

The “Open by Default” Journey of Auckland Museum’s Collections Online

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Datum : 21. August 2017



Auckland War Memorial Museum T?maki Paenga Hira is situated in New Zealand’s largest city with a population of over one million people. Built in 1929 as a place of remembrance for those who have fallen and served their country in war, the Museum holds a large collection of objects significant to the people of the Auckland region, New Zealand and the wider Pacific. The extensive collections include a large natural science collection, war related material, a significant documentary heritage collection, one of the largest decorative arts collections in New Zealand and pre-eminent M?ori and Moana Pacific taonga (objects). The Museum is currently undertaking an ambitious Collections Readiness programme that aims to provide access to its expansive collections and share them onsite, offsite and online. Underpinning this project is the institution’s twenty year strategic plan entitled [Future Museum](#), first published in 2012, which places the collections and visitors at the centre of the museum’s purpose.

Implementation of the Future Museum strategy commenced in 2013 with the release of over one million collection records through an updated Collections Online database. This

immediately enabled a deeper level of engagement with the Museum's collections, both locally and globally. Using this newly refined Collections Online the Museum was then able to launch a Collections Readiness programme of projects to enrich object records with new data and digital surrogates. Feeding into this overarching programme was the development of a fit for purpose copyright framework, that takes into account both legal and ethical considerations, and also champions the OpenGLAM philosophy for the reuse of both images and data.

As a bicultural institution the Museum aims to weave Māori and Moana Pacific values outlined in the guiding frameworks [He Korahi Māori](#) and [Teu La Vā](#) through everything that we do. Acting as kaitiaki (caretaker) of these collections we aim to work closely with partner knowledge communities to ensure that their voices are heard. As part of the Museum's open collections journey and in line with this aspiration, the Museum has developed frameworks to guide staff when considering requests for the reuse of Māori and Moana Pacific images.

Auckland Museum's journey towards becoming open by default has encountered numerous challenges, experiments and constant reflection on how to best achieve Future Museum. As a result, the Museum now has one of the most open, reusable, ethically aware and discoverable online collections in Aotearoa New Zealand.

This paper outlines the primary directions and decisions taken while establishing the open collection online. It then describes the Collections Readiness programme in more detail. The final sections discuss the two pivotal pieces of work which underpin Collections Online, the copyright and cultural permissions frameworks.

Creating open data and open collections

The Museum's collection contains literally millions of amazing items that express connections with the world. They encompass natural science, cultural heritage, art, archives, a research library and the Cenotaph database. They have evolved over the museum's 163-year history, and bear the print of the people who have collected, cared for and contributed to them. As such, their equivalent can be found nowhere else in the world. We take them as our starting point, they are the very heart of what we do.

Understandably, this diversity is expressed through an assortment of data standards that captures and records the collection in a number of different ways. Internally the Museum uses three source systems (Vernon, Presto and Genie) to database collection information. Within these systems, and even within each collecting department, there is a range of standards which reflects the requirements for describing different types of objects with different characteristics for different disciplines and all of which also reflect the people and preoccupations of our rich institutional history. It's a fantastic, messy, wealth of information.

In order to exploit this accumulation of knowledge and to provide external users with meaningful online access we needed to find a way of enabling the exploration and exposition of this data in an integrated way, as a single collection.

Future Museum is guiding the Museum through a process of institutional renewal. It offers a set

of values which recognises that museum culture is changing - that, although the Museum cherishes its unique institutional history of content curation, it must now embrace a different kind of access to the museum collection; one that allows people to self-navigate, engage with and discover the wondrous landscape of our natural, social and cultural collections on their own terms.

This might not be considered revolutionary for the sector, but for our 163 year old institution, this was the first step towards becoming a truly digital museum. It has demanded at times controversial changes in the way we do our business. We are relinquishing control and are moving our closed world systems into an open world, one where we will encourage sharing and collaborative use of our data. One that recognises that we have a responsibility to a truly global audience - onsite, offsite and online.

We have two guiding principles to help us navigate towards this transformed horizon. That: **“we are open as a rule - closed by exception”** and that **“we are one collection, not many”**.

Open as a rule – the filter system

While working towards this vision of an open collection, we recognised there was a requirement to build in methodologies that allowed us to be both respectful and responsive to cultural and personal sensitivities. Because of the fundamental change in process and deliverables, we also had to ensure that a level of trust and good faith was maintained with internal stakeholders by ensuring they were able to retain a responsible level of control around the information we published. For instance, we have hundreds of fields in our collections dataset which pertain not only to objects descriptions, but also to the personal and administrative information of our stakeholders. These are necessary for proper management of the Collection but were never designed to be seen in an un-curated, un-moderated way. This data was not complete, not systematically audited and there was a very real fear that by releasing this raw data, the reputation of the museum and its people would be put at risk.

To manage the release of this data we implemented a series of filters that were customisable to each department. Firstly we created a filter for four grades of openness, we then allowed the collection teams to define which fields would be available to the public for objects in each grade, for each department.

Grade	Filter Type	Filter Details	Data Released
A	Open	Release of data would have no detrimental effect on the museum	Data released with disclaimer
B	Predominantly open	- A small portion of data in record is not suitable for release	Data released, limited fields with disclaimer
C	Closed	A large portion of data in record is not suitable for release	Data released, limited fields with disclaimer
D	Closed	Record contains an unacceptable level of inaccurate data - release of data may have detrimental effect on museum	Data not immediately released; recommendations for data improvements required
R	Restricted	Meets the criteria as set out in the "open collections policy"	Data does not leave the source system

Table 1 The Collections Online filter grading criteria

We then asked the collection team to provide the rules that would determine which objects will fit into the various grades. This allowed us to bulk apply the filter. These rules ranged from time based exclusions, geographic selections or by classifications. Although they were designed to be applied at a bulk level, we ensured that they could also be manually applied to individual records when required.

Rule	Parameters	Action
Time Rule	If accession date is between "1950-1952"	Record from the History department become Grade C
Geo Rule	If field collection place is "Great Mercury Island"	Records from the Archaeology department become Grade B
Classification	If Classification is "Radula"	Records from the Botany department become Grade R

Table 2 Example of rules for the filtering system

The records are extracted from the three source systems every 5 minutes. This provides the collection staff the ability to quickly update a record's grading in the event that inappropriate data is inadvertently published. It also empowers them to publish new data quickly if required in line with exhibition, public enquiry, current events or simple data correction.

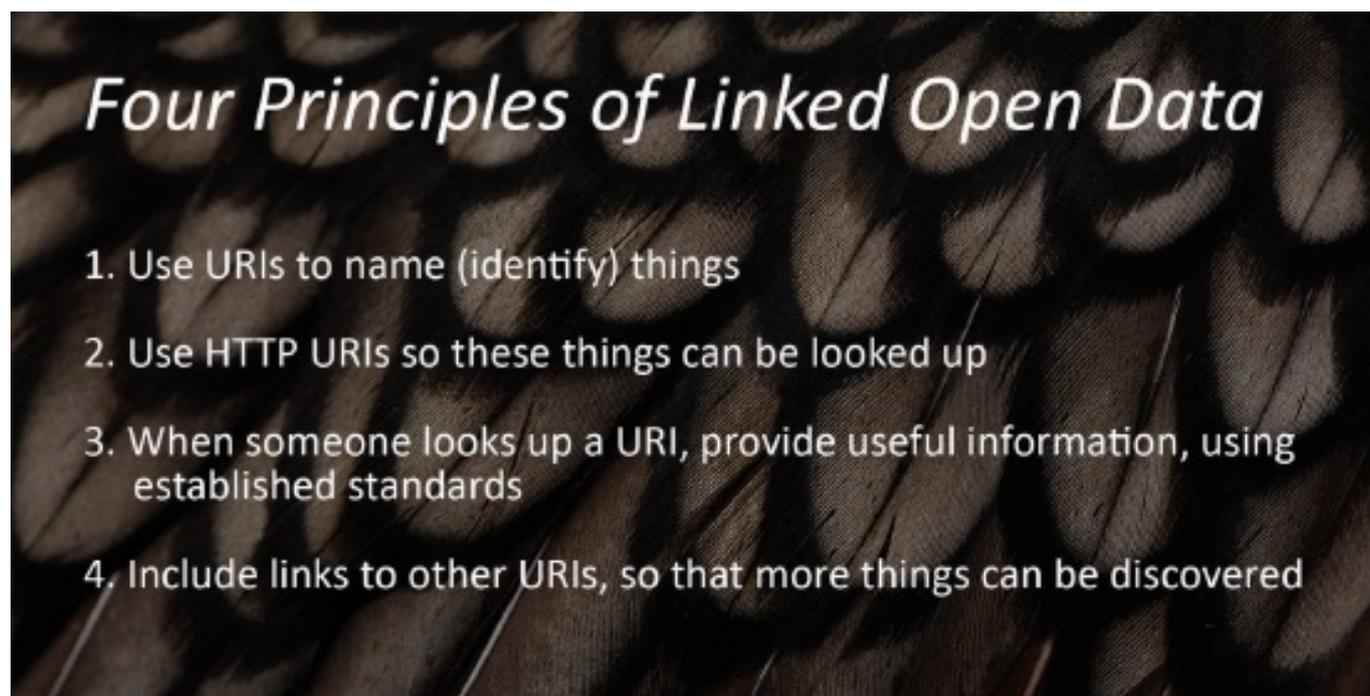
Although the filter allows us to restrict data that may be of concern, this is not the end goal. We monitor the number of records in each grading and work to solve data integrity problems to continually move more of the collections into the open filter setting.

For an object record to be completely blocked online, there must be a clear cultural, ethical or legal reason that would detrimentally affect the reputation of the museum or the cultural integrity of the object. To date only 5% of the collections are inaccessible to the public. The flexibility of the system has ensured the success in the publishing of our data. It has meant that we can navigate the difficult terrain of the road to openness with confidence. That, we can find a route to offering the full extent of our heritage to a global audience, without compromising the values of the institution and the cultures of people it and its collection represent.

We are one collection using linked data

As information was gradually prepared to be published online, we acknowledged that our users should not have to understand our internal, institutional structure (such as collection department names or data field terminologies) to start exploring the collections. We worked to find a way to pull together departmental peculiarities by finding the fundamental links between them which

could create a broader context between departments. This was the principle behind choosing to use linked open data (LOD). Our collections are made up of a network of these connections that is only evident when you break the information down into the sum of its parts. Using LOD triples we created a network that gave a permeable collection data overview, comprehensive for a single collection approach but which did not interfere with the day-to-day running of unique collection disciplines. We achieved this by publishing our collection through an API (application programming interface) that followed the principles of LOD to overlay the arrangement of the data, rather than to integrate with it.



This process allowed us to store our information as a giant network in which any piece of data is be connected to any number of others. To create the links we used the CIDOC ontology, which is a semantically rich system that delivers data harmonisation based on analysed contextual relationships. It allows for our diverse and variable data.

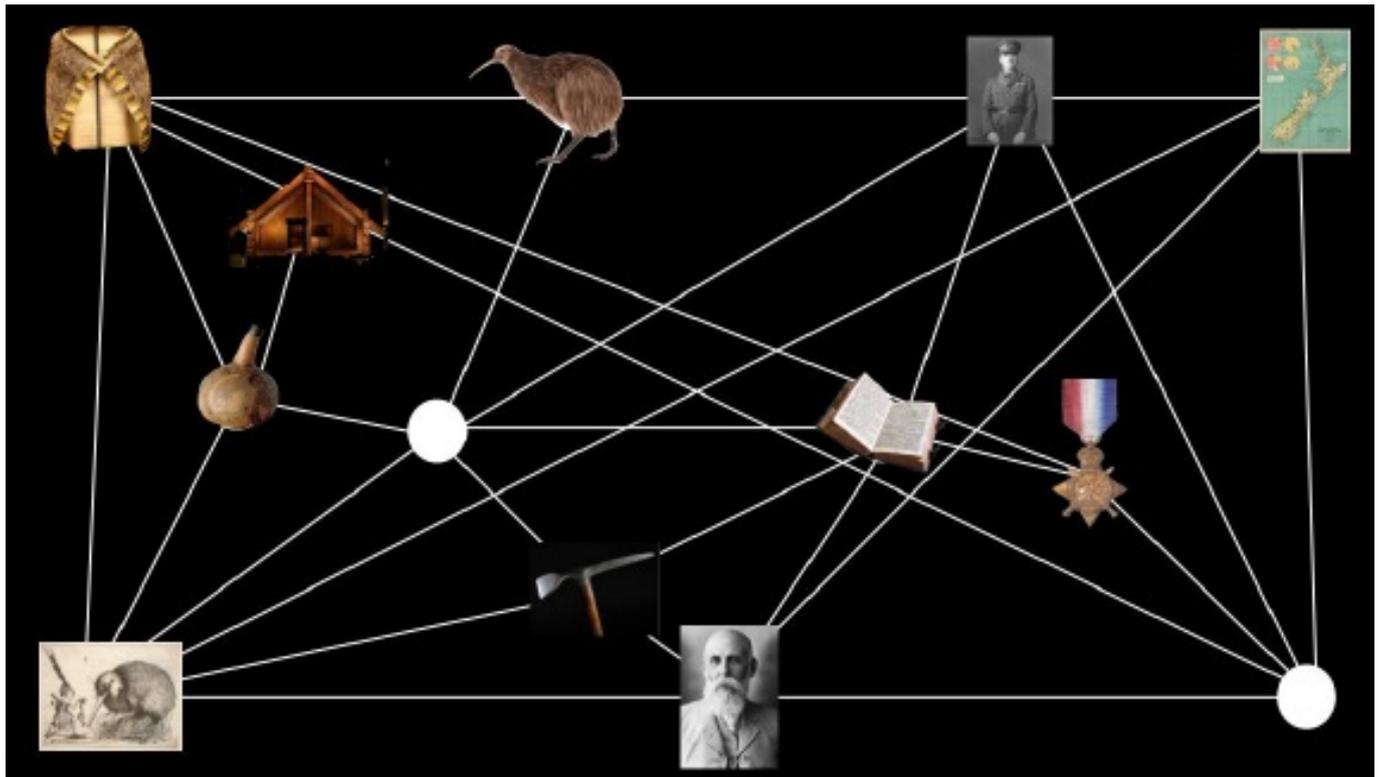


Table 3 Linked Data allows us to see the links between our collections and provides connections that can be explored.

The continuing focus of Collections Online is the “linked” part of LOD, to provide the bricks that allow people to build their own pathways through the collection, to make their own connections, to discover the stories that are relevant to them. By opening the data and connecting to external sources, people and resources around the globe, we embed them in other research ecosystems and encourage an active digital engagement with our objects. This not only benefits the user but it also enriches our collection data and so the cycle may begin again, ever constant and ever changing.

As soon as the Collections Online approach was comparatively mature, the Museum began an ambitious, large scale programme of work to make the decades of backlogged collection objects discoverable and usable, anywhere in the world.

Imaging collections to enable new connections

The Museum’s collections vary considerably in their nature, both in their intellectual significance and their physical form. When it came to establishing a programme of work to ‘digitise’ these collections, it was their physical form that posed one of the biggest challenges. Digitisation in its broader sense implies not just the act of scanning or photographing something, but also having the associated metadata to attach this media to, ultimately to enable discovery. The Museum’s Collections Readiness programme sought to address all aspects of digitisation

by running four cataloguing projects in tandem with a project to photograph the collections. Running these two tasks in tandem has posed a second significant challenge.

Imaging of flat 2D works has been progressing at the museum well for some time, largely focused on Documentary Heritage collections and the museum's significant collection of Botany specimens. In 2015, when the museum established its Collection Imaging Project, the focus was largely on the Museum's Natural Sciences and Human History collections which are comprised almost entirely of three dimensional objects. In order to image the objects in a way that illustrates their shape we realized each type of collection object would benefit from a distinct way of being photographed or lit, and so it raised the question of exactly how we wanted to image the collections. Automated solutions and equipment often produced results that showed the imaging equipment or stage, lacking overall polish. These required post production work to produce high quality results. Traditional photographic techniques, while potentially slower, produced a high quality end product fit for multiple uses.

The Museum seeks to use the newly created images not just for publication online as a way to liberate the collections, but also for collection management purposes: a record of the objects' condition at a point in time and also as foundational elements for the Museum's Gallery Renewal projects. The images we created had to be fit for all of these purposes, and so we arrived at the '90% rule' concept. If on one end of a spectrum we had poor quality images shot under poor conditions, and on the other we had high end advertising/auction house images, what the Museum sought to achieve was 90% of that high quality, but quickly. Additionally, the Museum sought to create images in such a way that they are sound for long term digital guardianship. Alongside the Museum's born-digital collections, these images are digital assets which will stand the test of time. This has limited how digital images can be created and placed a real focus on photographing our collections smartly and efficiently.



Fungia sp., MA143225, © Auckland Museum CC BY. All images created adhere to the '90% rule' and are complete as they leave the camera.

Other mass-digitisation projects globally have used production lines, conveyor belts, barcoding and automation to achieve throughput in their imaging programmes. Auckland Museum looked at this carefully when embarking on its own projects as a way to realise similar benefits. Many of these projects rely on substantial work on the collections prior to imaging to allow for automated processing to occur, significant staff time applying barcodes and intensive assembly of the collections before being sent down conveyor belts. Additionally the equipment and systems often lend themselves to one type of collection before needing significant modification to suit another.

With Auckland Museum's parallel projects for cataloguing, collection management and imaging happening all at once, there were no assembled collections with barcodes waiting to be sent down conveyor belts – Collections Readiness work was happening across many work-streams at the same time. This has meant that the imaging project reacts not just to backlogs of collections which are already catalogued (the Museum's Land Vertebrate Study Skins collection, catalogued in its entirety already, was the first collection to be imaged) but also to collections being worked on at the same time in other projects. The imaging project also embeds rights assessment and management as one of its core functions, placing the OpenGLAM philosophy at the heart of its work. These functions occurring in parallel has meant that the success of the imaging component of the Collections Readiness programme is inextricably linked to working alongside the various collections teams and projects in harmony.



Kea, *Nestor notabilis*, LB4352, © Auckland Museum CC BY

The Collection Imaging project has had to seek efficiency through alternative routes to offset the limitations of not using automated technology and working in tandem with other Collections Readiness projects, while in turn realizing the benefits of high quality images and traditional studio control. Images are created in a highly efficient operating environment modelled on techniques used in manufacturing and 'just-in-time' delivery. 100% of images are created using tethered software, named using a unique identifier at the point of capture which ultimately

links it to its collection item within our collection management systems. The capture environment is colour managed allowing for accurate exposure and colour to be set at the point of capture and the project photographers work in such a way that no photo editing is required afterwards – what is captured by the camera is the end product. This brings both efficiency but also more stable files for long term digital preservation.



Collections Photographer Richard Ng works on Marine mammal skeletons under studio lighting using tethered capture as part of his workflow. Photo: Andrew Hales, © Auckland Museum CC BY

Images created have been designed to integrate as seamlessly as possible with the Museum's new Digital Asset Management System (DAMS), the final foundational platform for the digital museum, which is currently being deployed. The breadth of the collections imaged provides both variety and inspiration to the teams internally and within the communities we serve. Nowhere is this seen more than with the Museum's Moana Pacific and Māori collections where, as information and images are created, we see communities reconnect with their ancestors and new connections with contemporary artists and community groups being forged. With specimens from tiny snail shells to whale skeletons and botany sheets, flamingos and zebras; with objects from WWII flags to horology tools, jewellery and firearms, the variety is endless. The collection images are encountering a warm reception and developing new audiences by supporting alternative ways of working online.

These new ways of working and the growing re-use of digital versions of our objects come hand in hand with new considerations and the Museum has responded by ensuring that there are robust, legal and ethical protocols in place to meet those needs.

Considering legal and ethical frameworks of copyright

As the demand grows for cultural institutions to provide online access and reuse of collections through mass digitisation projects, new considerations regarding copyright legalities arise. As a

cultural institution in New Zealand the collection is governed mainly by New Zealand copyright legislation ([New Zealand Copyright Act 1994](#)) which presents unique challenges when opening up our collection to a wider audience. New Zealand copyright law differs from other jurisdictions, for example instead of a fair use exception we have a fair dealing provision, which greatly restricts how cultural institutions can manage their collections. Other challenges include a lack of a clear orphan works provision, ambiguous copyright duration terms for photographic material created prior to 1944 and heavy restrictions placed on how prescribed libraries can reproduce material for archival purposes. An exception to the challenges outlined is the shorter copyright duration length of life of the creator, plus fifty years from the year of their death. This means that copyright in works created in New Zealand expire and fall into the public domain twenty years sooner than other jurisdictions.

To navigate these legal challenges and the lack of clear provisions, the Museum has recently developed a copyright framework based on seven principles which guides the use and reuse of our digital collections. The salient principle of this framework is once again, that the Museum is open by default and restricted by exception. This position aligns closely with both the government-led initiative NZGOAL ([New Zealand Government Open Access Licensing Framework](#)) values and the international OpenGLAM philosophy. NZGOAL encourages the use of a Creative Commons CC BY licence as the default option for material in which there is no copyright or where government departments are the copyright holders.

A further principle states that the Museum will provide clear, consistent rights statements for all images that are published online. To ensure this is implemented a suite of five main rights statements were created in line with other New Zealand cultural institutions and are assigned across our collection. These statements include; All Rights Reserved, © Auckland Museum CC BY, No Known Copyright Restrictions, Copyright Undetermined- Untraceable Rights Owner, Cultural Permissions Apply.

The two most open statements, CC BY and No known copyright restrictions, allow images to be downloaded and reused for any purpose, even commercial use, as long as the Museum is attributed as the source. The other three statements respect either legal, cultural or ethical considerations and allow visitors to view the image, but not download it.

Where an image has an All Rights Reserved statement, this indicates that we have sought permission from the copyright owner to publish this image online. Over 11,000 objects have been classed as 'orphan works' meaning there is no known or traceable author after a due diligence search. When releasing images of these objects we are taking a calculated risk and we make these accessible, but not reusable, using the "copyright undetermined – unknown rights holder" rights statement. These works are accompanied by a takedown notice on our website, so if a copyright holder comes forward we have a policy on how to remove the image if they wish. This allows the Museum to publish works that would otherwise be restricted by copyright legislation, and also allows copyright holders to identify works and get in touch with us.

The 'Cultural permissions apply' statement applies to images which depict Māori and Pacific content and allows these images to be accessible online for private research or study, under the

New Zealand Copyright law fair dealing provision. The Museum has developed guidelines for users requesting the reuse of images that fall into this category and a process is followed to seek permission from the relevant communities if necessary. These are discussed below. The “No known copyright restrictions” statement enables the Museum to release reproductions of 2D works that are deemed to be out of copyright and the Museum doesn’t claim any new copyright over these images.

Consistent Rights Statements

	Downloadable	Reusable	Commercial Use
All Rights Reserved	X	X	X
Copyright Undetermined - untraced rights owner	X	X	X
Cultural Permissions Apply	X	X	X
No Known Copyright Restrictions	✓	✓	✓
CC BY	✓	✓	✓

Another important recommendation from the copyright framework is the introduction of a Creative Commons licensing option for copyright owners. On a trial basis this has been implemented through our copyright licensing agreement forms when requesting permission. To date there has been a positive uptake with many copyright owners choosing to assign a CC BY or CC BY NC licence to images of their works. This option only applies to digital reproduction of the object that the Museum has created, not the actual work itself. At the heart of this work is building harmonious relationships with copyright owners, ensuring that they are fully informed of all of their options and introducing them to new ways of sharing digital content.

Overall the copyright framework provides a fundamental platform that allows the Museum to **contribute to the ever-growing wider pool of openly available data and images**. And in turn new creative works are made, research papers are strengthened, profitable businesses are created – all from this pool of freely available cultural heritage material, encouraging a cyclical reuse of material that would otherwise be locked away behind a paywall.

Putting cultural care at the centre of the Museum's practice

An appreciation of the Museum's partner knowledge communities, different ways of seeing the world and caring for taonga is fundamental to the Museum's work. The approach to caring for taonga accommodates Māori and Moana Pacific cultural values and reflects the partnership expectations of these communities in the telling of perspectives and narratives associated with their people and taonga, as well as the care and management of these objects. This is central to Auckland Museum's guiding principles and values and is in line with the Museum's commitment to nurture relationships as outlined in its strategic pathways [He Korahi Māori](#) and [Teu Le V?](#).

In the global, online context cultural care and open collections can be perceived as sitting uneasily alongside each other. The Museum's journey has included developing clearer practice around the release of images containing Māori and Moana Pacific subjects (1), based on appropriate cultural values and museum good practice. This process is intended to ensure cultural values are upheld while also supporting people to access and use these images.

In 2014 input was sought from a wide variety of New Zealand library, museum and external specialists to gain a range of perspectives; from this the museum developed guidelines for Auckland Museum staff responsible for considering the use of Māori images based on Māori cultural values and current museum good practice. The museum then consulted more widely across memory institutions around the Pacific, and developed a companion framework and practice for Moana Pacific images in 2016.

These [frameworks](#) provide direction for Museum staff in line with the [Museums Aotearoa Code of Ethics](#) (2). They sit alongside copyright legislation and are particularly intended for considering requests for use of orphan works, works in which Auckland Museum is the copyright owner or those with no known copyright. This approach lifts responsibility for respectful and informed decision-making from the individual to the organizational level.

When making decisions, legal status, appropriateness and the significance of the image or object are considered.

As with the entire online collections journey, the fundamental principle is to be **open by default** and **restricted by exception**. Aiming to increase access to and engagement with its collections and stories through its image library, the Museum takes a positive approach by assuming access will be provided unless there is a clear reason why approval should not be given. The exception to this principle is images which are known to be restricted, where the converse is the case (3).

(1)

This process relates to the representation of the subject or object (the image) as distinct from the subject or object itself, which attracts its own level of care. The images may be of Museum-held objects or have content which is external to the Museum.

(2)

Museums Aotearoa Te Tari o Ng? Whare Taonga o te Motu The Museums of New Zealand Inc, Code of Ethics and Professional Practice, 2013. Section 2.3: Museums will engage with people of the cultures concerned in the development of collections of cultural property, including their reproduction in digital and other formats. All museums will recognise the rights and interests of tangata whenua and Moriori in relation to cultural property.

(3)

Images of human remains are restricted except under exceptional circumstances.

The Museum also seeks to ensure that the requested images fit with the intended purpose and that cultural obligations are not compromised.

Under the principle of **Manaakitanga**, the Museum ensures requests are dealt with in a timely manner and that there are clear pathways of communication, including explanations.

The principle of **Mana Taonga** is about safeguarding the mana (authority) of the taonga. There is also the potential to enhance the mana of the taonga, when it is connected with the journey, stories and iwi (tribal groups) it is related to.

The principle of **Mana Whenua** guides the Museum in its obligations to partner knowledge communities, whether they are defined or implicit. The duty of care is to uphold the mana of the communities that are associated with M?ori images, no matter whether the connections are active or latent. The Museum is cognizant of the tupuna (ancestors) associated with a M?ori image and the future generations to come.

Responsibility ultimately lies with the communities from where images are derived, even if this responsibility is not able to be activated. The Museum applies a wide understanding of ownership and tries to identify all iwi interests and relationships. Where practically possible, requests are referred to the owners or relevant iwi/hap? (tribal grouping). The preferred approach is to assist the requestor where it is reasonable to do so.

Under the principle of **Kaitiakitanga**, a high level of care is given to all M?ori images and a peer review process is undertaken if there is any question or high degree of complexity over an image request. There is a well-defined chain of decision-making that can be called upon if required.

Companion guidelines were developed for images with Pacific content in 2016, after an international process of consultation. Two principles from Teu Le V? were identified as relevant:

Respect and **Integrity** are about upholding the Museum's obligations to our source communities, whether the relationships are active or not. This involves showing respect to people, items, subjects, key events, spiritual beliefs and to requestors. **Integrity** is about supporting communities to divest themselves of colonial views and interpretation of people,

events and material culture.

The principle of **Authenticity** supports the ethical sharing of indigenous world views and knowledge and guides us in our obligations to our source communities.

To date the frameworks have been effective in responding to all 200+ requests received since their implementation. The Museum ensures consistency throughout the process and across the organization by utilizing the collection management systems to document all decisions, note established precedents and build the Museum's body of knowledge. No challenges had been forthcoming from either source communities or requestors and all decisions have been provided within a week of receiving the required information. Only 3 requests have been declined, including one internal request.

More importantly though, by putting cultural care at the centre of our practice the Museum aims to ensure that, while it is embracing the OpenGLAM philosophy, it is not inadvertently repeating colonial practices of the past by inappropriately making materials available for re-use.

Our Contribution to the Commons

As Auckland Museum's collections are shared with the world, the community is enabled to engage with, use and reuse them. To date more than one million items and over 300,000 images have been released - free, open and downloadable under a CC BY license. There are 5,000 data enhancements made daily and 2,000 new objects online every month. The open data API is sharing the collections with a global audience and in this way is providing open access to cultural data on a scale not seen before in the New Zealand sector.

It is early days in the Museum's **open by default** journey, and the Museum team gratefully acknowledges the generous support of colleagues from other memory institutions and partner knowledge communities.

Contributing to the Commons

1 million records online

300,000+ reusable images

Openly available API

212,000 records in the Atlas of Living Australia

2,000 items in the Google Cultural Institute

270,000 records in GBIF

19 3D models on Sketchfab



With 2.5 million downloads of Auckland Museum's collection records in the 12 months to July 2017, it is encouraging to see the interest in and appetite for this material internationally. It is clear that Auckland Museum's online collections are contributing to the global body of knowledge relating to the natural and social history of the Auckland region, ethical partnering with Māori and Moana Pacific knowledge communities and New Zealanders' involvement in international conflicts, in a robust and ethical way.

As the Museum makes further progress, there will no doubt be further considerations and challenges to work through. We are confident that by making our collections available to all via Collections Online we have made a positive start and embrace the work ahead of us.