all present in the first half of the survey. The second half is designed only for those who have an online collection. It moves into more technical aspects, such as metadata and collection structure. It is hoped that those with an online collection will be able to answer these questions and provide an overview of the nature of their online collection. This information will be reviewed, and the research will attempt to discover if there are any trends or popular methods emerging from the data. It is hoped that the research will provide information that would be useful to those museums and galleries without an online collection who are looking to set one up but are unsure of the best practice for this.

The questions have been created by focusing on the research question and sub-questions, whilst also keeping the literature in mind. In order to ensure as much participation as possible, the questions are short and are largely presented in a "Yes/No/Not Sure" answer structure. There is one question in the Likert style format, which ranges from 1 (strongly disagree) to 5 (strongly agree). Likert scale responses can be affected by central tendency or social desirability tendencies that may cause respondents to answer closer to what they perceive to be the desired answer rather than the truth (Lavrakas, 2008, p.429). This question measures how high the priority of developing an online collection is, in the eyes of the respondent. It was decided that the Likert scale was the most appropriate method to deduce this as a "Yes/No/Not Sure" style of question would not give adequate data in this case. However, given that there is only one question of this nature, it is hoped that the tendencies will not affect the responses. There are fourteen questions in the survey, and they are all non-mandatory, meaning that the participant need only answer what they are able to. There are several questions that sub-divide into A, B and C parts, for

the purpose of refining the information gathered in the question. The length of the survey and the nature of the questions have been created with the hope that the research will gather detailed data, whilst also obtaining as many responses as possible.

2.4 Procedure

The data for this dissertation will be collected using web-based surveys. Based on the philosophy and research design discussed above, it was decided that the survey would be the best method. The survey allows the data to remain structured and the researcher to remain separated and as unbiased as possible. Surveys are also low-cost and web-based surveys can circumvent the difficulties associated with travelling and time constraints (Denscombe, 2017, p. 30). The organisations are located all over Ireland and it would not be feasible, given the costs and time limitations of the dissertation for the researcher to travel in person to each museum. At the time the research took place, the Covid-19 pandemic also meant that travel was not possible and that many of the organisations were closed and re-opening dates were uncertain.

The survey is standard across all museums. In cases that the museum does not have an online collection, there is an opportunity to give the appropriate answer without the need to fill in the rest of the questions. The survey will be sent as a link to all museums via email, which are publicly available on the museum websites. The emails contain a brief explanation of the research project, and the necessary ethical and participation information. In the case that there is a direct email given for a suitable person on the website (e.g. the art collection director or online curator) the email will be sent to them instead of the general information email. The email requests that the person in charge of the online service or the

person who is most suitable should be the one to fill in the survey. The participant is also be asked to confirm that they are over the age of 18, for legal and privacy reasons.

The survey was created using Google Forms, a free online tool for creating surveys. The tool is suitable for the research as the questions are straightforward quantitative data questions. This tool also collects and displays the answers to each question in an appropriate graph or chart, making data collection simple. The data will be collected, organised, and analysed in order to be useful and answer the research question. Google Forms is helpful in this regard as the tools automatically process the answers, although more technical examination is still necessary using Microsoft Excel.

The answers from the survey will be processed using Microsoft Excel spreadsheets. The data will be given numerical values to make it easy to process and the variables will be coded and given appropriate labels for clarity. Data will be collected and processed using Excel tools and statistics will be created to describe the data. The descriptive statistics are used to summarise the data and inferential statistics are used to test the hypothesis and answer the research question. Where appropriate, graphs, bar charts and tables will be created for the questions and added to the Excel sheet. The information will be displayed in the Findings chapter in order of relevance and importance to the research.

The data will be saved often and backed up frequently. Back up versions of the data will be stored on cloud storage to make sure hardware issues cannot affect progress. The data will be kept secure and not shared with anyone, except in the case that feedback is requested by the researcher. The information will be shared with the research supervisor,

but only once the data has been made anonymous. Care will be taken to ensure that the data entries are correct, and that the data is presented in a neat and suitable format.

2.5 Ethics

Research ethics refers to the standards of conduct of the researcher in relation to the rights of the research population and anyone who will be affected by the research (Saunders et al., 2019, p.252-3). This research strives to maintain the integrity of data and research project. The researcher will not tamper with or alter the data collected, and will remain objective and unbiased, as per the philosophy.

The data will be presented in full but in order to protect the privacy of the research subjects, it will be anonymous. Surveys are intrusive in nature (Lavrakas, 2008, p.866) but for this research, the research population's personal information will not be saved or requested. The name of the museums will not be saved with the data, although it will be requested. In order to allow the participant the choice to request that their data be removed from the research, the email of the organisation is requested at the beginning of the survey. The name of the organisation will not be associated with the data provided. When the data is being analysed, it will not be associated with the museum. This research is not a case study and seeks to provide an overview of the topic. It is unnecessary to publish specific information relating to each museum for this research.

Full information about the research will be given prior to the survey to give informed consent to the subjects. As well as a brief, explanatory email, the research population will receive a PDF file describing the research. The respondents will be over 18 years of age and the survey will be completely voluntary. Each respondent will be able to leave any question

that they do not want to answer blank and are not required to fill in a minimum number of questions.

2.6 Data Analysis

The data will need to be collected, organised, and analysed in order to be useful and answer the research questions. Once the period allowed for answering the survey has ended (a total of three weeks approximately will be given to allow respondents to answer) the survey will be closed. For data analysis, Google Forms is helpful as the analytics tools automatically process the answers and provide them in a readable format, although more technical examination is still necessary using Microsoft Excel. The graphs given on Google Forms, although useful for the researcher, do not contain enough labels and Excel has superior editing power when it comes to graphs, so it will be used where necessary to re-create the graphs and charts. Readability and clarity are high priority for this data and care will be taken to ensure that all charts are sufficiently labelled and captioned.

As previously discussed, data will be collected and processed using Excel tools and statistics will be created to describe the data. The descriptive statistics are used to summarise the data and inferential statistics are used to test the research hypothesis and both will be used to answer the research questions. For the descriptive statistics, pie charts and bar charts will be used to summarise the categorical data and provide a clear view on the results. Not all of the survey questions will require a chart or table, and to give each question one would overwhelm the findings section and make it confusing for the reader to discern which question is which and what the key findings are.

The findings chapter will also contain frequency tables where appropriate, to further describe the data and highlight missing data. As the research population is small and contains a single population, the number of inferential tests that can be done is limited. For several of the survey question results, Fisher's exact test will be used (an alternative to the Chi-square test) for hypothesis testing to determine the relationship between different observations seen in the survey. The inferential data gathered over the course of the findings chapter will be used for further analysis and to establish viewpoints on the research questions. Both the descriptive and inferential statistics will be outlined in the findings chapter and then used in the discussion chapter to test the research against other research in the area.

Chapter 3. Findings

This section will be used to display the results of the survey. The aim of the research is to investigate the percentage of Irish art museums and galleries that have online collections. The reasoning of why or why not the online collection is present, the structure of the online collection and the perception of curators was also surveyed in order to give the percentage context and to explore the overall standings of online collections. The data from each question has been analysed and given an appropriate graph or table and is displayed in order of most to least importance to the research below.

As previously discussed, the survey is an online Google Form constructed of 13 questions and the survey can be found in full in the appendices section of this research. The questions were divided into two sections, the first is more general and does not assume that the respondent has an online collection. The second is only for the respondent with an online collection and asks them to describe the details and structure of their collection. Due to the small and specific research population, no sampling was necessary, and the survey was sent to a total of 61 galleries and museums.

The survey was sent out during the summer of 2020 and was open for several weeks for responses. A total of 27 of the institutes responded within the time limit. Of the total research population of 61, 27 respondents represent a 44% response rate. The implications of this number and the limitations of the research will be further analysed in the discussion chapter.

3.1 Online Collection Percentage

This section covers the results for Question 1(a): "Does your museum/gallery have an online art collection available to the public?" and Question 9: "What percent of the museum collection is available to the public online?".

These questions are the most general but constitute the most vital statistics for this research. The questions were used to ascertain which museums and galleries had a public online presence. The questions are both taken from the first section of the survey, which all participants were asked to fil in to the best of their knowledge and ability.

This section will focus on the respondents who answered positively to Question 1(a) (Does your museum/gallery have an online art collection available to the public?). In the instance that the respondent answered 'yes' to Question 1(a), the respondent indicates that they do have an online collection and therefore they are also able eligible to answer Question 9 (What percent of the museum collection is available to the public online?). All questions were non-mandatory, so questions have varying response results. This research is investigating the percentage of public art museums that have online collections, so the percentage of the art that is available to the public is as important as the online collection itself. The negative responses to Question 1(a) have been explored to deduce the reasons behind the lack of an online collection and are reported in the next section.

The total number of respondents was 27, and all respondents answered Question 1(a). The options given were 'Yes', 'No' and 'Don't know'. As seen in Figure 1 below, the number of respondents who said that they have a public online collection is 12, which represents 44% of the total respondents. 14 respondents (52%) said that they did not have a public online collection and 1 (4%) reported that they were not sure if their institute had an online

collection. Of all the responses, 'No' was the most popular answer, indicating that there is a higher percentage of museums without public online collections. However, the number is not significantly higher than the 'Yes' respondents, suggesting that there is not a significant majority of museums without online collections.
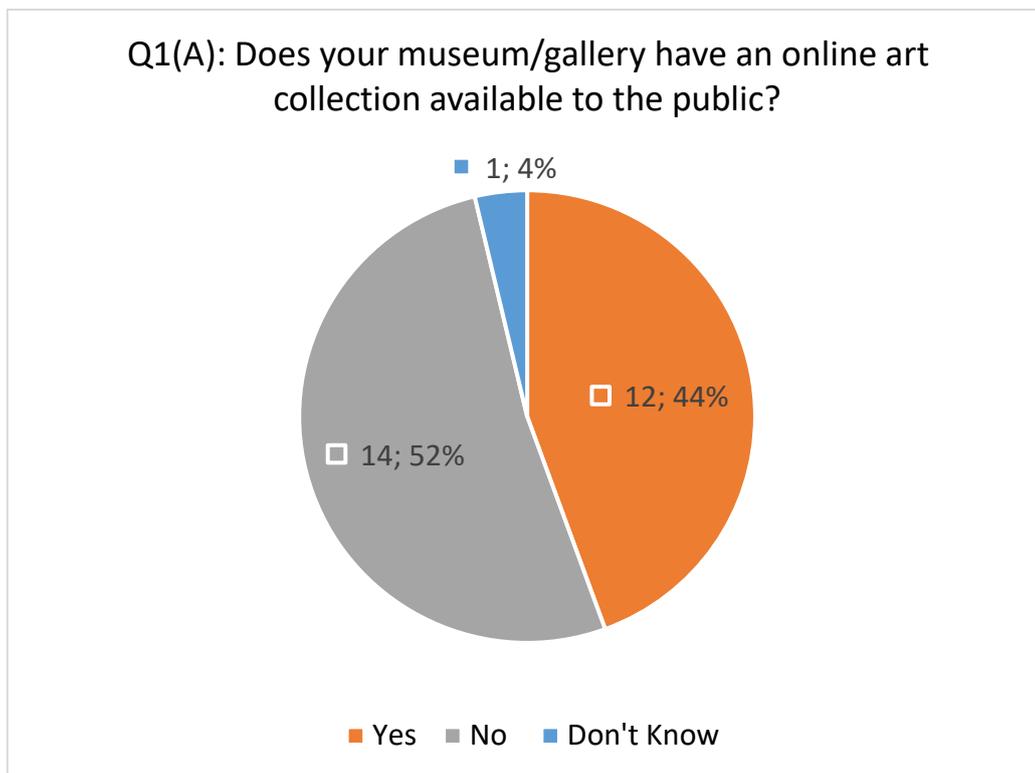

Figure 2: Question 1(a)

For Question 9 (What percent of the museum collection is available to the public online?), respondents were asked to select the percentage of their online collection that is available to the public. After affirming that they had an online collection as part of Question 1(a), this question was used to evaluate how much of the collection is available. A simple yes/no response does not indicate the scope of the online collection. The respondents were able to choose between four answers, each being a 25% interval. A lower interval indicates that most of the collection belonging to the museum has not been digitized or made available publicly. Whilst a slight majority of the respondents indicated that they do not

have an online collection, the responses to Question 9 show (as seen in Figure 3) that in the

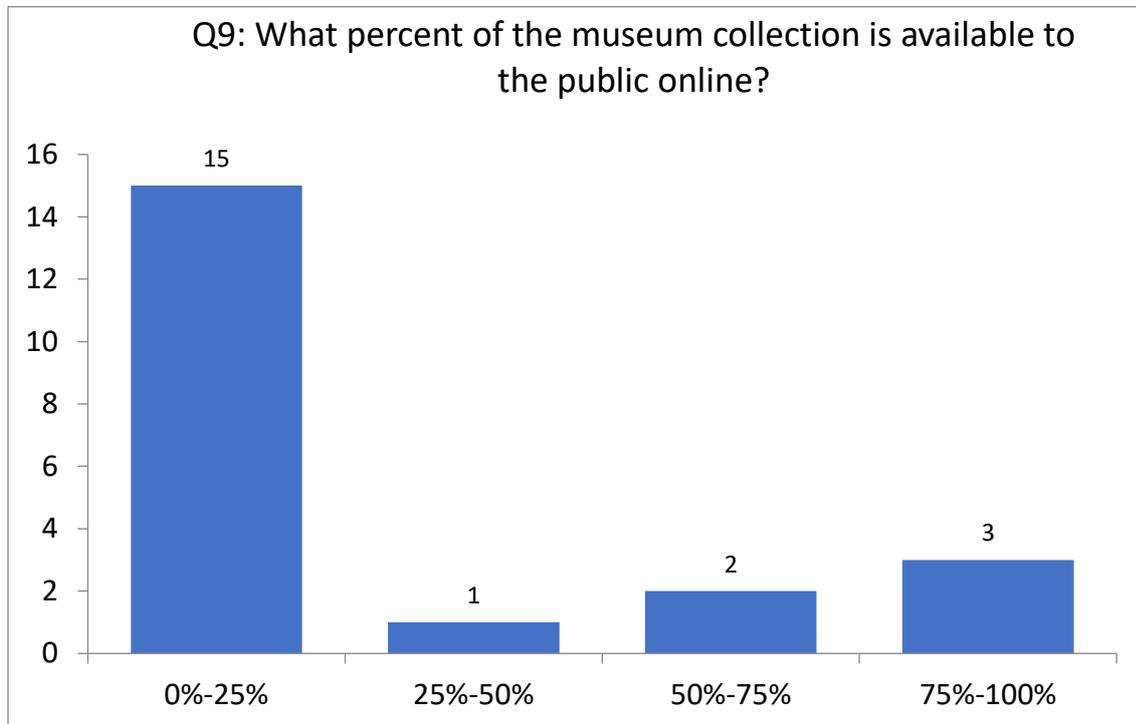case that there is an online collection, the amount of content is limited.

Figure 3: Question 9

However, it was noticed during the data analysis that the data for these two

questions is inconsistent. The number of respondents that answered Question 9 was greater

than the number that answered 'Yes' for Question 1(a). There are 21 responses for Question

9 whilst there are 12 'Yes' responses in Question 1(a). The majority of the answers for

Question 9 are in the 0%-25% category. Upon examining the data, it was found that there

were eight respondents who answered 'No' to Question 1(a) and also answered Question 9

in the 0%-25% category, which accounts for most of the extra answers to this question.

There was one other outlier for this question in the 50%-75% section. As an explanation, in

another question this respondent noted that the art had been previously available online

but was removed. This is most likely also the cause of the eight extra answers in the 0%-25%

category. It is assumed that this issue was caused by an ambiguity in the question structures. The total numbers for each question can be seen in Table 1 below.

Table 1: Cross-tabulation of Online Collection Percentage and Available Content

Variable		Available to the public					
		0-25%	25-50%	50-75%	75-100%	Missing	Total
Online collection	Yes	7	1	1	3		12
	No	8	0	1	0	5	14
	Don't Know	0	0	0	0	1	1
	Total	15	1	2	3	6	27

This inconsistency does not invalidate the data gathered from these two questions, rather it further reinforces that the online collection presence is either very low or non-existent for the majority of respondents. Even when the art has been digitized there is are still barriers to it being available to the public. Only four of the responses (19%) indicated that they had 50% or more of their collection publicly; 1 with 50%-75% and 3 with 75%-100%. This excludes the outlier mentioned previously. As well as documenting the figures for online collections, this research has attempted to explore the reasoning behind the lack of online collection presence, which is also examined in these findings.

3.2 Exploring the Reasons Behind the Low Online Collection Rates

This section will focus on the responses to the alternative responses to Question 1 in an effort to explore the reasons and potential problems and trends appearing for those respondents that who do not have online collections. It also examines the results of Question 13, which asks those who do have an online collection to provide an insight into

keys areas that could improve their collections. The results from both of these questions can be used to discover what the major issues are in online collection creation and maintenance for museums.

As seen in Section One, there is a slight majority of museums that do not have online collections and those that do are unable to provide all of their content to the public online. To investigate this, Question 1 was divided into sub-questions. If the respondent answered "No" to Question 1(a) (Does your museum/gallery have an online art collection available to the public?), they were asked to fill in Question 1(B).

Question 1(B) asks, "If you answered "No" in the previous question, please select the reason(s) that the museum does not have an online collection." This question is presented as a multiple-choice question, with options created from themes that arose in the literature review. Respondents were also given the option to select "Other" as an answer, and in the case that they did, they were asked the following question; Question 1(C): "If you answered "Other", please describe the reasons that the museum does not have an online collection." The choices for Question 1(B) are as follows: Legal Reasons, Lack of Time, Lack of Funding, Lack of Resources and Other. Legal reasons were included as it may be the case that the museum does not have permission from the artist to display the art online. Resources covers any technical problems or lack of access to necessary technology and staff shortages that would inhibit the creation of the online collection. Resources can also include lack of physical space for displaying collections. Without space to have permanent collections, they may not have much to display in an online space. The "Other" option was given to allow respondents to explain their reasoning and give further insight into the issues with online collections. As the respondents were allowed to select multiple reasons, the numbers for

these results are higher than the number of results for "No" for Question 1(A). The findings

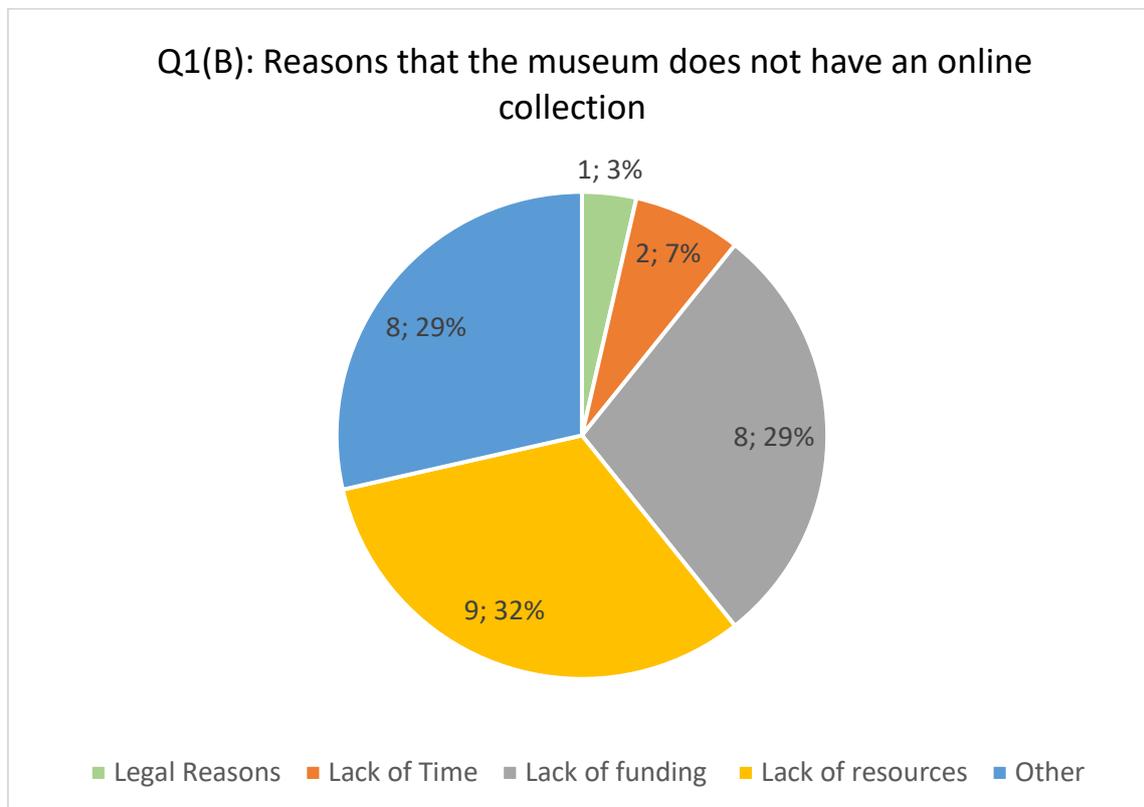from Question 1(B) can be seen in Figure 4 below.

Figure 4: Question 1(B)

Lack of resources had the highest percentage of answers, with 32% (9 votes) of

respondents selecting it. The resources option can be seen as the broadest of the options,

so it was unsurprising that almost a third of the responses indicated that this is an obstacle

to creating an online collection. Lack of funding and other reasons were just below with 29%

(8 votes) each. Funding is tied closely to lack of resources, given that resource issues may be

solved with additional funding. This is not always the case, but the high number of

responses for each indicate that there is an issue in both areas that may be solved with a

grant or funding increase. Conversely, even with a grant or additional funding, there may

still be resource shortage because of issues with staffing or training staff in curating the online collection.

Lack of time was not a major concern for most of the respondents, as this option only received 7% (2 votes) of the responses, indicating that the staff are ready and willing to create an online collection. However, this does not mean that staffing and training is not an issue, just that time is not a direct blocker to creating an online collection.

For the legal reasons option, there was only a 3% response rate (1 vote). This indicates that copyright and artist's permission concerns are not an issue for online collection creation. In some instances, this is not an issue at all as the museum may own the collection themselves as the art is historical and there are no legal claims to it. It should also be noted that these respondents do not have an online collection and may not have considered the legal implications of the creation. It is clear that this is not the first concern when creating an online collection. Lack of resources and funding are the primary considerations.

Eight of the respondents (29%) selected the Other Reasons option. They were able to give more information on their reasoning in a text box as part of Question 1(C). Of the responses to Question 1(C), most were giving more detail on the options selected 1(B). More information on the legal reasoning (copyright issues) and confirming that the lack of resources was due to out-of-date technology in the museum were given by way of explanation. The remainder of the responses for the 'Other' reasons specified that they lacked a permanent collection and just use their space to exhibit art. These museums are unable to provide on online collection as they cannot retain the art in their current form. In order for them to be able to have an online collection, they would require the resources to

keep a permanent collection. However, these museums may also not wish to change their format and may not desire a collection. These museums can be considered lesser in priority for this research as they do not provide data that is directly relevant to this research.

Question 1(B) and (C) were only answered by those without an online collection. However, it was found in section 3.1 of the findings that there is a low number of museums with online collections, and the percentage of art available on those collections was also minimal in most cases. It is clear that in cases where there are publicly available online collections, there is still room for improvement. Therefore, it is also necessary to examine the ways in which current online collections can be improved.

This was done through Question 13, "In your opinion, how could the online collection in your museum be improved?". This question was part of Section 2 of the survey and was meant only for those with online collections. The question was multiple choice and gave the respondents four options to choose from. The results from Question 13 can be seen in Figure 5 below. The results are similar to those of Question 1(B). The respondents to 1(B) felt that they needed funding to create an online collection and Question 13 respondents agreed, with an increase of funding being the most popular option for improving the collection.
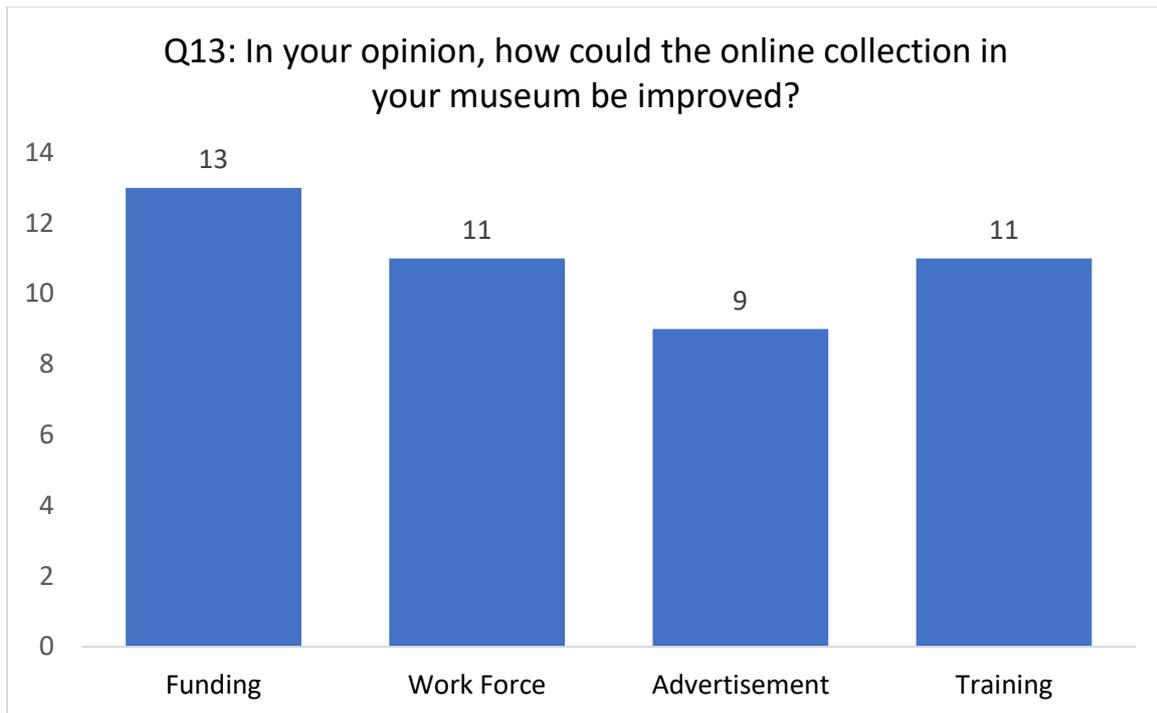
Figure 5: Question 13

Otherwise, an increase in the number of staff and increased training for staff were popular, with 11 votes each. These answers emphasis the difficulty in maintaining and updating an online collection; it requires both time and technical knowledge. This can be paralleled to Question 1(B)'s lack of resource option, which was the most popular answer. It seems that although Question 13's respondents already have the online collection; they still experience the same problems as those without. Lastly, the respondents were not overly concerned about increasing the advertising and promotion of the services. Nine respondents indicated that more website traffic may help the collection to gain priority and awareness, but overall, this is the least impactful means to improving the online collection.

3.3 Funding the Online Collection

The literature review revealed that there was a general issue with museums globally receiving funding for online collections. It was therefore decided that funding should be examined as part of this research. Two questions were created for this purpose. Question 3 & 4 were aimed at those who have an online collection, to discover where their funding (if there was any) was coming from. However, while the questions were aimed at those with online collections, the total responses for both of these questions is greater than the positive responses to Question 1(A). The large number of negative responses for Questions 3 & 4 indicate that those without online collections also answered these questions in the negative to provide more information. This information is still relevant as it reinforces the issue of lack of funding that was discovered in Question 1(B).

Question 3 asks, "Has the museum ever invested funds into the development of an online collection?". The responses (26 total votes) from this question can be seen in Figure 5 below. The majority of the answers for this question were "No" (15 votes, 58% of the total votes).

Even in the cases were there was an online collection present, there are still some responses that indicate that no funding was given to its development. The "Don't Know" option received only 2 votes and it seems that most respondents were aware of their museum's funding and budget direction.

There were nine "Yes" responses to Question 3, which is 75% of the total population who said that they did have an online collection. The high percent of museums that required funding for their online collection indicates that it necessary for the development and maintenance of the collection. Given that the development requires a budget, this also

indicates that those who have funded their online collection have put conscious thought and planning into the development of their digital museum.
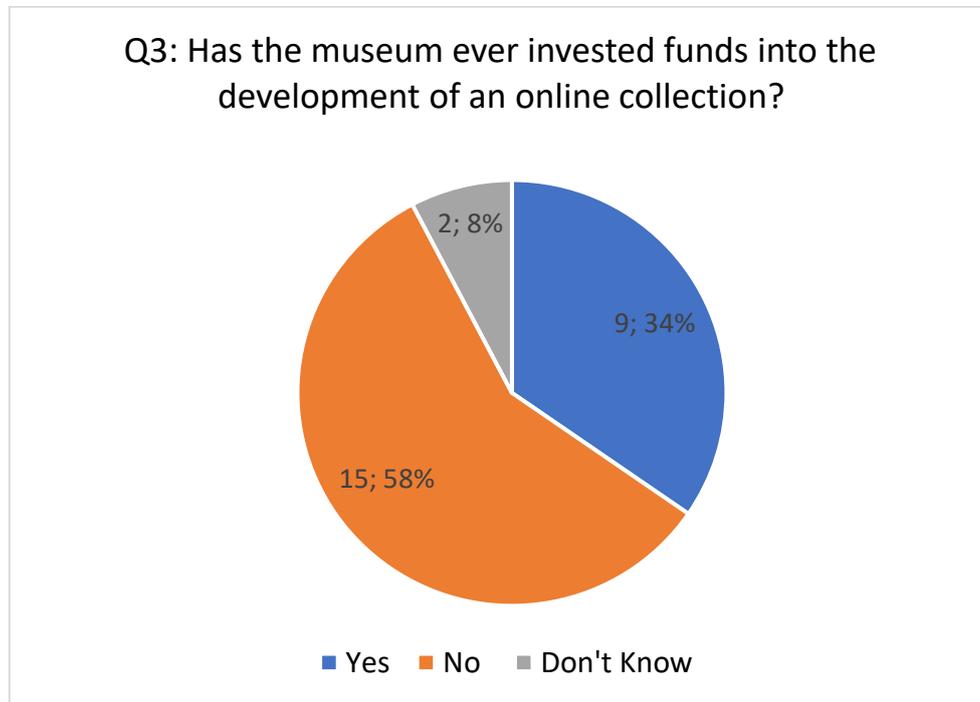

Q3: Has the museum ever invested funds into the development of an online collection?

2; 8%

9; 34%

15; 58%

■ Yes   ■ No   ■ Don't Know

Figure 6: Question 3

In general, the museums that have online collections have invested funds into it. Question 4 examined whether or not funds have come from the institute's own budget, or if they were allocated specifically from a grant. Question 4 asked: "Has the museum ever received funding specifically for the development of the online collection?". As seen in Question 1(B), one of the prime reasons museums do not have an online collection was lack of funding. It seems that most museums do not receive funding for digitization and cannot divert their current funds to digitization.

Of the 25 responses to Question 4, 76% (19 votes) said that they have not received any funding specifically for online collections. The number of "No" votes has again been populated by those without an online collection. 4% (1 vote) said that they were unsure if they had received funding, leaving only 20% (5 votes) confirming that they had received

funding. These figures can be seen in Figure 6. This means that of the 9 respondents from Question 4 who had put funds into their collection, just over half have received a grant for the purpose of online collection development.

To test the analysis made in this section, an inferential statistics test was performed. This was used to test the hypothesis that funding put towards an online collection from museums came from government or institutional grants/schemes. The hypotheses posed are then:

· H_0: No, funds invested to an online collection have not come from a government or institutional grant/scheme.

· H_1: Yes, funds invested to an online collection have come from a government or institutional grant/scheme.

As the sample size is small and there is only one population, a Fisher's exact test (an alternative to a Chi-square test) was performed. This will show whether there is a relationship between Question 3 and Question 4 in the survey. This is done by making a 2x2 contingency table so that the p-value may be calculated, and the behaviour of the variables can be determined. The results are shown below in Table 2.

Table 2: Question 3 & 4 Fisher's Exact Test

Variable		Received Funding (Q4)		
		Yes	No	Total
Invested Funding (Q3)	Yes	5	3	9
	No	0	15	16
	Total	5	18	27

The p-value from applying Fisher's exact test is then calculated to be p = 0.0017. This shows that the result is significant at p < 0.01 and that there is a positive association between the two variables. Using this data, the null hypothesis can be rejected, and it can be deduced that the funds invested into online collections came from a government or institutional grant/scheme.

3.4 Priority of the Online Collection

In these findings it has been discovered that there are numerous blockers to creating an online collection, as well as a lack of funding for those with a digital collection already in place. The research indicates that there are museums who wish to create an online collection but cannot, for various reasons. However, this information should also be examined in the context of how important it is to a museum to develop an online collection. If the development is not high priority, it can be assumed that there will be little-to-no funding allocated to the project. Therefore, Question 2, "How high is the priority of developing an online collection?" was added to the survey.

This question used the Likert scale to examine the respondent's opinion on how high they felt the priority was within the museum of developing the online collection. This question could be answered regardless of whether the respondents had an online collection or not. On the scale, 1 equated to lowest priority and 5 equated to developing the online collection as being highest or top priority. The centre point was 3, which indicates that the museum is actively working on digitizing their collection, but it does not take priority over other projects. So, respondents who answered with 3 are still actively pursuing an online collection.

The results of this research indicate that developing an online collection is a high priority for the majority of museums. More than half of the respondents answered either with a 5 or 4 priority, with a large number answering with the centre point 3. The median answer was 3 and the mode answers were both 3 and 5. The results of the investigation of Question 2 can be seen in Table 3 below. These numbers indicate that there is a large amount of interest and priority being given to the online collection development. However, there is a contrast between these numbers and the actual number of online collections in existence.

Table 3: Online Collection Development Priority

Variable		Frequency	Percent	Valid Percent	Cumulative Percent	Mode	Median
	1	4	15	15	15	3, 5	3
	2	2	7	8	23		
Priority Levels	3	8	30	31	54		
	4	4	15	15	69		
	5	8	30	31	100		
	Total	26	96	100			
	Missing	1	3				
	Total	27	100				

To further emphasise the importance and priority of the online collection and the museum website, respondents were also asked to re-evaluate their view on the online collection and if Covid-19 has affected the amount of online traffic their site is receiving. Covid-19 has prevented physical traffic from entering museums and forced greater online interaction. It is therefore relevant to this research to investigate the effects on the online collection.

The respondents were asked, "Has the Covid-19 pandemic affected your view on online collections?" (Question 5 in the appendices) to discern if the internal perception has changed during the course of the pandemic. Of the 25 respondents that answered Question 5, 14 (56% of the votes) said "Yes, I value the collections more", whilst seven respondents (28%) said "No- I feel the same about the collections". Finally, four respondents (16%) said they had not thought about it during the pandemic. This illustrates the importance of the online collection in being able to bring art to a wider audience.

Secondly, the research population were asked, "Has your museum website seen increased usage since the Covid-19 pandemic & lock-down?" (Question 6 in in the appendices) in order to see if the internal perception of the increased importance of the online services was being matched by audience interaction. 25 respondents answered this question, and 17 (68%) said that they had seen increased traffic to their website. Two (28%) said they had not, whilst six (24%) said they were unsure. As well as internal priority and awareness increasing, this statistic indicates that audiences are willing to engage with the museum and the art online.

3.5 Structure of the Online Collection

The research has established that although developing an online collection is a high priority, there are still many museums who lack the resources to do so. For those that do have an online collection, the research will now examine the structure of their collection. The structure and layout for these collections should be optimized for the best user and curator experience. Detailing the structure of current online collections is an important

aspect of this research. The questions requesting structure details was Section 2 of the survey.

Firstly, Section 2 asked if the collection was hosted on the museum's own website or is it hosted on another site. This is Question 8 (A) of the survey, which can be seen in the appendices. Not hosting the collection on another site is an alternative to having to create a completely independent setup. An independent setup is a chance for a unique and more cost-effective site. Hosting on another website may limit some of the editing power and linked data sharing that the collection has, as the museum may not have full control over the data that is produced. Of the 18 respondents who answered this question, most (12 answers or 67%) said that they hosted the collection on their own website. This indicates that most of the collections are individual and created by the museum themselves.

The respondents were also asked if they were using a metadata schema (Q9: Metadata schema to organise data in a collection. Is there a metadata schema/standard being used for the online collection?). As discussed in the literature, metadata schemas can be used to make images and data searchable and usable in a collection. In this research, the number of museums with large-scale online collections was found to be minimal, and this is reflected in the data collected in Section 2 of the survey. The results from Question 9 indicate that most museum online collections are not using a metadata schema to describe their data. The results from Question 9 can be seen in Figure 7 below.
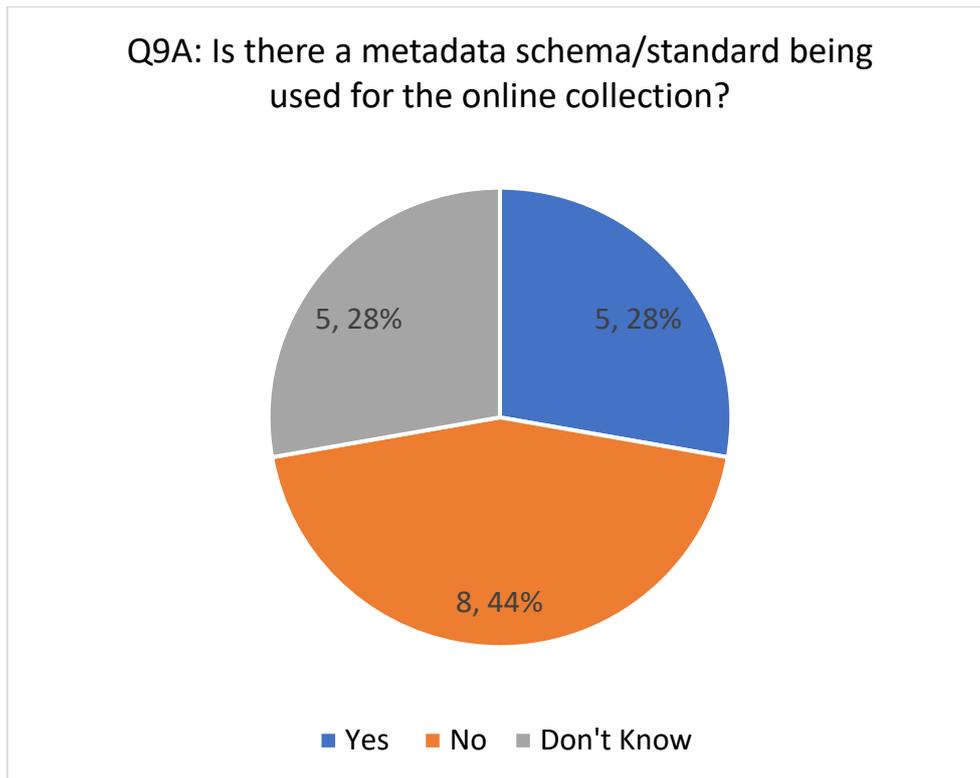
Figure 7: Question 9(A)

As shown, the most popular answer was "No", with 8 votes (44% of the total responses). With "No" having the highest number of votes, it can be assumed that the museums are either just hosting the images on the site with minimal information attached (i.e. the name of the Artist and the piece) or are creating their own metadata and not adhering to schema layouts or rules. This may affect the quality of the search function on the sites and means there is less information available on each image. Furthermore, both "Yes" and "Don't Know" received the same number of votes (5 votes, 28%). The respondents were also asked to state what metadata schema they were using, in the case that they answered "Yes". However, the lack of "Yes" responses means that there was not enough data to indicate any trends in the schemas or standards being used. Lastly, the relatively high number of "Don't Know" responses indicate that there is a lack of awareness surrounding the potential uses and advantages of the online collection. This data also

reflects the issues of lack of resources such as time and staffing available to museums found in this research.

Following this question, Question 10 asked, "Does every item have its own metadata and description?". Even in the case that the respondents are not using a metadata schema, they can still add their own metadata and disregard specific rules of schemas. For small online collections, this approach can still yield acceptable results, as there is no need to make the data linked or particularly complicated. However, the majority of the answers to Question 10 were also negative. Of the total number of respondents (26), 58% (15 votes) said that each item does not have its own metadata. 34% (nine votes) answered "Yes", whilst 8% (two votes) answered "Don't Know". This indicates that, regardless of schema, for most of the online collections, if there is metadata being used, it is being added only to groups or galleries within the collection.

The result for Questions 11 was similar to that of the previous questions. When asked, "Is there any form of social tagging (allowing any user to create or edit metadata?)", 66% (12 votes) of the respondents answered "No". The result from this question is influenced by the lack of metadata schemas and individual items with metadata that have been discussed in previously. It is also influenced by the lack of resources available to the museums. To allow user input for the content, there would need to be well-structured editing tools in place and the user-generated content would also have to be reviewed or monitored. The other responses for Question 11 are as follows; "Yes": 17% (three votes) and "Don't Know": 17% (three votes). Disregarding the "Don't Know" votes for this

question, the Yes/No balance is heavily weighted towards No. This suggests that social tagging is too complex for the online collections in this research.

Finally, to examine the types of media present in the online collections of the respondents, Question 12 asked, "Apart from images, are there multimedia files (videos, animations, interactive content) in the online collection?". Assuming that static images are the easiest form of media to upload and that they will be present on the online collections to represent the art, it is important to ascertain how much other content is available to the public. The answers to this question indicate that images are the most prevalent media type on online collections and other types of media are less prevalent. Of the 18 respondents to this question, 56% (10 votes) said that they did not have any other type multimedia files in their collection. 39% (seven votes) of the respondents said they did have other types of media and only one respondent (5%) said that they were unsure if they had multimedia files.

Chapter 4. Discussion

This section will be used to discuss the results of the findings in the context of the literature and the research question. To fully evaluate the research, the limitations, strengths, weaknesses, of the research will also be discussed. Finally, the research will be evaluated for its potential the real-world application and implications.

4.1 Research Question

The research question and sub-questions were developed in the introduction section and are repeated below for the sake of clarity for this chapter.

Research Question:

Do Irish Public Art Galleries and Museums provide adequate online collection services?

Sub-research Questions:

a. What percentage of art museums have an online collection?

b. If the art museum does not have an online collection, what are the reasons?

c. Has the museum received funding for developing an online collection?

d. What is the internal perception of online collections?

e. Are metadata schemas being used for art museum collections, and how detailed are they?

4.2 Summary of Findings

This section will briefly summarise the major points of interest in relation to the research question from the previous chapter's results.

The most vital piece of information from the findings was the percentage of museums that had an online collection available to the public. It was found that just over half (52%) of the surveyed museums did not have a public online collection. Furthermore, in the case that there is an online collection, the amount of the collection that was available online was overall, quite limited and did not include the museums' full collection.

It was expected that not all respondents would have the facilities to accommodate an online collection (either in part or in full). It was therefore necessary to investigate the issues and reasons for not having an online collection and ways in which the current collections could be improved. Therefore, the trends amongst those without online collections were investigated, as well as an inquiry to those with online collections to see how they could be improved.

For those without, lack of resources and lack of funding stood out as the most important reasons, each one with around one third of the responses. Lack of resources in this context could mean lack of staff members, technology or issues relating to housing physical collections in museums. The answers received from the first the group without online collections overlapped heavily with the results from those with online collections. An increase in funding, staffing, and training were seen as the best ways to improve online collection services.

Funding appears to be a prominent issue for digitization. To investigate the issue, the survey also asked if the museums had ever invested funds or been granted funding to

develop their online collection. The vast majority (76%) said that they had never received any funding specifically for their online collection and most (58%) had never invested funds themselves. In contrast to this, when asked about the priority of developing an online collection, a large number of respondents indicate that it was a high priority. To further emphasise this, most respondents said the Covid-19 pandemic had made them prioritize the online services more, and that there had been increased web traffic on their sites since the lockdown began in March 2020.

Finally, the respondents were asked to comment on the structure of their online collections. With the previous results highlighting the issues in maintaining online services, this section further detailed a lack of cohesion or standardisation in the structures of the collections. Although most museums host their collections on their own websites, the majority do not employ a metadata schema to help with the collection organisation and structure. Similarly, most of the respondents indicated that there is no social tagging or multimedia files such as videos on the sites and that each item in the collection does not have its own metadata.

4.3 Hypothesis Statement

The research was designed to discover to what degree are Irish Public Art Galleries and Museums providing online collection services. Through the use of the survey and the deductive research done as part of this research project, it was found that the online collection services are inconsistent and highly varied. There is much evidence to suggest that this is an area that is still developing and requires attention in order for growth to continue. However, the results from the sub-research questions indicate that most

museums and galleries are currently lacking online collections or have underdeveloped online collections. Therefore, the hypothesis can be rejected as Irish Public Art Galleries and Museums are not providing sufficient online collection services.

4.4 Discussion of Findings

4.4.1 Online collection percentage.

During this research it was found that by a very slim majority, there were more museums without online collections than with. The research population consisted of any and all public art museums in the Republic of Ireland, so it is not surprising that some of the smaller, local museums would not have the resources available for such a large technological undertaking.

In terms of online presence, all of the research population museums had a website, at the very least. The contact information for all the museums in the population was gathered from their own websites, each one providing a unique platform that satisfied, at minimum, the base requirements for a website. The strong showing of an online presence is consistent with Fitzgerald (2016)'s survey of Irish museums and a better result than Abbey (2012)'s American museums. Nowadays, it is quite easy for any business or company to create a simple website and it is reassuring to see that Irish art museums are embracing technology as best they can.

In comparison with a website, and as previously discussed in the literature, an online collection can be quite an undertaking. Although around half of the museums not having an online collection may seem disastrous, this result is fairly consistent with what was discovered in the literature. The percent of Irish art museums with an online collection is

better than the percent of American public art museums surveyed by Beaudoin (2020), who

found around one third of the collections were available to the public. Whilst it is hard to

compare American and Irish museums given the differences in size and population between

the two countries, it is important to note that Ireland is not behind the curve in terms of

digitization.

Although Ireland is performing well, and slowly building its digital collections, there

are still some issues for Irish art museums. As highlighted in the findings in this research and

in the literature (Fitzgerald, 2016; Palmer et al., 2007; Beaudoin, 2020) there is very little

consistency when it comes to the online collections, both around the globe and in Ireland.

There is no guide or "correct method" when creating an online collection, it is usually

shaped by the needs of the museum and the collection itself and builds from there. This

may not seem like a problem now, but increased usage of digital services will eventually call

for unity between different museums and online collections. The ability to share data

between museums will become more and more important and without a consistent

collection map or metadata, this may be impossible.

Furthermore, there is another issue within the online collection, and that is how

much of the collection is available to the public. It was found in this research that although

there were a reasonable number of museums with collections, less than half of the content

was publicly available. Again, this is consistent with Fitzgerald (2016)'s findings that

indicated that although digitization of art was slowly increasing, it is not always to the

benefit of the public. Eventually, it is hoped that the work that has been digitized will make

its way into the public online collection, and both the museum and the public can benefit

from the art, as described by Hirtle (2002).

4.4.2 Exploring the issues of developing online collections.

As well as exploring the range and scope of online collections in Ireland, this research investigated the reasons a museum may not have an online collection as well as ways in which current online collections can be improved. The aim was to find out, straight from the museum employee themselves, what the biggest problems were with creating and maintaining an online collection.

The most prominent reasons found were a lack of resources and a lack of funding. As already addressed in the findings chapter, there is a degree of overlap between these two reasons, however they are not the same. A funding grant given to increase digitization will not allow a museum to increase staff to cover the extra work created, and it may not pay for the training needed to curate an online collection.

Increased staffing and training are both areas highlighted in this research that would improve online collection services. This parallels the recommendation given by Fitzgerald (2016). In their research, Fitzgerald (2016) concluded that increased training and resourcing in the area of digitization was necessary. Four years on, it is safe to say that these recommendations are as valuable as ever. Staff are busy enough in their roles without also becoming the custodian of a whole new domain. As noted by Gilliland-Swetland & White (2004), this workload can be too much for the smaller museum. Training with a new system and using it to create an online collection can be a time-consuming activity, even for an experienced information professional, so even if the desire is present, it is not always possible to make happen without the manpower.

Since Fitzgerald's research in 2016, Ireland has enjoyed a period of relative economic stability, which usually means that the arts and culture sectors get the benefit of a larger

budget. However, it is clear that there has not been a dramatic increase in the amount of funding or staff in Irish art museums, as the same issues persist. As was established in the literature, creating an online collection can be expensive and if the museum does not have the budget it will need assistance to create one (Khoon & Ramaiah, 2008).

This research found that although some (32%) of surveyed museums had been able to invest funds into an online collection, only 20% had ever received funding for specifically for developing an online collection. Whilst schemes and grants (such as 2017 Digitisation Scheme that pledged €1 million to the sector) have helped some museums, clearly not all the museums were benefactors and there is still room for improvement. Although some online collections can be created on a shoestring budget, the low level of funding and the general lack of online collections echo similar research that found more funding was required for digitization (Abbey, 2012; Fitzgerald, 2016). A further investigation into where money is currently being granted and under what circumstances museums and galleries are failing to receive funding may prove to be extremely useful for those museums without funding.

4.4.3 Priority of the online collection.

Although by now it is obvious that there are several external factors, such as funding, that can inhibit the creation of an online collection, internal factors must also be discussed. As mentioned in the findings section, the willingness of the museum to invest and actively pursue an online collection is a factor that should not be ignored. Funding and support for projects in the arts sector can often come from the ground up, driven by those in the

community. If there was no interest in the idea of digitisation in the museum and gallery groups, it would never occur at all.

Therefore, this research has investigated the opinion of the respondents about the priority they place on developing an online collection. The results indicated that there was a great interest in online collections, with the majority of the responses placing high priority on development. This is a very positive result; it shows that whilst the actual level of online collections may not be too high, there is room for expansion in the area. As long as the resources are available in the area, these responses show that most museums have considered the possibility and would be willing to embrace the project and are willing to become champions of knowledge for their art collections in an online space, as discussed by Proctor (2010).

Current events have also influenced the area. As this dissertation was written during the summer of 2020, it was necessary to examine the effects of the Covid-19 pandemic on the sector. The findings show that just over half (56%) of the respondents now value the online collection more than they did before the pandemic, and it is easy to see why. The findings also found that most museums had seen increased traffic on their websites during the summer 2020 lockdown, and the museums with an online collection certainly benefited. As described by Hirtle (2002) and Soren (2005), the online collection is a real benefit to the audience, and a lifeline for the museums during the lockdown. Although Hirtle (2002) and Soren (2005)'s discussions may seem dated, they have never been more relevant to public art museums.

4.4.4 Structure of the online collection.

As well as the existence and state of the online collections of public art museums, this research also investigated the structure of those collections. It was hoped that trends would emerge in the results that would point towards a preferred method of creating an online collection amongst information professionals.

However, in the context of the other findings, the structure became less relevant as it was discovered that not many of the museums had a complex online collection with a large amount of art available to the public. The current amount of art displayed on the online collections is minimal and perhaps for this reason, many of the response towards the structure section of the research were also minimal or negative.

Just as Palmer et al. (2007) and Beaudoin (2020) found in their research, this research suggests there is a discrepancy between the museums in terms of how they present their collections. Around two thirds of the respondents in this research did not have a metadata schema in place. However, this is not necessarily an issue. Although Attig et al. (2004), Dougan (2004) note that there may be issues with searching and viewing the collection without any metadata, lack of a schema does not mean that there is no metadata, it just does not adhere to any particular rules. As well as not using a metadata schema, the majority of museums surveyed hosted the online collections on their own websites, meaning that they have total freedom over the content and metadata created.

The literature does not condemn a lack of a metadata schema. Museums can make simple metadata for their collections, drawing from sources such as Bruce & Hillman (2004)'s seven factors to consider for metadata creation. The general consensus is that the metadata needs to fulfil the basic requirements of accommodating the users as well as the

art objects (Duval & Hodgins, 2002; Attig et al., 2004; Hillman, 2008), and if the museums in the research are doing this without a metadata schema, the result of the survey can not necessarily be taken negatively. In the end, the focus for a public art museum should be the audience and how they will use the collection.

On the other hand, the literature also highlighted the benefit of linked data and social classification. It is harder to use tools like these without a metadata schema as the metadata needs to be consistent and detailed. 58% of the respondents said that they did not have individual metadata for each item in the collection and 66% said that there was no form of social tagging. It would also be harder to share the collection on other sites or projects (such as the Europeana project) if there is no consistency to the data. Furthermore, most respondents said that they did not have any multimedia files (other than static images) in their collections, which is consistent with the results from López et al., (2010)'s research. The lack of linked data and multimedia highlight the weaknesses in the Irish online collections.

However, the results from the structure section of the survey should also be examined in the wider context of the research. With the issues highlighted in the previous section, it can be assumed that the lack of resources and funding is also affecting the structure and quality of the collection.

4.5 Limitations of the Research

4.5.1 Research type.

The research was completed solely via online survey. The interaction with

participants was limited to online correspondence, which was useful as the research

population was large but also may have isolated those who prefer more personal

interaction. The population was able to contact the research via email during the project but

due to the size of the research population and their locations being spread all over Ireland,

it was not possible to arrange any face-to-face meetings. Covid-19 lockdown across the

country also prevented travel for the research period. With a smaller population in a specific

location, it may have been possible to arrange a meeting, but this method did not meet the

needs of this research.

4.5.2 Survey usage.

The survey suited the needs of the research as there was no travel required

(Denscombe, 2019, p. 30), however the survey does not provide the same depth and range

of information as other methods, for example interviews and case studies. The information

gathered in this research provides an overview of the area of online collections but does not

provide an in-depth study of the particulars of the area because of the research methods

selected.

Survey responses can also create answer biases in results because of the social

desirability tendencies of respondents, leading them to answer how they think the

researcher wishes them to (Lavrakas, 2008, p.429). This may have affected the outcome on

questions that asked the opinion of the respondent; however, the survey was not solely

comprised of opinion-based questions, so any potential biases would be minimal.

With a relatively impersonal method of an online survey, there is also less guarantee that of a response. For this research, the response rate was 44% of the total population. Although it was possible to gather data from this number of responses, the methods used in this research did not yield the highest possible response rate.

4.5.3 Time restrictions.

This research was conducted during a period of three weeks in July 2020. In order to complete the research project by the due date, this was the maximum amount of time that could reasonably be allowed. Compared to research conducted in a similar area (Fitzgerald, 2016; Beaudoin, 2020), this research was completed in a smaller time frame. This left the participants with a short period in which to answer, which may have affected the response rate.

4.5.4 Research material access.

Because of the Covid-19 pandemic, the literature and materials for this research were online sources only. Although the researcher endeavoured to secure as much information as possible from the online resources, it must be noted that access to libraries and physical resources inside the researcher's institute (Dublin Business School) were unavailable for the research period. The eBook provider DawsonEra also ceased operation and went into liquidation towards the end of the research period. DawsonEra was used in in this research as it provided eBooks and journals to Dublin Business School Library. This limited some of the information available to the researcher. However, the effects were minimal as the resources were only removed at the end of the research, after the primary research had been completed.

4.6 Strengths of the Research

One of the major strengths of this research was the primary research tool, the online survey. The survey suited the style of research and the type of information that the researcher was trying to gather. The online aspect also helped as it was free and did not require the researcher to travel to the target population's locations (Denscombe, 2019, p. 30). The entire research population was accessible for the research because of this method.

The research population selection was another strength of the research. Because of the size of the population, there was no need for sampling and every eligible museum and gallery was contacted (Saunders et al., 2019, p. 294). This meant that the maximum amount of data could be gathered and there was no need for sampling. There was no extra work needed to sample the population and there were none of the usual pitfalls associated with sampling.

The survey structure was strong and well-constructed. The questions were created using the literature discussed in Chapter One and care was taken to ensure that there were an appropriate number of questions on the survey. Too many, and respondents would become bored or overwhelmed and the response rate to questions towards the end of the survey would have been lower.

The questions were divided into appropriate sections, so that sections could be skipped where appropriate for the respondent and mostly followed an easy to answer "Yes/No/Don't Know" style. This quick-and-easy style of question helped to give a high response rate to each question. Lastly, all the questions were used in the findings and there was no question that was deemed 'unnecessary' in the data analysis section.

4.7 Weaknesses of the Research

A general weakness of dissertation research projects is the time frame in which they take place. For this research, the focus was public art museums and galleries. The summer months are usually the busy tourist season and the museums may have been less inclined to answer the survey as they would have been too busy. Because of Covid-19, there was no influx of visitors, but the museums were very busy dealing with the crisis. As previously discussed, there was also a relatively short time frame for the survey to be answered.

The survey request email was sent out to the general information contact email given by most of the museums (in the case that there was a more specific enquiry email, that was used instead). The email requested that the person with the most knowledge of the area be the one to complete the survey. However, there is no way of verifying which staff member filled in the survey as the survey did not request personal names or positions in the museum.

The main weakness found in this research was the ambiguity in the survey information and questions. When sent the survey and information document, some of the museums and galleries that did not have online collections and were unsure if they should answer the survey at all. This information was left out of the original email in error. It was necessary to send out another email to those who were confused to clarify that a negative answer was still a perfectly acceptable answer.

Furthermore, some of the questions were worded in a slightly ambiguous manner. The term 'museum' had been used throughout the survey and several respondents thought that they were not applicable for the survey as they did not refer to themselves as a

museum but rather as a gallery. The survey questions were edited slightly to dispel this confusion.

Lastly, during the data analysis and after re-examining the questions, it was found that there may have been some confusion in certain questions. The wording of some of the questions (Question 9 and Question 1(B)) was too ambiguous. The question data was still valid, however if they had been worded differently, the collected data would have been more precise.

Finally, as discussed in the introduction chapter, there is a lack of Irish research in this area to compare these findings with. The major comparisons for the research come from Fitzgerald (2016), but this not a direct comparison as the research criteria was slightly different. This does not invalidate this research, however, there is less context for the findings.

4.8 Future Research and Implications

4.8.1 Future research.

The focus of this research was the presence of online collections in public art museums and galleries. For future research and comparison, this study can be repeated. The nature of the study and the methods used are very easy to replicate. The survey questions can be re-used, and the study can potentially be re-created after a period of time (for example one year). The results could be used as a comparison of the original survey to discern whether there is any growth in the area. Key points of percentage of online collections, funding and priority of the online collection can be measured against future

research. The research population is a strictly defined population and did not require sampling, so the same museums can be included.

The impact of Covid-19 was discussed in relation to this research, but it can also be used in future research. The research took place near the beginning of the pandemic, and at the time of completion, there was little evidence that the end of the pandemic was in sight. Once movement and travel restrictions are relaxed and museums can re-open to the public, it may be possible to take the data gathered in this research regarding Covid-19's effect on the museums and use it to create an overall or retroactive look at the effects of the pandemic on the museum and arts sector.

This research was an overview of the whole area of online collections, collecting data about numerous aspects surrounding it. Whilst the data provides a well-rounded look at online collections, it is possible to conduct more detailed research about a specific aspect mentioned in this research. For example, this research looked briefly at the metadata schemas in place but does not delve into the complexities of metadata for museum collections. However, it could be used as a springboard for further research of the area.

4.8.2 Implications and applications of results.

The results and discussion of this research indicate that there is an interest in the area of digitisation and publicly displaying art online within the public art museum world. Although there is interest and priority being put into online collections, there is still a way to go and issues to overcome. It is hoped that the rate of online collections and their priority in the art museum world will continue to grow, and that this research will be of use to those looking to create a plan for development in the area.

The most prominent results of the findings implicate that the funding, as well as staffing and training, are major factors in museums not having online collections. There has been previous funding specifically for digitisation but not all the museums received funding and are still unable to take on a project as time-consuming as an online collection. More funding in the area would provide an excellent starting point for many of the museums surveyed in this research. Extra staffing and funding would also increase the rate and quality of online collections. Without the necessary attention and time, it is clear that the online services of museums suffer. However, it seems that current staff are already stretched too thinly to deal with the addition of online services.

There are limitations to the implications of this research. Although this study has provided the overview of the main issues for online collections, there is little other research in the area. Further research in the area of museum funding and construction of collections would be necessary before a plan for development could be made. As discussed, this research can be used as a guideline for more in-depth and larger-scale research projects.

4.9 Conclusion

This research project aimed to uncover the realities of online collections in public art museums and galleries in Ireland. The research was exploratory, looking to illuminate issues and trends in the area, rather than being critical. The results provided some interesting results; in comparison to similar, international surveys, Ireland has a healthy amount of digital services and online collections. However, there is still a long way to go in order to achieve digitisation and a level of online collections that can provide the public with a fully interactive and innovative digital experience.

It was found that although there are a sizeable number of online collections in place on museum websites, they are far from being in the majority, and the amount of publicly available content is extremely varied and, more often than not, does not showcase all the art that a museum has to offer in its physical collection. The benefits of online collections and digital services are not being fully utilised by the art museums in Ireland.

Through the exploration of the issues surrounding the creation of an online collection, the research revealed problems in several areas; as well as minor issues with legal requirements and time limitations, major areas such as funding and staffing were highlighted. A lack of direct funding and dedicated positions for digitisation and online collection maintenance have meant that there are many inconsistencies in the structures of current collections. As with most other areas, the future of the art museum contains much more online interaction than ever before, and this will only increase as time goes by. It is necessary to construct an intuitive and flexible platform that can be used by the public, and maybe even connect to other museum collections.

Despite the issues, the overall view of the online collections is positive and the information professionals working in the area are willing to dedicate themselves to digitisation, should the opportunity be afforded to them. Covid-19 has put into perspective, for many people, just how important online services are. It is hoped that this research has had some effect in increasing the priority of the online collection within the art museum community.

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Appendices

Appendix A. Information Sheet

INFORMATION SHEET FOR PARTICIPANTS

PROJECT TITLE

An analysis of the state and quality of online collections in Irish public art museums

RESEARCH SUMMARY

My name is Aisling Hurley and I am a final year student in Dublin Business School (DBS)'s Information and Library Management Master's programme.

This research aims to investigate art museum online collections within the Republic of Ireland. The standard of the online collections and their public availability have become increasingly topical issues within the museum and gallery world. There are many aspects to consider in an online collection, and this research aims to paint a picture of the current Irish landscape, examining the structure of online collections and the opinion of the museum information professional of the online collection.

WHAT WILL HAPPEN

In this study, you will be asked to fill in an online survey asking questions about your art museum's online collection. For the sake of the protection of minor's data protection rights, it is asked that the participants are over 18 years of age. Participants do not have to answer all the survey questions and ever question is non-mandatory. The survey will be online only, so there will be no risk to health due to the Covid-19 pandemic.

The survey is divided into two sections:

1. General questions about online questions, these should be answerable even if your museum does not have an online collection.
2. Questions for those museums with online collections, asking the specifics.

TIME COMMITMENT

The survey should not take more than 10 minutes and contains 13 questions, which are mostly yes/no formatted.

PARTICIPANTS' RIGHTS

You may decide to stop being a part of the research study at any time without explanation required from you. If you decide not to submit the survey, none of the information you have entered will be saved. You also have the right to request the data submitted be removed from the research at any time (up until the research is complete at the end of August).

You have the right to omit or refuse to answer or respond to any question that is asked of you.

You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome).

CONFIDENTIALITY/ANONYMITY

The survey questions are completely voluntary and no personal information is required. The survey and the data collected will be anonymous and the participants answers will not be linked to their institute.

There are some questions that will ask your opinion, but these questions are not personal and are not mandatory.

In case there is an issue with the data or if the participant requires their answers to be removed, the museum email addresses are requested at the beginning of the survey. These will not be associated with the findings in the completed research and will be deleted after the research is complete.

The names of the research population as well as their place of work will not be recorded. After the research is complete the findings will be used to complete my dissertation.

FOR FURTHER INFORMATION

I or /and my supervisor Marta Bustillo will be glad to answer your questions about this study at any time.

My email is 10506051@mydbs.ie

You may contact my supervisor at martha.bustillo@dbs.ie.

Appendix B. Consent Agreement

Section 1 of 4

Online Collection Survey

This research aims to investigate art museum online collections within the Republic of Ireland.

In case there is an issue with the data or if the participant requires their answers to be removed for any reason, the museum email addresses are required. These will not be associated with the findings in the completed research and will be deleted after the research is complete.

Email address *

Valid email address

This form is collecting email addresses. Change settings

After reading the information contained in the email and the information document, I consent to *
participating in this survey and am over the age of 18.

☐ Yes

Appendix C. Survey Questions

Section 1- The Museum/Gallery

Description (optional)

1. (a) Does your museum/gallery have an online art collection available to the public?

○ Yes

○ No

○ Don't Know

1. (b) If you answered "No" in the previous question, please select the reason(s) that the museum does not have an online collection.

☐ Legal reasons

☐ Lack of time

☐ Lack of funding

☐ Lack of resources

☐ Other

1. (c) If you answered "Other", please describe the reasons that the museum does not have an online collection

Short-answer text

2. How high is the priority of developing an online collection?

	1	2	3	4	5	
Low Priority	○	○	○	○	○	High Priority

3. Has the museum ever invested funds into the development of an online collection?

○ Yes

○ No

○ Don't Know

4. Has the museum ever received funding specifically for the development of the online collection?

○ Yes

○ No

○ Don't Know

5. Has the Covid-19 pandemic affected your view on online collections?

○ Yes- I value online collections more

○ No- I feel the same about online collections

○ Maybe- I haven't thought about it during the pandemic

6. Has your museum website seen increased usage since the Covid-19 pandemic & lock-down?

○ Yes- There has been an increase in site traffic

○ No- There hasn't been an increase

○ Maybe- Traffic isn't measured/number isn't clear

Section 3 of 4

Section 2- Online Collection Details

If you have no online collection, please skip this section

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7. What percent of the museum collection is available to the public online?

○ 0%-25%

○ 25%-50%

○ 50%-75%

○ 75%-100%

---

8. (a) Are the collections on the museum's own website, or are they hosted on another website?

○ Own Website

○ Omeka

○ Contentdm

○ Collective Access

○ Other

○ Don't Know

8. (b) If you answered "Other" in the previous question, please state which website is being used to host the collection.

Short-answer text

9. (a) Metadata schema are used to organise data in a collection. Is there a metadata schema/standard being used for the online collection?

○ Yes

○ No

○ Don't Know

9. (b) If you answered "Yes" to the previous question, please specify which standard. (VRA Core, Dublin Core, CDWA etc.)

Short-answer text

10. Does every item have its own metadata and description?

○ Yes

○ No

○ Don't Know

:::

11. Is there any form of social tagging (allowing any user to create or edit metadata?)

○ Yes

○ No

○ Don't Know

12. Apart from images, are there multimedia files (videos, animations, interactive content) in the online collection?

○ Yes

○ No

○ Don't Know

:::

13. In your opinion, how could the online collection in your museum be improved?

☐ Increased funding

☐ Increased work force curating the collection

☐ Increased advertisement/promotion of the online services

☐ Training for staff for online services