

How Open is OpenGLAM? Identifying Barriers to Commercial and Non-Commercial Reuse of Digitised Art Images

Foteini Valeonti
University College London
London, United Kingdom
f.valeonti@ucl.ac.uk

Melissa Terras
University of Edinburgh
Edinburgh, United Kingdom
m.terras@ed.ac.uk

Andrew Hudson-Smith
University College London
London, United Kingdom
a.hudson-smith@ucl.ac.uk

Abstract

Purpose – In recent years OpenGLAM and the broader open license movement have been gaining momentum in the cultural heritage sector. We examine OpenGLAM from the perspective of end users, identifying barriers for commercial and non-commercial reuse of openly licensed art images.

Design/methodology/approach – Following a review of the literature, we scope out how end users can discover institutions participating in OpenGLAM, and use case studies to examine the process they must follow to find, obtain and reuse openly licensed images from three art museums.

Findings – Academic literature has so far focused on examining the risks and benefits of participation from an institutional perspective, with little done to assess OpenGLAM from the end users' standpoint. We reveal that end users have to overcome a series of barriers to find, obtain and reuse open images. The three main barriers relate to image quality, image tracking and the difficulty of distinguishing open images from those that are bound by copyright.

Research limitations/implications – This study focuses solely on the examination of art museums and galleries. Libraries, archives and also other types of OpenGLAM museums (e.g. archaeological) stretch beyond the scope of this paper.

Practical implications – We identify practical barriers of commercial and non-commercial reuse of open images, outlining areas of improvement for participant institutions.

Originality/value – We contribute to the understudied field of research examining OpenGLAM from the end users' perspective, outlining recommendations for end users, as well as for museums and galleries.

Keywords – OpenGLAM, Open Access, Museums and Galleries, Open Images, Digitised Art Images, Open Content

Paper type – Research paper

1. Introduction

Since 2011 when Rijksmuseum pioneered the OpenGLAM movement by providing free and unrestricted access to thousands of images of public domain works from its collection, several other museums have followed its lead. Well established and highly influential institutions such as the National Gallery of Art in Washington and the Metropolitan Art Museum in New York City are committed to OpenGLAM, with more institutions participating every year. Along with the movement's expansion in the GLAM sector, a growing body of literature has been exploring the potential and impact of OpenGLAM. However, academic literature has so far focused mainly on examining OpenGLAM from the perspective of museums and galleries and on the assessment of whether OpenGLAM participation is beneficial for cultural heritage institutions, identifying the benefits, as well as the risks of participation (Kelly, 2013; Sanderhoff, 2014; Kapsalis, 2016).

This paper focuses on examining OpenGLAM from the perspective of end users seeking to utilise these images as a resource upon which to build new products and services, identifying the barriers for obtaining and reusing images from participant institutions for commercial purposes. In the scope of this article, *end user* is described as a person, or an organisation, interested in reusing images from the digitisation of institutions participating in OpenGLAM for the production of new goods, or services, although, along the way, we identify and determine many issues which also pertain to users who wish

to access art images for non-commercial reasons. Through a series of case studies, in three different institutions, i.e. the Indianapolis Museum of Art, States Museum Kunst (i.e. the National Gallery of Denmark) and the Metropolitan Museum of Art, the process of obtaining and reusing images from each museum is examined. The barriers encountered are identified and the measures taken to overcome them are also provided. Based on the case studies and also on research conducted on other museums that participate in OpenGLAM, three key barriers for commercial image reuse are identified, concerning image quality, image tracking and the difficulty for end users to distinguish open images from those that are bound by copyright. In addition, observations that were made whilst conducting this research are also provided, identifying trends of how the OpenGLAM movement currently instantiates offering and delivery of digital resources and controls their reuse.

This article seeks to inform future scholars and practitioners of OpenGLAM, by contributing towards the growing body of literature examining the movement. More specifically this article aims to contribute towards the understudied field of research that explores OpenGLAM from the standpoint of end users, interested in reusing open images, including commercial reuse. In addition, in order to inform future practice and improve decision making, the last part of this paper is dedicated to a series of recommendations for three key groups, i.e. individual users, commercial users, and institutions.

2. Overview

2.1. Open Access

Defined as “a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community” (Max Planck Open Access, 2003), *open access* has been of increasing interest in the cultural heritage sector in recent years for various reasons that range from the conviction of museum directors that collections should be available on the Internet “freely and easily” (Kelly, 2013, p. 21) to the widespread digitisation of our cultural heritage and the increasing use of social media (Estermann, 2016). In practical terms, in the academic community open access refers to “the provision of unrestricted access to peer-reviewed scholarly research” (Terras, 2015a, p. 733), whilst in the context of cultural heritage, a study by Kristin Kelly exploring open access in the museum sector, titled *Images of Works of Art in Museum Collections: The Experience of Open Access*, revealed that “different museums look at open access in different ways” (Kelly, 2013, p. 2). A year later in 2014, an article on museums and open access by the Goethe Institut stated that although cultural heritage institutions were increasingly interested in adopting an open access model, at the same time they were also “discussing how far open access should go” (Pachali, 2014). In the article, the Rijksmuseum is presented as the undisputed “true pioneer” of open access (Pachali, 2014), as it is the first museum that took the decision in 2011 to offer thousands of high quality images of artworks in its collection that were in the public domain¹ for anyone to download and use without any limitations (Terras, 2015a). However, representatives from other museums, such as the Prussian Cultural Heritage Foundation, argued in Pachali’s article that, although open access should go “as far as possible”, at the same time “commercial users should continue to pay” in order to keep financing the museum’s digitisation (Pachali, 2014).

¹ Public domain refers to artefacts the copyright of which has expired.

Kelly's study demonstrated that apart from organisations that are "leaders in putting high-resolution digital files of works of art in their collection online, for use by anyone, for any purpose" (Kelly, 2013, p. 4), such as the Rijksmuseum, there are several other museums that have developed a "a highly refined 'fee and free' system that adroitly mixes revenue generation with the promotion of scholarship", by offering images for academic, scholarly use, whilst licensing them for commercial use (Kelly, 2013, p. 4). However, a more recent definition of open access for the museum sector excluded such cases, in which images are provided freely only for non-commercial use. In a report prepared for the Smithsonian Institution in 2016, Effie Kapsalis defined open access as "making public domain materials open for use without any restrictions, and making copyrighted materials available under the provisions of fair use" (Kapsalis, 2016, p. 2), allowing the limitations of "non-commercial" and "educational" only for artefacts that are bound by copyright and are therefore not in the public domain (Kapsalis, 2016). The ambiguity of open access prior to the definition of Kapsalis in 2016, has resulted to several museums claiming to be part of open access, such as the Morgan Library & Museum (Milliman, Schindewolf and York, 2013) and the Dallas Museum of Art (Dallas Museum of Art, 2013), whilst in reality they offer images of public domain works for non-commercial use only (Dallas Museum of Art, 2013; The Morgan Library and Museum, 2016).

2.2. OpenGLAM

An initiative promoting "free and open access to digital cultural heritage held by Galleries, Libraries, Archives and Museums" (OpenGLAM, 2018a), OpenGLAM could be considered a distinct subset of the broader open access movement in the cultural heritage sector. The institutions that can be considered part of OpenGLAM, are determined by a set of principles provided on its web site (OpenGLAM, 2018b). One of the principles of OpenGLAM dictates that museums must "keep digital representations of works", e.g. images of artefacts, "for which copyright has expired (public domain [works]) in the public domain by not adding new rights to them" (OpenGLAM, 2018b). In Britain and across Europe, there have been developments signalling that digital reproductions, such as photographs of artefacts do not create copyright, but instead they are mere copies of the original work (Intellectual Property Office, 2015). In 2015, the Intellectual Property Office of the United Kingdom, published a Copyright Notice titled *Digital images, photographs and the internet*, stating that "simply creating a copy of an image won't result in a new copyright in the new item" (Intellectual Property Office, 2015, p. 3). The Copyright Notice clarifies that "according to the Court of Justice of the European Union which has effect in UK law, copyright can only subsist in subject matter that is original in the sense that it is the author's own 'intellectual creation'", even if "specialist skills have been used" when creating the digital reproduction (Intellectual Property Office, 2015, p. 3). However, since the Copyright Notice "is not a conclusive view of the law" (Intellectual Property Office, 2015, p. 2) museums in Britain and in Europe continue charging image fees for public domain works; a practice that has attracted criticism, describing such revenues as a "pernicious tax on scholarship" (Grosvenor, 2017). As a response to the ambiguous legal landscape concerning images of public domain artefacts, OpenGLAM defines and promotes all institutions that offer all of their images of public domain works without any restrictions, allowing even commercial reuse. Lastly, it is worth noting that although OpenGLAM was pioneered in Europe, by the Rijksmuseum in the Netherlands, European art museums at present account for only a third of the total number of art museums and galleries participating in OpenGLAM, whilst outside North America and Europe there has yet to be an art museum or gallery abiding by its principles (Figure 2).

Participation over Time

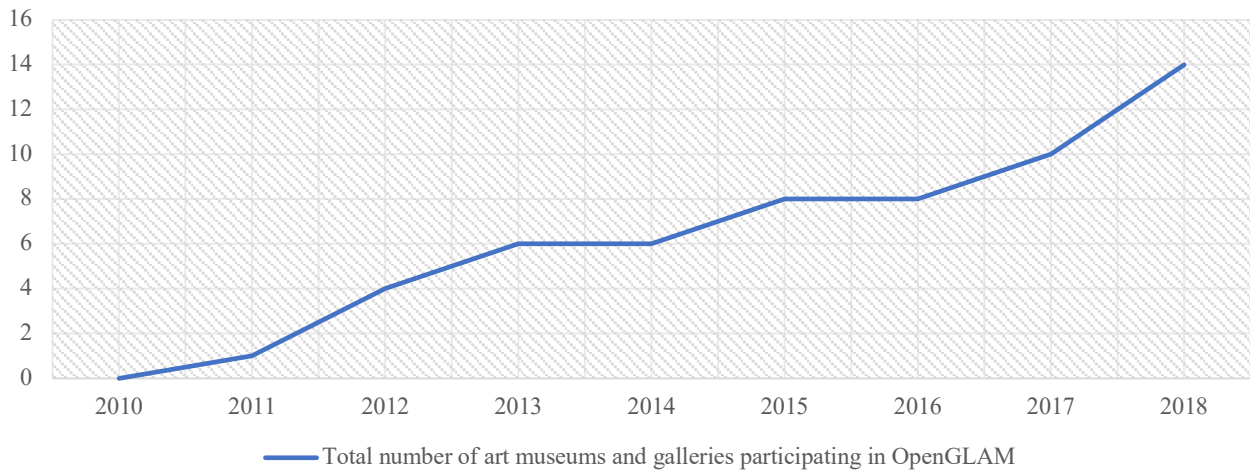


Figure 1. Accumulative graph of art museums and galleries participating in OpenGLAM.

	List of art museums and gallery participating in OpenGLAM	Year of Participation
1	Rijksmuseum	2011 (Terras, 2015a)
2	Yale Center for British Art	2012 (Yale News, 2011)
3	National Gallery of Art, Washington	2012 (National Gallery of Art, 2012) ²
4	Statens Museum Kunst	2012 (Sanderhoff, 2016, p.30)
5	Los Angeles County Museum of Art	2013 (LACMA, 2013)
6	J. Paul Getty Museum	2013 (Kataoka, 2013)
7	Walters Art Museum	2015 (OpenGLAM, 2015)
8	Indianapolis Museum of Art	2015 (PRWeb, 2015)
9	Metropolitan Museum of Art	2017 (The Metropolitan Museum of Art, 2017)
10	Barnes Foundation	2017 (Bernstein, 2017)
11	Chicago Institute of Art	2018 (Kinsella, 2018)
12	National Gallery of Finland	2018 (McCarthy, 2018)
13	Birmingham Trust	2018 (Grosvenor, 2018)
14	Belvedere Museum	2018 (Belvedere, 2018)

Table 1. List of art museums and galleries participating in OpenGLAM.

² According to Google's search engine this webpage was first published on the Internet on the 4th of March, 2012. To retrieve the publication date, the methodology described in this article was followed: <https://www.labnol.org/internet/search/find-publishing-date-of-web-pages/8410/>

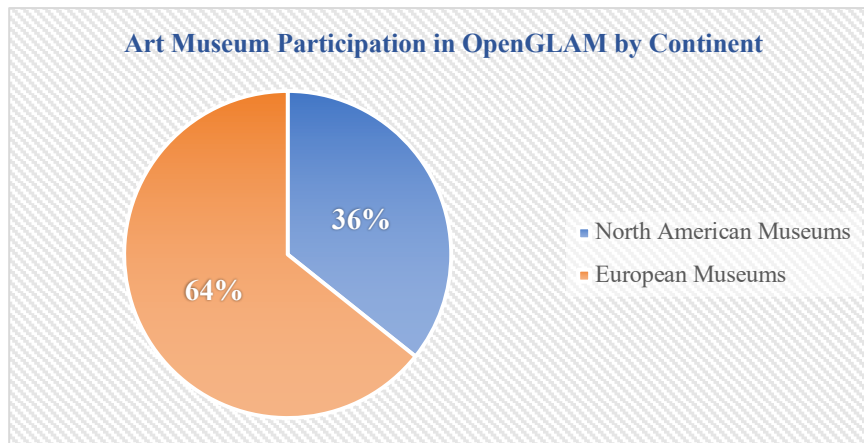


Figure 2. Chart demonstrating the geographical distribution of the 14 art museums and galleries participating in OpenGLAM by continent.

With an increasing number of institutions participating in OpenGLAM (Figure 1) the area of research studying the movement is also growing. Although OpenGLAM has been examined under several prisms, ranging from the legal perspective (Wallace *et al.*, 2016) to its viability as a business model for cultural institutions (Verwayen, Arnoldus and Kaufman, 2011; Kapsalis, 2016), little has been done to examine this phenomenon in practical terms from the standpoint of end users, who wish to reuse this content. Studies so far have focused on institutional perspectives of OpenGLAM, examining ways museums and galleries have adopted open access models, assessing whether that has proven to be beneficial, or harmful for them overall (Kelly, 2013; Estermann, 2016). Although making sure that end users are able to reuse open content is “central” (Terras, 2015a, p. 739) for all institutions with digitised collections, only few studies have so far explored the challenges end users have to overcome in order to reuse open content, expressing “sheer frustration at the current state of play of delivering digitised content online to users” (Terras, 2015b, p. 35). In an attempt to contribute towards this overlooked but arguably critical field of research, this article examines OpenGLAM from a practical standpoint from the perspective of end users interested in reusing open images. It tests the reuse of images provided by OpenGLAM institutions for the project USEUM (examined next) through a series of case studies. This article outlines the barriers, issues and also the opportunities of commercial reuse of OpenGLAM content, examining how open is open with regards to art museums and galleries.

2.3. Overview of USEUM

The end user of the case studies presented in this paper (as per the definition of end user provided in the Introduction) is USEUM³, a platform developed with the goal to make art and in particular painting, drawing and illustration, easily accessible online under the following three prisms: retrievability and obtainability; understanding and appreciation; and openness and democratisation (Valeonti, 2018). In total, USEUM features 84,000 artworks from 1,700 registered contemporary artists and museums from 107 different countries around the world. Visitors can browse thematic collections on USEUM, search its entire database and discover artworks of their preference with the platform’s recommendation mechanism. USEUM attracts nearly 2,000 visitors on a daily basis⁴, whilst with more than 130,000

³ <http://useum.org>

⁴ Number of visitors is measured on USEUM using Google Analytics (<http://analytics.google.com>).

artwork ratings to date it features one of the first democratically-curated art exhibitions (Valeonti, 2018). USEUM is deemed a suitable platform to serve as the end user of the case studies of this paper, because, as a research project, it reuses images from museums and galleries participating in OpenGLAM both commercially and non-commercially, in order to offer new goods and services. Given it sits at the nexus between commercial entity and research⁵, USEUM presents a unique and concrete use case on which to pursue the reuse of OpenGLAM content.

Open images, which are defined in the scope of this article as images of artworks that are made available for unrestricted reuse through OpenGLAM, are reused on USEUM in two different ways; for the *Download Artworks* feature (i.e. non-commercially) and also commercially, through prints and merchandising. The Download Artworks feature was launched on USEUM in 2016, seeking to contribute towards the promotion and dissemination of open images of paintings, drawings and illustrations, increasing their reuse (Valeonti, 2018). At present, 21,578 artworks on USEUM have been copyright-vetted and can be downloaded freely on USEUM by everyone for unrestricted reuse anywhere around the world (USEUM, 2019). To promote the host museum, each artwork on USEUM links to its official website, through a hyper-link that navigates Internet users to the respective artefact page in the institution's official web site. End users can also search through all artworks that are available for download across different institutions. Beyond the Download Artworks feature, open images are also reused commercially on USEUM. In order to generate revenue to cover the platform's growing expenses, USEUM sells fine art prints, apparel (e.g. t-shirts) and other merchandising (e.g. mugs). Prints and products feature either open images, or artworks from the platform's participant contemporary artists (Valeonti, 2018).

USEUM's distinguishing feature and its uniqueness in comparison to other related projects and aggregators of open images, such as Wikimedia Commons⁶ or Open Image Collections⁷ is that all images made available through Download Artworks have already been vetted for full reuse in any world jurisdiction. Whilst all of the aforementioned platforms require end users to clear copyright themselves, be it for the institution, or for the individual artwork image, USEUM visitors do not need to have any understanding of copyright law, e.g. of the different licenses, or to be familiar with legal jargon. Since its launch in 2016, there have been 116,444 individual artwork downloads with 21,346 visitors downloading 8,645 different artworks.

2.4. Methodology

To examine the experience of end users with OpenGLAM, various different methods were utilised. For the first part of the article all the different ways one can discover and browse the institutions that abide by the principles of OpenGLAM were examined and reviewed, in order to take into consideration end users, who are aware of the existence of open images of artworks, but are unfamiliar with the exact institutions participating, or with the ways they can access that content. The main part of this article is comprised of three case studies on three different museums participating in OpenGLAM. Case study is considered a research method "particularly useful for responding to *how* and *why* questions" (Meyer, 2001, p. 330). Its main drawbacks include susceptibility to observer bias and difficulty in generalising

⁵ the development of USEUM was the focus of Valeonti's PhD thesis (2018)

⁶ https://commons.wikimedia.org/wiki/Main_Page

⁷ <https://blogs.ntu.edu.sg/openimagecollections/>

findings, especially in single case studies. These potential pitfalls are addressed in this paper by performing multiple case studies on a diverse sample of institutions (explained later in this paragraph), as “multiple cases augment external validity and help guard against observer biases” (Leonard-Barton, 1995, p. 41). Case studies were deemed as the appropriate research method for this paper, because they are “tailor-made for exploring new processes or behaviors” (Meyer, 2001, p. 330), such as the newly emergent OpenGLAM. Each case study is a systematic review of the process that end users must follow in order to obtain and reuse open images from a given institution, outlining the challenges, as well as the opportunities encountered. More specifically, the case studies cover the process that was followed for the selection, retrieval, acquisition and reuse of open images from the Indianapolis Museum of Art, the Statens Museum fur Kunst (i.e. the National Gallery of Denmark) and the Metropolitan Museum of Art in New York City. Numerous reasons led to the selection of these three art museums. Firstly, art museums that joined in the last twelve months, such as the National Gallery of Finland and the Birmingham Museum Trust were excluded from selection due to the very low number of open images that they currently provide. Secondly, given that USEUM’s scope is limited to painting, drawing and illustration, priority was given to art museums with a notable collection of such works of art. Moreover, the museums selected give a good spread between Europe and the United States, which is two to one (Figure 2). Lastly, the deciding factor was to select museums whose case studies would bring to light a diverse range of challenges and also opportunities end users may encounter when reusing open images. The case studies are followed by a comparative examination across these three different museums, identifying emerging trends and summarising the different barriers and opportunities discovered. The results presented here represent the state of play as of June 2019.

3. Case Studies

3.1. Evaluation criteria

Although the museums examined in this paper are evaluated against a number of different criteria, ranging from the quantity of open images provided by each institution, to the retrievability of these images, three criteria could be considered central, i.e. image quality, image tracking and copyright. Image quality concerns the quality of the images provided by each institution, e.g. the average file size and resolution of images. The second criterion, image tracking, refers to ways museums and galleries trace how their open images are being reused. Although not all institutions track image reuse, several museums and galleries are taking such measures allowing them to trace where and how their open images are being published, as it will be examined later on. Lastly, since the majority of organisations that participate in OpenGLAM also provide images that are in copyright, the third criterion, i.e. copyright, refers to the challenges end users face in order to discover, identify and obtain open images. Before covering each individual case study, the next paragraph examines the barriers end users must overcome to find out which institutions participate in OpenGLAM, offering open images.

3.2. Barriers when browsing institutions participating in OpenGLAM

For end users who are interested in obtaining open images, but are unaware of the museums and galleries that are part of OpenGLAM, at present it is arguably challenging to discover which these institutions are, presenting an additional barrier for image reuse. Although the official site of

OpenGLAM features a page dedicated to listing all of the “Open Collections”⁸, its user interface is erroneous⁹ and, more importantly, world-known institutions that meet the principles of the OpenGLAM initiative are omitted from the list¹⁰. Other similar resources, such as Open Image Collections¹¹ and the “GLAM” page of the Creative Commons wiki¹², cover a broader scope than that of OpenGLAM, including institutions with more restrictive policies. Another similar resource is Flickr Commons¹³, also providing a list of cultural heritage institutions that offer open images. Although all images on Flickr Commons are open images, numerous institutions on the platform do not abide by the OpenGLAM principles. For example, the Smithsonian Institution (SI) provides through Flickr Commons 3,486 open images¹⁴. However, these exclude all images of paintings in SI’s collections¹⁵ and, one could argue, these images tend to depict artefacts of lesser cultural and artistic value. Since commercial reuse is restricted for images of works of art (Smithsonian Institution, 2019), even for artworks in the public domain, SI does not abide by the OpenGLAM principles. The most extensive attempt to map out all galleries, libraries, archives and museums that provide open images, is the Open GLAM Survey, organised by Douglas McCarthy, the Collections Manager of Europeana and copyright lawyer Andrea Wallace (McCarthy, 2019). The survey’s scope is very broad including all institutions that allow even a small part of their collections for reuse, listing more than 600 institutions (McCarthy and Wallace, 2019). For that reason, utilising the survey as a starting point requires individual examination. With participation in OpenGLAM growing every year (Figure 1), it is becoming increasingly challenging for end users to stay informed about the complete list of participant galleries, libraries, archives and museums, limiting users’ abilities to gather their own image collections for study, analysis, or reuse. Providing end users with a complete and accurate resource to refer to, would significantly increase the accessibility of open images provided by institutions that meet the criteria of OpenGLAM.

3.3. Statens Museum for Kunst (National Gallery of Denmark)

Statens Museum for Kunst (SMK) is the National Gallery of Denmark and “the country’s main museum of art” (Sanderhoff, 2014, p. 22). Its collection includes more than 260,000 artworks (SMK, 2018e) that span across 700 years, ranging from early Renaissance to contemporary art (SMK, 2018e). SMK’s collections include European Art between 1300 and 1800; Danish and Nordic Art between 1750 and 1900; Danish and International Art after 1900 and French Art between 1900 and 1930 (SMK, 2018e). SMK’s diverse exhibition ranges from prominent artists of the past, such as Mantegna,

⁸ <https://openglam.org/open-collections/>

⁹ The buttons “Home”, “Open Collections” “Lists of Collections”, “Tags”, “Open Up” and “Search” are not responding as of November 3, 2018 on Chrome version 67.0.3396.99 and Safari version 11.1.2 for Mac OS.

¹⁰ The Metropolitan Museum of Art for example, which offers “375,000 images of public-domain artworks for both scholarly and commercial purposes” (The Met, 2017) since February of 2017, is not included in Open Collections as of the 21st of May, 2019.

¹¹ <https://blogs.ntu.edu.sg/openimagecollections/>

¹² <https://wiki.creativecommons.org/wiki/GLAM>

¹³ <https://www.flickr.com/commons/institutions/>

¹⁴ As of the 21st of May, 2019; the number of total pictures is displayed on the profile of the Smithsonian Institution on Flickr Commons (<https://www.flickr.com/people/smithsonian/>).

¹⁵ The Smithsonian American Art Museum, which is part of the Smithsonian Institution, displays on its website numerous paintings that are in the public domain, e.g. 112 artworks by Edward Mitchell Bannister (CITE), but none of these images can be found on SI’s Flickr Commons’ profile.

Cranach, and Rembrandt, to famous artists of the 20th Century, such as Picasso, Braque, Derain and Matisse (SMK, 2018e).

3.3.1. From Fri Billeddeling Nu! to SMK Open

Led by Merete Sanderhoff, the gallery's Curator of Digital Museum Practice and advocate of OpenGLAM, SMK was amongst the first museums that took the decision to make "free and unrestricted access to digitised cultural heritage" one of their top priorities (Sanderhoff, 2014, p. 20). SMK first began exploring open collections in 2009 as part of a pilot project funded by the Danish Agency for Culture, which was described with the motto "Fri billeddeling nu!", i.e. "Free image sharing now!" in Danish (Sanderhoff, 2011). The country's museum professionals had realised that "having museums pay for using each other's images was entirely outdated" (Sanderhoff, 2014, p. 55) and Fri Billeddeling Nu! would provide a solution to that. The pilot, which was focused on the Danish museum sector, gave "special emphasis on art museums and on sharing digital images for non-commercial online use" (Sanderhoff, 2014, p. 55). Fri Billeddeling Nu! not only sparked SMK's interest in greater openness, but also made the museum plan an information campaign with the goal to "raise awareness of the potentials inherent in free image sharing" in the Danish museum sector (Sanderhoff, 2014, p. 62). In collaboration with the Danish Association for museums, SMK organised the *Sharing is Caring* conferences in 2011 and 2012, with the first one aiming at discussing the benefits, as well as the challenges, of opening up access to the digital resources of museums (Sanderhoff, 2014); the second conference was focused on taking a more practical approach hosting presentations from museums that took the initiative to open up their collections and the lessons learned (Sanderhoff, 2014).

SMK offered access to its collection for the first time in April of 2012, allowing people to download through its web site 160 high resolution images of artworks in the public domain; SMK had provided access to these works to the Google Art Project¹⁶, which digitised them for the museum (Sanderhoff, 2016, p. 30). By providing an open license for these images, SMK sought to create "a small hole in the 'walled garden' of the Google Art Project" (Sanderhoff, 2014, p. 87)¹⁷. Although SMK allowed end users to reuse these 160 images unrestrictedly even for commercial purposes, it required them to credit the source, because the museum "wished to make users aware that using credits is crucial for enabling others to discover the original source" (Sanderhoff, 2014, p. 84). By 2014, SMK had relinquished all rights to reproductions of all of its works that are free of copyright (Statens Museum for Kunst, 2014), whilst in 2016 it launched *SMK Open*, a four-year programme aiming to "make the country's art collection available for free use" (SMK, 2018c). During the first stage of the project, 40,000 works will be made accessible and approximately 15,000 of them will be made available in high resolution for unrestricted reuse (SMK, 2018d). At present, the museum offers open images for 25,000 artworks in the public domain, whilst approximately 200 of these images are provided in high resolution (SMK, 2018a).

3.3.2. Reusing SMK's images and barriers identified

The ability to download works is not promoted anywhere on SMK's landing page, or via navigation, on their recently re-designed website (Smith, 2018). To the contrary, one of the five options

¹⁶ <https://www.google.com/culturalinstitute/about/artproject/>

¹⁷ Google prohibits visitors from using its images and content in any way other than mere viewing (Google, 2019).

prominently displayed on the large menu appearing at the bottom of every webpage is “Sale of photos” (SMK, 2018b). SMK does, however, provide a page titled “Free download of images”¹⁸, which informs visitors about the museum’s open content policy, explaining details and how these images can be used, linking to other relevant pages (SMK, 2018b), such as SMK’s highlights, which can serve as a starting point for end users. However, at present this page is not accessible from the web site’s navigation, but only through the web site’s search using the phrase “free images”. Other barriers to reuse of open images from SMK include:

Significant variation in image quality: SMK has the greatest variation with regards to image quality of all museums examined in this article. Whilst there are approximately 200 high quality images, there are also thousands of images of artworks that are provided in low quality¹⁹, or even worse, in black and white (Figure 3). Given the substantial variation in quality, a filter that allows end users to limit the scope of their search in SMK to high quality images only would be useful.

High quality images not accessible through SMK’s Search the Collection portal: High quality open images provided by SMK are inaccessible from its search portal²⁰; SMK is the only museum examined in this article that does not provide this functionality (see section 4.1.1). Instead, open images can only be downloaded in high resolution from the Highlights page. For example, the Highlights page for the artwork *In a Roman Osteria* by Carl Bloch²¹ features a button titled “Get image” that serves a high-quality image of the artwork, whilst the entry for the same artwork²² in SMK’s search portal does not provide this functionality. More importantly, tapping on the “Zoom” button provided, only loads a significantly smaller image in size (i.e. 800 by 981 pixels in comparison to 3105 by 4014 pixels) that also displays the work of art in visibly different colours (Figure 4).

Inability to filter images by copyright: SMK’s collection includes contemporary works that are bound by copyright and although SMK’s search filters cover a wide range of attributes, the ability to search only works in the public domain is not one of them. Given the lack of such search filter, as an alternative for browsing all of SMK’s open images, the museum recommends the “Highlights” page²³ (SMK, 2018b), where images of public domain artworks can be downloaded.

¹⁸ <https://www.smk.dk/en/article/free-download-of-images/>

¹⁹ In the context of this article a *low-quality* image is considered any image that is smaller than 2 mega-pixels (i.e. the image is comprised by less than 2 million pixels) e.g. as an image with dimensions 1600 by 1200 pixels. Any image lower than two mega pixels would appear too small when printed on paper, or on merchandise products.

²⁰ SMK’s Search the Collection portal is pictured on Figure 3; not to be confused with the quick search provided on the re-designed web site of SMK.

²¹ <https://www.smk.dk/en/highlight/in-a-roman-osteria-1866/>

²² <http://collection.smk.dk/#/en/detail/KMS4087>

²³ <https://www.smk.dk/en/list/highlights/>

Enter search phrase

ARTIST | MAKER

Artist | Maker
Select name ▼

Role
Select role ▼

Nationality
Select nationality ▼

ARTWORK

Artwork Type
Painting X ▼

Technique
Select technique ▼

Material
Select material ▼

ACQUISITION

Period
From... - To... OK

Date
From... - To... OK

Artwork Status
Select artwork status ▼

Collection
Select collection ▼


SUBJECT

Portrait Of
Select name ▼


Place Depicted
Select place ▼

[Show filters](#)

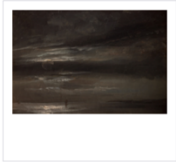
6919 search results With image Relevance ▼




Ubekendt tysk midten af 1700-t...
A Girl Holding a Mask
Date: 1746-1755
Inventory number: KMS4690



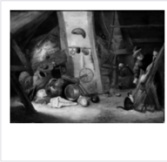
Karl Schou
Date: 1885-1938
Inventory number: KMS4326



J.C. Dahl
Moonlight over the Sea
Date: About 1820
Inventory number: KMS8405



Domenico Bossi
Portrait of a Man
Date: 1796
Inventory number: KMS4146



David I Teniers (copy after)
Interior of a Kitchen
Date: 1597 - 1605
Inventory number: KMS1892

Figure 3: SMK's search results often include images in black and white.



Figure 4: SMK provides two images for the same artwork ("In a Roman Osteria" by Carl Bloch, 1866) that differ in size and also in colourway. The image pictured on the left was obtained through SMK's Search the Collection portal and the image pictured on the right was obtained from SMK's Highlights page and is substantially larger in size²⁴.

²⁴ Although this raises the additional issue of colour-reproduction quality, which is a known issue in heritage digitisation (Verwayen, Arnoldus and Kaufman, 2011), in this case it can be attributed to poor digitisation of the past. Similar issues have been observed on all images of artworks on SMK's website that were not digitised in the last few years, through Google Art Project or SMK Open; all those images are small in size, similar to this artwork (i.e. 800 by 645 pixels) and covered by dark shade of green.

3.3.3. Overcoming identified barriers and reflection

The significant variation in image quality is the greatest barrier to reusing SMK's open images, because it is an issue for which little can be done from the end user's perspective. To address this problem, firstly, all of SMK's works that are digitised in black and white were excluded from reuse on USEUM; these images misrepresent the artwork, because viewers can mistakenly believe that the original work was created in monochrome. In addition, a focus was put on obtaining artworks for which high resolution images are provided by SMK. High quality is a prerequisite for image reuse on USEUM for both the Download Artworks feature, as well as for commercial reuse through merchandising. Given the lack of search filters for image quality and copyright, SMK's Highlights page was utilised to retrieve open images of paintings and drawings in the public domain, using also the collection filter provided on this page. When search was required for retrieving a particular work, or artist, in SMK's collection, then Google was utilised instead. For museums, similar to SMK, that maintain several different pages for the same artefact, searching in Google often returns the most relevant and well-informed page. In total, from the 200 images that are available in high quality on SMK as mentioned earlier, 181 were imported to USEUM (i.e. 90 per cent). Each image import took on average seven minutes to search, find, obtain and import on USEUM. Therefore, to import all images required 21 hours, or 2.6 work-days.

SMK's open access policy offers numerous advantages for end users. Firstly, it provides a Highlights page, which is an arguably valuable starting point for end users seeking to reuse the museum's open images. In addition, it provides a page dedicated to the promotion and explanation of the ability to download open images of artworks, whilst with SMK Open the museum is seeking to continuously improve its image open access policy, content and delivery. More importantly SMK, through its curator and senior advisor Merete Sanderhoff, who has long been an ambassador of open access, it has become one of the key influencers, promoting the wider adoption of OpenGLAM in the Danish museum sector and internationally (Sanderhoff, 2014).

3.4. Indianapolis Museum of Art (Newfields)

3.4.1. About IMA

The Indianapolis Museum of Art (IMA)²⁵ is an art museum offering “significant holdings of African, American, Asian, European, and contemporary art”, ranging from painting and sculpture to textile and fashion art (Newfields, 2018a). The museum has been collecting textiles and fashion items for more than a century, featuring today 7,000 items that represent “virtually all of the worlds traditions in fabric” (Newfields, 2018a). Asian Art is another significant collection for IMA, being described as one of the “largest and most significant collections of Asian art” in the United States (Newfields, 2018a). According to the museum, the collection's 400 artefacts provide “a panorama of more than 4,000 years of Asian art from China, Japan, Korea, India, Tibet, and West and Southeast Asia” (Newfields, 2018a).

3.4.2. IMA's path to OpenGLAM

IMA was one of the first museums to adopt an open access policy, albeit with some restrictions. In the study of Kristin Kelly (2013), IMA was amongst the museums that employed a “highly refined ‘free

²⁵ Recently rebranded as Newfields (Newfields 2018c).

and free' model", as the author described it (Kelly, 2013, p. 4). In 2013, the museum's Rights and Reproductions Manager stated that "IMA wants to be a leader in open access" (Kelly, 2013, p. 19), whilst the museum offered images of its public domain works for educational and scholarly use. IMA, at the time, maintained the right to charge for commercial use and publications that exceeded a print run of 5,000 copies (Kelly, 2013). It is worth noting that even for images intended for educational or scholarly use, a contract was required, as this allowed the museum's curators to track image reuse, i.e. to know where images of IMA's works were being published (Kelly, 2013). Only low quality images intended for personal use could be obtained and reused without a contract (Kelly, 2013).

In 2015, IMA announced in a press release the launch of its new web site, which features a "revamped online database optimized for speed, user experience and mobile use" (PRWeb, 2015). More importantly, the museum announced that on its new web site 21,000 images were made "available for high-res download, providing open access to imagery for any personal, scholarly or commercial use" (PRWeb, 2015). In the same year, the director of IMA Lab Kyle Jaebker (2015), published on the Internet an extensive presentation about the preparative work that was undertaken for joining OpenGLAM. In the presentation's description Jaebker argued that "opening museum collections digitally to the public can be a very complex task" (Jaebker, 2015). Shedding a light on the preparative process, Jaebker explained that in order to create a complete and open collection for IMA, the museum "utilized a cross-departmental team [that brought] digitization, rights clearance, and technology together" (Jaebker, 2015). More than 21,000 open images are currently available for download through IMA's web site, which can be reused unrestrictedly. For all other images, requests are reviewed individually and fees may apply (Newfields, 2018b).

3.4.3. Reusing IMA's open images and barriers identified

The two key advantages to the implementation and delivery of IMA's open images are, firstly, the quality of images provided and secondly, the well-designed user interface. Image file size is 20 megabytes on average, with a resolution larger than 4,000 pixels by 5,000 pixels, whilst the user interface features a modern, responsive design. However, with regards to obtaining the museum's open images, several areas of improvement were identified.

Navigating from Newfields to IMA's Search the Collection page: The landing page²⁶ of IMA, which is branded as Newfields²⁷, does not include a link, or a button, that navigates visitors directly to the museum's search page, where end users can search and download images. Instead, end users must click on a sequence of different links in order to access the search portal²⁸. Additionally, when visitors click on IMA's logo on the top left from within the search portal (Figure 5), they are navigated back to the landing page of Newfields.

²⁶ The landing page is defined as a page that "serves as the entry point for a website" (Oxford Dictionaries, 2013).

²⁷ <https://discovernewfields.org>

²⁸ To access IMA's Search the Collection page, end users must click on "Educate & Learn" on the top right of the landing page; then "Collections" on the menu revealed and lastly, on the orange button that will appear at the centre of the page labelled as "Search the Collection"

Search Results

Results for: gauguin

34 results found

sort by

Relevance

Refine Results

- + Collection Area
- + Artist/Maker
- + Materials
- + Object Type
- + Technique
- + Colors



Vorhor, The Green Wave
Georges Lacombe (French, 1868-1916)
about 1896-1897
1984.202



Still Life with Profile of Laval
Paul Gauguin (French, 1848-1903)
1885
1998.167



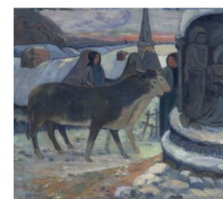
Above the Sea
Paul Gauguin (French, 1848-1903)
1889
1998.168



Going to Market, Brittany
Charles Laval (French, 1862-1894)
1888
1998.178



Breton Women at a Wall
Emile Bernard (French, 1868-1941)
1892
1998.172



Christmas Night (The Blessing of the Oxen)
Paul Gauguin (French, 1848-1903)
1902-1903
1998.169

Figure 5: IMA's Search the Collection page.

Inability to search for downloadable images: The search function of IMA's digitised collection is well designed with a modern interface and a variety of options for refining search results, ranging from material and object type, to colours and technique (Figure 5). However, it lacks the ability for visitors to limit the scope of their search to open images only. As a result, users have to check each image individually whether it can be downloaded and reused unrestrictedly or not.

Long forms required for each download: Ever since IMA first adopted an open model, offering images for personal and scholarly use, they have always sought to "track their image use with contracts" (Kelly, 2013, p. 19). The reason for that according to the museum, is due to the fact that "curators want to know where images of works in the collections are being published" (Kelly, 2013, p. 19). When the museum took the decision to participate in OpenGLAM in 2015, IMA substituted contracts with long forms on its web site (Figure 6), in order to continue tracking image reuse. Filling the form for each image download is time consuming for those wishing to download multiple open images. In addition, some end users may be reluctant to share the personal details requested, such as their name and e-mail address.

Absence of a highlights page: Although IMA's web site provides dedicated pages for the museum's recent acquisitions and also for recently deaccessioned items, it does not offer a page promoting the museum's highlight artworks that can be downloaded, such as Katsushika Hokusai's well known *Fine*

*Wind, Clear Morning*²⁹ and Paul Gauguin's *Still Life with Profile of Laval*³⁰. Such a page that features famous and popular, downloadable works from the museum's collection could serve as a useful starting point for those interested at reusing the institution's open images.

3.4.4. Overcoming identified barriers & reflection

An approach for bypassing the lengthy form for tracking image reuse is to download IMA's images from WikiData³¹, either by utilising the WikiData API³², or manually through Wikimedia Commons³³. However some of IMA's artwork entries on WikiData feature images that do not belong to IMA and are therefore bound by copyright. Subsequently, end users must ensure that for each image they seek to obtain from WikiData, or through Wikimedia Commons, "Source/Photographer" is set to "Indianapolis Museum of Art". In the case of USEUM, IMA's open images that were available on WikiData were automatically imported using the WikiData API. Additionally, numerous artworks were obtained manually from the museum's web site, submitting the project's full details before each image download. To limit IMA's search results to open images only (i.e. a feature lacking at present), the scope of search is set to works with creators who deceased in the first three decades of the twentieth century, or earlier. These settings increase the chances of retrieving artworks that are in the public domain and subsequently in IMA's openly licensed programme. Research was conducted in order to discover famous and popular works from IMA's collection to counteract the barrier of no guidance, or highlights of the digitised collection, being provided. In total, IMA features 1,453 paintings, out of which, those in copyright are estimated to be between 350 and 450. However, IMA's paintings on display (i.e. arguably the most notable ones) are only 279, including also works in copyright; therefore, the number of the museum's most notable paintings is less than 300. Out of those 279 paintings, the openly licensed artworks are estimated at 229, since, according to IMA's search results, there are at least 50 paintings on display, which are in copyright. On USEUM the total number of artworks that have been imported are 394, whilst the number of artworks that are available for download are 287. For IMA's openly licensed images that were imported through WikiData, the time to review and edit, following the automated import, was decreased from seven to approximately four minutes.

²⁹ <http://collection.imamuseum.org/artwork/24708/>

³⁰ <http://collection.imamuseum.org/artwork/82261/>

³¹ https://www.wikidata.org/wiki/Wikidata:Main_Page

³² https://www.wikidata.org/wiki/Wikidata:Data_access

³³ https://commons.wikimedia.org/wiki/Main_Page

Please complete the following questions to further improve the image files and metadata made available to Newfields users. If you select Scholarly or Commercial as the Intended Use you will be prompted to provide additional details about your specific use in order that the Newfields can retain the record of how image reproductions of works in its collection are utilized.

Public domain collection images downloaded from the Indianapolis Museum of Art at Newfields collections website should be credited: "Courtesy of the Indianapolis Museum of Art at Newfields." Additional caption information is provided with the downloaded image files and image use contracts, if applicable.

If you require a high quality TIFF file for your publication or product, please complete the [Image Request Form](#).

Intended Use (check all that apply)

- Personal (including study and research)
- Scholarly (including publications, documentaries, and exhibitions)
- Commercial (including publications, major motion films, and retail products)

Requestor Information

Name *	<input type="text" value="Requester Name"/>
Institution/Company *	<input type="text" value="Title"/>
Email *	<input type="text" value="Email"/>

Project Type (check all that apply) *

- Publication
- Exhibition
- Video (Television/Film)
- Internet/Apps
- Advertising Materials
- Retail Products
- Other Uses (please describe)

Project Information

Title *	<input type="text" value="Title"/>
Author/Editor *	<input type="text" value="Author/Editor"/>
Director/Producer	<input type="text" value="Director/Producer"/>
Designer/Publisher *	<input type="text" value="Designer/Publisher"/>
Publication/Release Date *	<input type="text" value="Publication/Release Date"/>
Print Run *	<input type="text" value="Print Run"/>
Distribution	<input type="text" value="Distribution"/>
Additional relevant information	<input type="text" value="Additional relevant information"/>

Download Image

Figure 6: The form required for downloading an image for Scholarly, or Commercial, reuse from IMA, has twelve fields, nine of which are mandatory.

Despite these barriers, IMA's open access policy provides numerous advantages. Upon request, the museum provides all open images in TIFF format (Newfields, 2018b), which is, according to the Federal Agencies Digitization Guidelines Initiative (FADGI), the recommended Master File Format³⁴ for high quality digitisation of paintings (FADGI, 2016). Furthermore, the web site's modern interface is easy to use, whilst it also provides several options for refining search results. Finally, the number of available images (21,000) is significant, comprising the majority of the museum's digitised collection (PRWeb, 2015). Therefore, IMA's open access policy is a major contribution to OpenGLAM and if the areas of improvement outlined above were addressed, its impact could be even greater.

3.5. Metropolitan Museum of Art

Founded in 1870 in New York City with the mission to encourage and develop the study of fine arts and also "the application of arts to manufacture and practical life" (The Met, 2018a), the Metropolitan Museum of Art (MET) has become one of the most visited art museums in the world, ranking in 2017 as the third most visited museum globally (Sharpe and Da Silva, 2018). Presenting over 5,000 pieces of art from all around the world (The Met, 2018a), the MET's collection is very diverse, with its artefacts ranging from armour and costumes, to musical instruments and from Egyptian and Asian art, to Photography and Contemporary art (The Met, 2018b).

3.5.1. MET's Open Access: From scholarly use to public domain and controversy

The MET first opened up access to its collection in 2014, announcing that it would make 400,000 images available for download through its web site for non-commercial use (The MET, 2014). However, at the time the museum's "Open Access for Scholarly Content" scheme did not allow non-commercial use, but only scholarly use (The MET, 2018). Three years later, in February of 2017, the museum's Chief Digital Officer announced that the MET had decided to make "all images of public-domain works in The Met collection", i.e. 375,000 images in total, available for download and reuse without restrictions, as the museum sought to make a "strong statement about increasing access to the [Met's] collection" (Tallon, 2017). To promote its open access policy the MET made a series of improvements to its web site, in order to ease access to its open images. As a result, all web pages of individual artefacts, feature clear labelling that informs visitors if the image of a particular item is part of the museum's open access policy, in which case, a download button is displayed linking to a high-quality image (i.e. eight mega pixels on average). More importantly, the museum also provides the ability to search for open images with the "Open Access" filter on the MET's search portal³⁵. For obtaining and reusing images of works that are in copyright, a request must be submitted, which is reviewed by the MET and a fee is charged (The Met, 2018c). Lastly, it is worth noting that the MET's open access policy also raised some criticism. Three weeks after the policy was announced, on the 28th of February, 2017, the museum's director Thomas Campbell stepped down. His resignation sparked a controversy between proponents of OpenGLAM and sceptics of the open access movement, who

³⁴ According to FADGI there are two types of Master File Format, the Archival Master which is "the best copy produced" and the Production Master whose "levels of quality that rival those of the archival master" (FADGI, 2016, p.13) .

³⁵ <https://www.metmuseum.org/art/collection/search>

criticised Campbell's significant investment to the museum's digital team, which grew to more than 60 employees (Shulman, 2017) with the museum having to eventually pare it down (Pogrebin, 2017).³⁶

3.5.2. Reusing images from the MET's open access policy

The investment in digital under Campbell could be credited for the MET's well-made web site and functionality. The design of the MET's landing page is not only modern and minimal, but also user-friendly, featuring large controls and clear menus that make it easy to navigate through the site and its content. Although the museum's open access policy is not promoted in the museum's landing page, it is featured on a prominent position, at the centre of the page that is dedicated to the museum's collection³⁷.

As opposed to SMK, the MET does not provide a page dedicated to informing visitors about the museum's open access policy. The link provided on the MET's web site, titled "Open Access Artworks", navigates users directly to the open images and in particular to the museum's "Search the Collection" page with the appropriate filter selected (i.e. the check box titled "Open Access"). The MET's search portal enables visitors to refine results with a wide range of filters, ranging from "Object Type" and "Era" to "Geographic Location". Apart from the ability to search for open images only, the museum also provides a "Highlights" filter, which can be useful both as a starting point, and also for end users interested in browsing available images, in comparison to those who visit the museum's web site looking for a particular work.

The main problem when reusing open images from the MET on USEUM is that the majority of the museum's images of paintings and drawings are surrounded by a black border, making it challenging for end users to reuse open images as they are, i.e. without prior editing. To overcome that problem on USEUM, artwork images are edited manually and the black border is cut out using image editing software. Due to the large number of open images reused, only the images of popular works have so far been edited³⁸. Another problem encountered when reusing open images from the MET, is that, although the museum claims to provide all images of public domain works for unrestricted reuse, at present for a large number of MET's artworks by famous artists, such as Auguste Renoir, Mary Cassatt

³⁶ Dr. James Shulman, Founding President of Artstor and Chief Operating Officer of The American Council of Learned Societies stated that there are "lessons other cultural institutions might learn from the Met's path" (Shulman, 2017). Shulman did not argue against OpenGLAM per se, but instead against the narratives stating that with the movement becoming "mainstream", there is "only one way to go, and that's open" (Sanderhoff, 2017), implying that all museums must now follow this approach (Shulman, 2017). Although Shulman acknowledges that "providing digital images may well be considered by some to be a moral imperative for non-profit, tax-benefitted institutions", he argues that museums must prioritise their agenda and should only focus on "what can reasonably be done" (Shulman, 2017).

³⁷ Accessed via the main menu by clicking on "Art" and then "Collection".

³⁸ Although removing the black border could be automated using an image editing software, e.g. Adobe Photoshop, the process of downloading an image, editing and re-uploading it on USEUM, cannot be automated. More importantly, when cropping out the black border a small part of the edges of the painting must be cropped as well, since the shape of a painting, or drawing, is rarely perfectly rectangular. Therefore, the way each image must be edited, requires human judgement.

and Claude Monet, end users are not allowed to obtain and reuse their images³⁹. From the total number of 1,691 paintings that are on display at the MET and also part of the museum's open access programme, 1,256 have been imported to USEUM. These works were initially imported via the WikiData API and then they were all reviewed and edited manually. Editing each entry took on estimate five minutes, requiring an average of 13 work days; that is on top of the development work that was required from importing the entries via WikiData. In October of 2018, the MET introduced an API that serves the museum's open images (Tallon, 2017), therefore that has improved the import time for future reuse.

4. Discussion: Observations, barriers & ethical considerations

4.1. Observations

4.1.1. Moving towards standardisation

It could be argued that the web sites of art museums participating in OpenGLAM tend to share an increasing number of similarities, which benefits the end user experience. All three of the web sites examined, as well as the web sites of other institutions with open access policies, i.e. the web sites of the Los Angeles County Museum of Art (LACMA)⁴⁰, the J. Paul Getty Museum⁴¹ and the National Gallery of Art (NGA)⁴², all feature a search portal that provides extensive filtering options. Some of them (e.g. the MET, NGA, LACMA and the Getty) also provide a search filter for open images specifically. In addition, they all feature very similar pages for individual artefacts, whilst several museums, such as IMA, the MET, LACMA and the Barnes Foundation⁴³ they also feature on those pages a "Download" button for obtaining open images. The standardisation of key elements of museum web sites contributes towards improved user interfaces, because it creates consistency across the web sites of different institutions and a sense of familiarity for end users⁴⁴.

4.1.2. Significant variation in image quality

Variation in image quality can be observed not only when comparing the digitised collections of different institutions, but also when looking into different images provided by the same institution. With regards to the former, the images provided by the Walters Art Museum⁴⁵ are less than one mega-byte in size, whilst on the other end the Barnes Foundation is providing for all of its images uncompressed TIFF files that reach 200 mega-bytes in size. Concerning the latter, when comparing images of the same institution, the majority of museums tend to maintain a consistent level of quality throughout their digitised collection. For example, the NGA provides all of its images in three different image sizes, i.e. "Lecture (1200 [pixels] long dimension)", "Half Page (2000 [pixels] long dimension)"

³⁹ As of the 24th of May, 2019, all images of artworks by the following artists cannot be downloaded despite being in the public domain: Mary Cassatt, Claude Monet, Auguste Renoir, John Singer Sargent, Joaquín Sorolla y Bastida, Anders Zorn.

⁴⁰ <https://www.lacma.org>

⁴¹ <http://www.getty.edu/museum/>

⁴² <https://www.nga.gov>

⁴³ <https://www.barnesfoundation.org>

⁴⁴ Consistency and user familiarity are considered to be best practices for optimal user interface design (Lucchetta, 2016).

⁴⁵ <https://thewalters.org>

and “Full Page (up to 4000 [pixels] long dimension)”. Similarly, LACMA and the Barnes Foundation offer all of their open images in two different qualities: in JPEG format and also in TIFF. However, as the case study of SMK above demonstrated, significant variation in quality can also be found amongst images of the same collection. Similarly, the MET and also the Walters Art Museum include images of artworks that are either digitised in black and white, or of low image quality. In comparison to SMK however, the MET offers the majority of its images in good quality with an estimated average resolution of eight mega-pixels, whilst, at present, the vast majority of open images by SMK are of low quality.

4.1.3. Different pathways to OpenGLAM

Although there are museums such as the Rijksmuseum and the Barnes Foundation that made the transition from restrictive image policies to OpenGLAM directly (Pekel, 2014; Bernstein, 2017), in the case studies examined above, a more gradual adoption was observed. The SMK, when it first provided a small set of images for reuse from its collection in 2012, it required end users to credit the source (Section 3.2.1). Also, the MET initially adopted an open access model that prohibited commercial reuse and only a few years later it made images available unrestrictedly (Section 3.4.1). Similarly, the IMA in 2013 released images for educational and scholarly use only, whilst two years later it took the decision to join OpenGLAM (Section 3.2.2). However, there are also museums, which have taken steps towards increasing access to their collections, but have yet to commit to the principles of OpenGLAM. The Dallas Museum of Art mentioned previously, joined the open access movement in 2013, releasing its images for “personal and educational” use (Dallas Museum of Art, 2013), but has not altered its policy in the four years since.

4.2. Barriers

4.2.1. Tens of thousands of images in low quality

Image quality is arguably of utmost importance for end users seeking to reuse open images to develop new products and services. Commercial reuse often involves printing, be it on apparel and merchandising, or on magazines and posters. For all such use cases, a high-quality image file is arguably a mandatory requirement. At present, tens of thousands of open images are provided in low quality, prohibiting all kinds of commercial reuse that involves printing. With regards to SMK as stated previously out of the 15,000 images available only 200 are provided in high quality at present (SMK, 2018a). Similarly, the Finnish National Gallery⁴⁶ states that the 12,000 open images it provides are “files of low resolution” and that high resolution images of artworks are available only through the museum’s Flickr account (FINNISH NATIONAL GALLERY, 2018a), which currently hosts images for just 60 works of art⁴⁷. However, it is worth noting that the Finnish National Gallery only joined OpenGLAM in February of 2018 and also that SMK is planning to address that problem with SMK Open; due to be completed in 2020, SMK Open will provide 15,000 open images in high resolution from SMK’s collection (SMK, 2018c).

⁴⁶ <https://www.kansallisgalleria.fi/en/>

⁴⁷ As of the 27th of October 2018, there are only 60 images of works of art available on the Finnish National Gallery’s Flickr account in total; 12 images from the Collections of the Aethenaeum Art Museum and 48 images from the Sinebrychoff Art Museum (FINNISH NATIONAL GALLERY, 2018b).

4.2.2. Tracking reuse: Filling forms for each image download

Although the majority of museums participating in OpenGLAM serve the open image instantly when end user click the “Download” button, other museums demand end users to fill in a series of fields before each image download, as demonstrated previously in the case of IMA. The Barnes Foundation also adopts a similar practice as shown on Figure 7. According to IMA, the purpose of these forms is to help curators track where their images are being published (Kelly, 2013). However, for end users it presents an additional barrier for obtaining and reusing open images.



Barnes Foundation Image Use Information

This information is optional, but helps us understand how our images are being used. Your download will begin once the form is submitted.

Artwork

Artist

El Greco (Domenikos Theotokopoulos)

Title

Apparition of the Virgin and Child to Saint Hyacinth

Accession Number

BF876

Use

The image will be used for the following: *

- Print publication
- Electronic publication
- Promotional
- Thesis/Dissertation
- Website
- Video
- Academic research/Personal use
- Barnes staff internal use
- Other

The image will be: *

- Published
- Not Published

If the image will be published, we'd love to know more about the publication for our records. Please include title, author, publisher, publication languages, and expected publication date.

May we contact you for more information? If so, please leave us your email.

Submit

Figure 7: The form visitors are presented with, when attempting to download an open image from the website of the Barnes Foundation.

4.2.3. Museums allowing limited image reuse

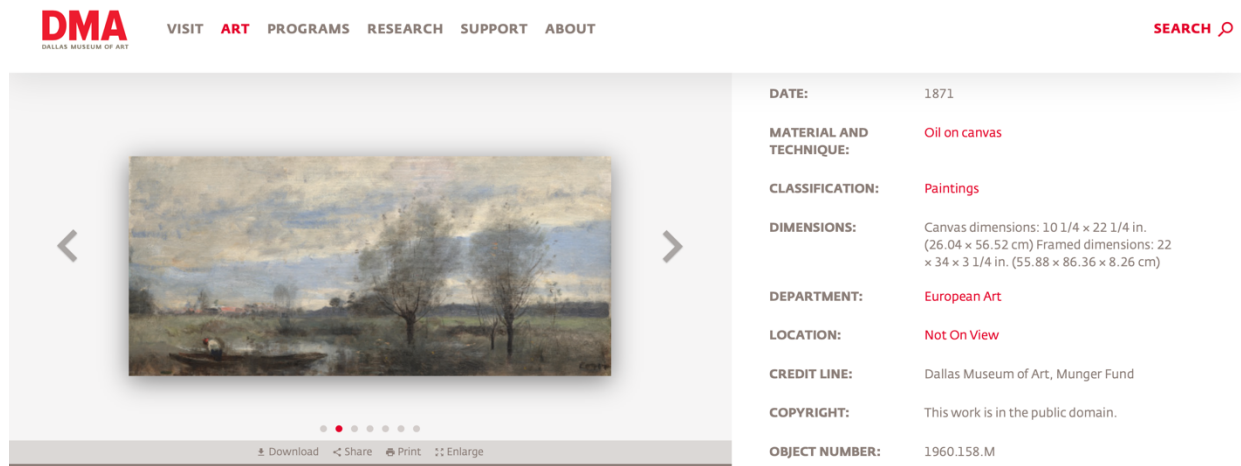


Figure 8: The object page of the Dallas Museum of Art for “Palluel, Boater in the Marshes” by Jean-Baptiste-Camille Corot provides a “Download” button, stating that “Copyright: This work is in the public domain” without clarifying that only non-commercial reuse is allowed.

Although the focus of this research is on art museums abiding by the principles of OpenGLAM, it is deemed necessary to examine in brief museums which allow restricted image reuse. It can be argued that the web sites of such museums can be misleading for end users on the restrictions that apply on the images provided. For example, the Dallas Museum of Art, which provides images only for “non-commercial and educational” use (DMA, 2016), shares many similarities with the web sites of museums participating in OpenGLAM⁴⁸. The Dallas Museum of Art features a “Download” button on its pages for individual artefacts, whilst for several artworks such as the painting pictured above it states: “COPYRIGHT: This work is in the public domain” (Figure 8). Therefore, for end users it can be arguably frustrating to differentiate web sites of museums participating in OpenGLAM from those of other museums that adopt more restrictive image policies. In addition, given the absence of a reliable list of reference with all institutions in OpenGLAM (section 3.1), end users are required to perform their own research and due diligence, in order to understand the image policy of each museum.

4.3 Ethical considerations

Museums and galleries that choose to embrace an open access model, give up, not only their control over who reuses their images and how, but also any revenue generated from image licensing (Tanner, 2004; Kelly, 2013). Therefore, one could argue that OpenGLAM also raises ethical considerations, due to the fact that even in the case of commercial reuse, the host museums that made the respective open images available, do not receive any remuneration whatsoever. The stance of USEUM is to reward the copyright owner whenever possible, but, for other projects, this is up to the discretion of the project owners. Looking into the ethical considerations arising with OpenGLAM, it is worth considering that open access only applies to artefacts in the public domain, i.e. works whose copyright has expired. Charging image fees on public domain works has received criticism (Grosvenor, 2017).

⁴⁸ described in section 4.1.1

In addition, as stated earlier, a copyright notice introduced in 2015, explicitly states that “creating a copy of an image won’t result in a new copyright” (Intellectual Property Office, 2015). Lastly, in the case of European museums, Europeana is arguably the main funder of the vast majority of digitisation of cultural heritage collections. Described as “a big political idea to unite Europe through culture”, Europeana’s goal is to make “our heritage available to all for work, learning or pleasure”, emphasising that “our shared cultural heritage fundamentally belongs to all of us” (Europeana Foundation, 2014, p. 4). Therefore, with regards to European museums, it could be argued that making artwork images openly available, closely aligns with the overarching goals of the body that funded their digitisation in the first place.

5. Recommendations

Based on the research conducted in the scope of this article, this section lists a series of recommendations for individual users interested in reusing open images to create new products and services, as well as for art museums considering of participating in OpenGLAM.

5.1. Recommendations for individual users

Those seeking to reuse images for non-commercial purposes, should take advantage not only of the open images provided by institutions participating in OpenGLAM, but also of a number of other art museums with public domain works. Providing images for personal and educational use appears to become a standard for several art museums hosting works that are out of copyright. More importantly, leading art galleries, such as the National Gallery in London and the Van Gogh Museum in Amsterdam, allow, not only personal and educational, but also other types of non-commercial use (The National Gallery, 2018; Van Gogh Museum, 2018). Both museums feature a “Download” button on the pages of individual artworks, as well as a description of their image policy that explains clearly which uses are permitted (The National Gallery, 2018; Van Gogh Museum, 2018). Museums that prohibit image reuse entirely, refrain from adding a “Download” button, therefore it could be argued that a “Download” button on the artwork page, often indicates that at least some types of non-commercial use are permitted for the image of the respective work and users should proceed accordingly.

5.2. Recommendations for commercial users

We have shown that, although many art images should be available for wide reuse with OpenGlam, the legal landscape remains complex. To avoid potential risk, end users planning to reuse open images for commercial purposes should perform their own due diligence, reviewing the image policy of the host institution, as well as the license of each image individually, regardless of whether the institution claims to be offering open licenses, since this term (and “open access”) has been used ambiguously⁴⁹. With regards to the former, end users need to check whether the museum abides by the principles of OpenGLAM, to ensure that all images of the museum’s artefacts in the public domain are available to be downloaded and reused unrestrictedly. With regards to the individual image, end users need to investigate whether the image has any other copyright limitations; the Rijksmuseum for example also

⁴⁹ See cases of Morgan Library & Museum (Milliman, Schindewolf and York, 2013) and the Dallas Museum of Art (Dallas Museum of Art, 2013) mentioned earlier, which claim to be in open access, but only allow partial reuse.

contains contemporary images that cannot be reused⁵⁰. Lastly, end users are advised to check whether any attribution is required, because according to the principles of OpenGLAM it may be possible that open images can be reused, but with the condition that the museum is given appropriate credit (OpenGLAM, 2018b).

5.3. Recommendations for museums and galleries

The increasing number of museums and galleries abiding by the principles of OpenGLAM provide a growing number of case studies for other institutions interested in joining the open access movement. Although studies have demonstrated that, overall, the benefits of OpenGLAM participation “far outweigh” the negatives (Kelly, 2013, p. 14), Shulman’s stance in MET’s controversy (Section 3.4.1) and his advice towards museums to focus only on “what can reasonably be done” (Shulman, 2017), should also be given consideration. In addition, for organisations that are reluctant to make the transition from a restrictive image policy to OpenGLAM, it is possible to gradually open access to their collections, as the above case studies of IMA, SMK and the MET demonstrate.

For institutions that already participate in OpenGLAM, we recommend that emphasis should be given to image quality, making available to end users the Master File of their open images ideally, or at minimum to avoid low quality images by providing files larger than two mega pixels. Emphasis should also be given to the quantity of open images provided and to the user interface of the institutions’ web platforms, e.g. to provide starting points to facilitate browsing and discovery of content and to allow for searching and filtering of open images. For organisations interested in tracking image reuse, it is recommended that institutions adjust their data gathering mechanism so that form-filling is not required before each image download. For example, end users could be asked to fill a form only once and then for future downloads for a given time span to present the form pre-filled, e.g. with the use of cookies, or with account registration. In addition, museums could explore what data can be tracked unobtrusively, without asking for the user’s input. For example, the location of end users who download images can be extracted from their IP address. Additionally, techniques for tracking image use online, such as digital watermarking can also be explored (PhotoSecrets, 2018). With regards to copyright, museums and galleries should provide clear labelling and search mechanisms for end users to easily distinguish open images from those in copyright. These measures serve not only the end users, but also the organisations, since they decrease the chances of their in-copyright images to be misused unintentionally.

6. Summary & Conclusions

Since 2011 when the Rijksmuseum pioneered OpenGLAM and the open access movement in the cultural heritage sector, several art museums and galleries have adopted a similar model, providing thousands of images of works in the public domain for everyone to use without restrictions. Although there is a growing body of academic literature examining OpenGLAM, the largest part of it focuses on the institutions’ perspective, outlining the benefits and risks of participation, whilst with regards to studying OpenGLAM from the standpoint of end users, i.e. those interested in taking advantage of

⁵⁰ Rijksmuseum’s search results for “painting” created after 1950 (i.e. not in the public domain): <https://www.rijksmuseum.nl/en/search?q=painting&p=1&ps=12&imgonly=True&yearfrom=1950&year=2018&st=Objects&ii=0>

open images to create new products and services, little has been done. This paper has answered the previously unexplored question of how easy, or how challenging, it is to reuse open images for commercial purposes, through three case studies on IMA, SMK and the MET. Although this was the primary purpose of this research, our research identifies issues which are also relevant to those seeking to reuse art images for non-commercial purposes.

The main barriers identified are three, concerning image quality, tracking of image reuse and the fine line for end users to separate museums participating in OpenGLAM from other institutions that allow image reuse with limitations. With regards to image quality, this paper demonstrates that a significant number of images, i.e. in the scale of tens of thousands, is provided at present in low quality, prohibiting a significant part of commercial reuse, such as all kinds of commercial reuse that involve printing (section 4.2.1). Regarding image tracking, some museums such as IMA and the Barnes Foundation, request end users to fill a form before each image download, which in the case of IMA is particularly long (Figure 6). Lastly, this paper demonstrates how challenging it can prove to be for end users to differentiate institutions that allow commercial image reuse from those with more restrictive image policies (section 4.2.3). As a result, end users interested in commercial reuse must conduct their own due diligence for each image, which is arguably challenging for users without an understanding of copyright law.

In addition to identifying barriers on image reuse, this paper makes a series of observations, highlighting trends and similarities across museums participating in OpenGLAM. It sheds a light on the significant variation in image quality, not only between different institutions, but also between open images of the same institution (see SMK in section 4.1.2). It also identifies a trend towards standardisation of the web sites of art museums and galleries, which is highly beneficial for end users, as it creates consistency and also a sense of familiarity across the platforms of different institutions, making them easier to use and navigate through (section 4.1.1). Lastly, it compares the different pathways museums followed to open up access to their collections (section 4.1.3), which in some cases is gradual (see MET, IMA, SMK) and in other cases direct (see the Getty and the Barnes Foundation).

This paper seeks to inform future scholars examining OpenGLAM in relation to commercial image reuse, as it contributes towards the understudied field of research that explores OpenGLAM from the end users' perspective. Additionally, through the recommendations provided, this paper seeks to inform practice and improve decision-making, not only for end users, but also for institutions (section 5). With the open license movement expanding and the interest in it both from a practical and also from a theoretical perspective steadily growing, this paper seeks to help scope out future research and practice more effectively.

Bibliography

- Belvedere (2018) *WELCOME TO THE OPEN CONTENT PROGRAM OF THE BELVEDERE, VIENNA!*, *Belvedere*. Available at: <https://www.belvedere.at/en/opencontent> (Accessed: 5 April 2019).
- Bernstein, S. (2017) *Open Access at the Barnes. – Barnes Foundation – Medium, Medium*. Available at: <https://medium.com/barnes-foundation/open-access-at-the-barnes-e08daf2c5a33> (Accessed: 14 August 2018).
- Dallas Museum of Art (2013) *Dallas Museum of Art Announces \$9 Million Gift to Support Free General Admission and Free Online Access to its Entire Collection, Dallas Museum of Art*. Available at: <https://www.dma.org/press-release/dallas-museum-art-announces-9-million-gift-support-free-general-admission-and-free>.
- DMA (2016) *Terms and Conditions, The Dallas Museum of Art*. Available at: <https://www.dma.org/terms-and-conditions>.
- Estermann, B. (2016) ““ OpenGLAM ” in Practice – How Heritage Institutions Appropriate the Notion of Openness Beat Estermann”, pp. 1–49.
- Europeana Foundation (2014) *Europeana Strategy 2015-2020, Impact*. Available at: https://pro.europeana.eu/files/Europeana_Professional/Publications/Europeana Strategy 2020.pdf (Accessed: 13 March 2018).
- FADGI (2016) *Technical Guidelines for Digitizing Cultural Heritage Materials: Creation of Raster Image Files*. Available at: http://www.digitizationguidelines.gov/guidelines/FADGI_Still_Image-Tech_Guidelines_2010-08-24.pdf.
- FINNISH NATIONAL GALLERY (2018a) *Photographic Service • Finnish National Gallery, Photographic Service*. Available at: <https://www.kansallisgalleria.fi/en/kokoelmatietopalvelu/kuvapalvelu/> (Accessed: 15 August 2018).
- FINNISH NATIONAL GALLERY (2018b) *Photostream, Flickr*. Available at: <https://www.flickr.com/photos/finnishnationalgallery/>.
- Van Gogh Museum (2018) ‘Conditions Governing the Use of Image Material in the Van Gogh Museum Collection’, *Van Gogh Museum*. Available at: <https://www.vangoghmuseum.nl/download/7835b38c-ff1f-4a06-9314-08a55afc4df1.pdf>.
- Google (2019) *Terms of Service, Privacy & Terms*. Available at: <https://policies.google.com/terms?hl=en>.

- Grosvenor, B. (2017) 'The reproduction fee hustle | The Art Newspaper', *The Art Newspaper*, 20 November. Available at: <https://www.theartnewspaper.com/blog/the-reproduction-fee-hustle> (Accessed: 13 March 2018).
- Grosvenor, B. (2018) *Diary of an art historian: at last, some common sense for the abolition of image fees*, *The Art Newspaper*. Available at: <https://www.theartnewspaper.com/news/diary-of-an-art-historian-at-last-some-common-sense> (Accessed: 5 April 2019).
- Intellectual Property Office (2015) 'Copyright Notice : digital images , photographs and the internet'. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/481194/c-notice-201401.pdf.
- Jaebker, K. (2015) *From Object to Access: Digitization at the Indianapolis Museum of Art*. Available at: <https://www.slideshare.net/kjaebker/dpla-ima-labcollection> (Accessed: 4 August 2018).
- Kapsalis, E. (2016) *The Impact of Open Access on Galleries, Libraries, Museums, & Archives, Statewide Agricultural Land Use Baseline 2015*. doi: 10.1017/CBO9781107415324.004.
- Kataoka, D. (2013) *The Getty and Google Unleash Free Art — And Your Creative Potential | WIRED*, *Wired Magazine*. Available at: <https://www.wired.com/2013/12/what-getty-google-others-just-did-that-will-make-us-more-creative-than-ever/> (Accessed: 5 April 2019).
- Kelly, K. (2013) *Images of Works of Art in Museum Collections: The Experience of Open Access*. Available at: [http://msc.mellon.org/msc-files/Open Access Report 04 25 13-Final.pdf](http://msc.mellon.org/msc-files/Open%20Access%20Report%2004%2025%2013-Final.pdf) (Accessed: 30 July 2018).
- Kinsella, E. (2018) *The Art Institute of Chicago Is the Latest Museum to Offer Open Access to Thousands of Images in Its Archive*, *artnet news*. Available at: <https://news.artnet.com/art-world/art-institute-chicago-offers-open-access-44000-images-1377739> (Accessed: 5 April 2019).
- LACMA (2013) *LACMA Releases New Online Catalogue of Southeast Asian Art*. Available at: <http://seasian.catalog.lacma.org> (Accessed: 5 April 2019).
- Leonard-Barton, D. (1995) 'A dual methodology for case studies', in *Longitudinal Field Research Methods: Studying Processes of Organizational Change*, pp. 38–64.
- Lucchetta, J. L. (2016) *6 Pillars of UI Design – Prototypr, Medium*. Available at: <https://blog.prototypr.io/6-pillars-of-ui-design-80fe255f5091> (Accessed: 14 August 2018).
- Max Planck Open Access (2003) *Berliner Erklärung*. Available at: <https://openaccess.mpg.de/Berliner-Erklaerung> (Accessed: 31 July 2018).
- McCarthy, D. (2018) *Hello world! The Finnish National Gallery opens up its collections*, *Europeana Pro*. Available at: <https://pro.europeana.eu/post/hello-cc0-the-finnish-national-gallery-opens-up-its-collections> (Accessed: 17 August 2018).

- McCarthy, D. (2019) *Uncovering the global picture of Open GLAM – Douglas McCarthy – Medium, Medium*. Available at: <https://medium.com/@CultureDoug/uncovering-the-global-picture-of-open-glam-af364aadeeee> (Accessed: 3 May 2019).
- McCarthy, D. and Wallace, A. (2019) *Survey of GLAM open access policy and practice*. Available at: https://docs.google.com/spreadsheets/d/1WPS-KJptUJ-o8SXtg00llcxq0IKJu8eO6Ege_GrLaNc/edit#gid=1216556120 (Accessed: 21 May 2019).
- Meyer, C. B. (2001) 'A Case in Case Study Methodology', 13(4), pp. 329–352.
- Milliman, P., Schindewolf, A. and York, N. (2013) *Press Contacts | THE MORGAN LIBRARY AND MUSEUM TO BEGIN DIGITIZATION OF ITS RENOWNED DRAWINGS COLLECTION*. Available at: www.themorgan.org (Accessed: 2 August 2018).
- National Gallery of Art (2012) *Open Access Policy for Images of Works of Art Presumed in the Public Domain*. Available at: <https://images.nga.gov/en/page/openaccess.html> (Accessed: 15 March 2018).
- Newfields (2018a) *Collections, Collections*. Available at: <https://discovernewfields.org/collections> (Accessed: 4 August 2018).
- Newfields (2018b) *Image Resources*. Available at: <https://discovernewfields.org/research/image-resources> (Accessed: 6 August 2018).
- OpenGLAM (2015) *Walters Art Museum goes CC0, OpenGLAM*. Available at: <https://openglam.org/2015/07/30/walter-art-museum-goes-cc0/> (Accessed: 5 April 2019).
- OpenGLAM (2018a) *OpenGLAM*. Available at: <https://openglam.org/> (Accessed: 2 August 2018).
- OpenGLAM (2018b) *OpenGLAM Principles*. Available at: <https://openglam.org/principles/> (Accessed: 2 August 2018).
- Oxford Dictionaries (2013) *Landing Page, English by Oxford Dictionaries*. Available at: https://en.oxforddictionaries.com/definition/landing_page (Accessed: 2 November 2018).
- Pachali, D. (2014) *Open Access: How museums are opening their digital archives - Goethe-Institut*. Available at: <https://www.goethe.de/en/kul/bib/20365145.html> (Accessed: 31 July 2018).
- Pekel, J. (2014) *Democratising the Rijksmuseum*. Available at: <https://www.rijksmuseum.nl/en/collection/SK-> (Accessed: 30 November 2018).
- PhotoSecrets (2018) *Digital Watermark, PhotoSecrets*. Available at: <https://www.photosecrets.com/track> (Accessed: 29 October 2018).
- Pogrebin, R. (2017) *Metropolitan Museum's Director Resigns Under Pressure - The New York Times, The New York Times*. Available at: https://www.nytimes.com/2017/02/28/arts/design/met-museum-director-resigns-thomas-campbell.html?_r=0 (Accessed: 12 August 2018).
- PRWeb (2015) *Indianapolis Museum of Art launches new online collection*. Available at:

<https://www.prweb.com/releases/2015/03/prweb12616903.htm> (Accessed: 4 August 2018).

Sanderhoff, M. (2011) *Fri billeddeling nu!*, *Formidlingsnet*. Available at:
<http://www.formidlingsnet.dk/fri-billeddeling-nu/> (Accessed: 30 October 2018).

Sanderhoff, M. (2014) ‘GLAMourous remix: Openess and sharing for cultural institutions’, in Sanderhoff, M. (ed.) *Sharing is caring: Openness and sharing in the cultural heritage sector*, pp. 141–153. Available at:
http://www.smk.dk/fileadmin/user_upload/Billeder/forsiden/94124_sharing_is_Caring_UK.pdf.

Sanderhoff, M. (2016) *Digital Futures keynote*, *Slideshare*. Available at:
<https://www.slideshare.net/MereteSanderhoff/digital-futures-keynote> (Accessed: 18 September 2018).

Sanderhoff, M. (2017) *The only way is open*, *Medium*. Available at: <https://medium.com/smk-open/the-only-way-is-open-840b38fb8e2> (Accessed: 12 August 2018).

Sharpe, E. and Da Silva, J. (2018) *The world’s most popular exhibition? Ancient sculptures in Tokyo versus Modern masters in Paris* | *The Art Newspaper, The Art Newspaper*. Available at:
<https://www.theartnewspaper.com/analysis/ancient-buddhist-sculptures-triumph-over-modern-masters> (Accessed: 11 August 2018).

Shulman, J. (2017) *The good news and the bad news from the Met are all one tale*, *LinkedIn*. Available at: <https://www.linkedin.com/pulse/good-news-bad-from-met-all-one-tale-james-shulman/>.

Smith, J. H. (2018) *Finally: A new website for SMK*, *Medium*. Available at:
<https://medium.com/smk-open/finally-a-new-website-for-smk-c1d3c863779e> (Accessed: 30 October 2018).

Smithsonian Institution (2019) *Terms of Use*, *Smithsonian*. Available at:
<https://www.si.edu/termsfuse> (Accessed: 21 May 2019).

SMK (2018a) *Free download of images*, *SMK*. Available at: <http://www.smk.dk/en/use-of-images-and-text/free-download-of-artworks/> (Accessed: 7 August 2018).

SMK (2018b) *Free download of images*, *About SMK*. Available at:
<https://www.smk.dk/en/article/free-download-of-images/> (Accessed: 3 November 2018).

SMK (2018c) *SMK Open*, *SMK*. Available at: <https://www.smk.dk/en/article/smk-open/> (Accessed: 18 September 2018).

SMK (2018d) *The Collection*, *SMK*. Available at: <https://www.smk.dk/en/article/the-collection/> (Accessed: 18 September 2018).

SMK (2018e) *The Royal Collections*, *SMK*. Available at: <https://www.smk.dk/en/article/the-collection/>.

- Statens Museum for Kunst (2014) *Annual Report*. Available at: https://prod.smk.dk/wp-content/uploads/2018/07/A__rsrapport_2014-04mar2015_ENG.pdf (Accessed: 18 September 2018).
- Tallon, L. (2017) *Introducing Open Access at The Met | The Metropolitan Museum of Art, The Met*. Available at: <https://www.metmuseum.org/blogs/digital-underground/2017/open-access-at-the-met> (Accessed: 12 August 2018).
- Tanner, S. (2004) 'Reproduction charging models & rights policy for digital images in American art museums A Mellon Foundation study', *Imaging*, p. 57. Available at: [http://msc.mellon.org/research-reports/Reproduction charging models and rights policy.pdf/view](http://msc.mellon.org/research-reports/Reproduction%20charging%20models%20and%20rights%20policy.pdf/view).
- Terras, M. (2015a) 'Opening Access to collections: the making and using of open digitised cultural content', *Online Information Review*. Emerald, 39(5), pp. 733–752. doi: 10.1108/OIR-06-2015-0193.
- Terras, M. (2015b) 'So you want to reuse digital heritage content in a creative context? Good luck with that.', *Art Libraries Journal*, 40(04), pp. 33–37. doi: 10.1017/S0307472200020502.
- The Met (2017) *The Met Makes Its Images of Public-Domain Artworks Freely Available through New Open Access Policy | The Metropolitan Museum of Art*. Available at: <https://www.metmuseum.org/press/news/2017/open-access> (Accessed: 4 August 2018).
- The Met (2018a) *About The Met | The Metropolitan Museum of Art, The Met*. Available at: <https://www.metmuseum.org/about-the-met> (Accessed: 11 August 2018).
- The Met (2018b) *Curatorial Departments | The Metropolitan Museum of Art, The Met*. Available at: <https://www.metmuseum.org/about-the-met/curatorial-departments> (Accessed: 11 August 2018).
- The Met (2018c) *Image and Data Resources | The Metropolitan Museum of Art, The Met*. Available at: <https://www.metmuseum.org/about-the-met/policies-and-documents/image-resources> (Accessed: 12 August 2018).
- The MET (2014) *Metropolitan Museum Initiative Provides Free Access to 400,000 Digital Images, The MET*. Available at: <http://metmuseum.org/press/news/2014/oasc-access>.
- The MET (2018) *Frequently Asked Questions: Open Access for Scholarly Content (OASC), The MET*. Available at: <http://www.metmuseum.org/about-the-met/policies-and-documents/image-resources/frequently-asked-questions>.
- The Metropolitan Museum of Art (2017) *Open Access at The Met, The Metropolitan Museum of Art*. Available at: <https://www.metmuseum.org/about-the-met/policies-and-documents/open-access> (Accessed: 5 April 2019).
- The Morgan Library and Museum (2016) *Terms and Conditions, The Morgan Library and Museum*. Available at: <http://www.themorgan.org/terms-and-conditions>.

- The National Gallery (2018) *Image download terms of use, The National Gallery*. Available at: <https://www.nationalgallery.org.uk/paintings/image-download-terms-of-use?img=n-1314-00-000192-wz-pyr.tif&invno=NG1314> (Accessed: 28 October 2018).
- USEUM (2019) *Download Artworks, USEUM*. Available at: <https://useum.org/download-artworks> (Accessed: 20 May 2019).
- Valeonti, F. (2018) *USEUM: Making Art Accessible with Crowdsourcing and Gamification*. PhD Thesis, University College London.
- Verwayen, H., Arnoldus, M. and Kaufman, P. B. (2011) *The Problem of the Yellow Milkmaid A Business Model Perspective on Open Metadata*. Available at: <http://bit.ly/fCunRH> (Accessed: 3 August 2018).
- Wallace, A. *et al.* (2016) 'Display At Your Own Risk: An experimental exhibition of digital cultural heritage'. Available at: <http://displayatyourownrisk.org/wp-content/uploads/2016/04/Display-At-Your-Own-Risk-Publication.pdf>.
- Yale News (2011) *Digital Images of Yale's Vast Cultural Collections Now Available for Free* | *YaleNews, Yale*. Available at: <https://news.yale.edu/2011/05/10/digital-images-yale-s-vast-cultural-collections-now-available-free> (Accessed: 5 April 2019).