
Part II

Mediated and Unmediated Heritage

A Case Study of an Inclusive Museum: The National Archaeological Museum of Cagliari Becomes “Liquid”

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Abstract

From 6 to 20 June 2014, the General Directorate for the Promotion of Cultural Heritage of Ministry of Cultural Heritage and Activities and Tourism (MIBACT) launched the online consultation #culturasenzaostacoli in order to financially support a project for museum accessibility. The National Archaeological Museum of Cagliari received the most votes. Since then the museum’s team started working on the project that was called “liquid museum”, mainly due to its aims of adaptability and inclusivity. This article describes the project and the main guidelines that led to the draft currently being developed. Issues related to the new exhibition and multimedia displays will not be addressed herein. The focus of this document is the new approach in the writing of a project that is not only easily replicable but especially sustainable over time, both in terms of economic costs and for the technologies that it uses, and thus ready to be changed, updated when necessary, and because of this ‘liquid’.

1 Introduction

A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits

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the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment (ICOM 2015).¹

With this powerful definition in its statute the International Council of Museums (ICOM) defines what a museum is. Among other aspects, we would stress that museums are seen as institutions at the service of society as a whole and exist for its development. Therefore, museums are no longer *wunderkammer*, cabinets of wonders, but ever changing places that have an active role in society, of which they are, in many ways, an expression (JALLA 2003: 249). In addition to being an institution at the service of society, museums can be defined as such if they are open to the public, and therefore accessible to everyone. The concept of accessibility comes in varying degrees and forms and for some time now is associated with the idea of inclusiveness, because the visit must be lived without barriers and differences, allowing everyone to access the available contents and information.

2 The Contest #Culturasenzaostacoli

From 6 to 20 June 2014, the General Directorate for the Promotion of Cultural Heritage of MIBACT launched the online consultation #culturasenzaostacoli (MIBACT 2014). Funding for the construction of an accessibility route was the prize for the selected museums. The National Archaeological Museum of Cagliari (MARC), which had been included as one of the 17 museums selected for the consultation, received the most votes.

This exceptional result was due to the collective effort of the employees of the Superintendence for the Archaeological Heritage of the Provinces of Cagliari and Oristano, the support of local associations, and the support of the famous jazz musician Paolo Fresu, who supported the museum with his testimonial. The campaign slogan, 'At MARC, music will be the same for all' was based on an idea by director Donatella Mureddu.

A key role was played by online communication, thanks to the hard work of the MARC social media and communication team. Starting in December 2013, in fact, MARC, alongside the National Archaeological Museum of Florence (Archeotoscana blog 2015) is one of the first Italian public museums to have hired an editorial team who specifically works on online communication and runs the MARC blog (Museoarcheocagliari blog 2015) and all museum's social networks accounts (namely Facebook, Twitter and Pinterest, which is actually the less used of the three). The presence of this team was essential to the project's success.

¹ ICOM Statutes, at the 21st General Conference in Vienna.

3 The National Archaeological Museum of Cagliari

The National Archaeological Museum of Cagliari is the most important and prestigious institution of archaeology and history of Sardinia. The first collections date back to the nineteenth century, when knight Leonardo de Pruner, under Ludovico Baylle's supervision, set up a room in the Viceregal palace to become the 'Cabinet of Archaeology and Natural History'. Since 1993, the museum is located inside the Citadel of Museums, inside one of the buildings designed by Pietro Gazzola and Libero Cecchini in the 1950s and finished at the end of the 1970s. The museum is rather large, arranged around an atrium, on four floors. Being on the highest hill in town, through its wide windows and balconies it offers visitor a beautiful view of Cagliari from above. The permanent exhibition of MARC includes over three thousand artefacts which are important for the understanding of the history and the culture of Sardinia as well as those concerning past civilizations living and thriving around the Mediterranean sea.

The archaeological collection is arranged over three floors. It follows a chronological order at first, then a topographic order. The first floor is largely devoted to a narration of the historical and archaeological development of Cagliari, and the second floor displays findings from some of the most ancient settlements and town of Sardinia (such as Nora, Bithia, Monte Sirai, Sant'Antioco). The third floor is for temporary exhibitions, and it currently hosts the exhibition 'Mont'e Prama 1974–2014', which, for the first time after the restoration, showcases the famous Mont'e Prama sculptures, extraordinary and unique examples of monumental statuary from the Nuragic period (Iron age) of Sardinia. The exhibition is also at the local museum of Cabras G. Marongiu.

4 Liquid Museum: A Moving Museum

“Alongside the duty of preserving its heritage, every museum aims at making it accessible to different and diverse audiences, enabling its use for education, culture, diversion and more. Interpreting its own heritage and making it accessible to all visitors, especially by displaying it, is therefore an integral part of museums' *raison d'être*” (MIBACT 2001).²

Based on this definition, the accessibility project led by MARC called 'Liquid Museum' was born. The word 'liquid' does not mean 'fragile' and 'elusive' as it does in the Bauman theory (Bauman 2000); instead it means 'mobile', as in ready to receive new content. At the same time the technologies used are not fixed, but they are ready to adapt and change. 'Liquid' suggest a museum for children, the elderly, foreigners, the disabled, and is thus chameleon-like, a museum that can take different shapes and sizes to suit the needs of any visitor.

The liquid museum is accomplished through the building of perceptual and sensory pathways that allow a total use of the museal structure and its contents,

² Ministry of National Heritage and Culture decree of 10 May 2001, precondition VII.

because “art, in all its manifestations, is a language and therefore a form of communication. As communicative act it should be affordable and accessible to all” (Addis 2002: 35). During the time of the project the museum will become a liquid empathic museum that is able to understand the needs of its visitors and to adjust and adapt its contents. This will be accomplished through social networks and periodic surveys designed to explore what the visitors would like of their museum and how they feel when visiting it. Moreover the museum staff, thanks a proper welcome training, will be able to better support the visitors needs and emotions. Visitor emotion and feeling is an important focus of museums, as it is exemplified by the Empathy Museum (2015), that will be opened in London and whose aim is to stimulate empathy between people.

An archaeological museum is by its nature a container full of objects that explain gestures and rituals of the past. These items often have unusual shapes and curious sounding names that are sometimes difficult to understand or even remember for non-specialists. Archaeological artefacts carry with them a set of historical, typological and functional information that need to be communicated and shared with the public in a simple but not prosaic language. Technology and a new way of communicating history are essential to this, especially to make content accessible to people with cognitive disabilities.

For a long time it was thought that the removal of physical barriers and the creation of tactile paths were the best way to make museums accessible. Nowadays, the approach is different (Gilli and Rozzi 2013), and attention is also paid to learning disabilities (such as autism and others). Here the focus is shifting from what is displayed to the way it is displayed and the textual-communicative apparatus that goes along with it (Museoarcheocagliari blog 2015). Small but important expedients are the use of Sans Serif fonts, the right distance between text lines and an appropriately coloured background. Moreover, a simplified but not trivialized rhetoric is implemented, which helps explain the significance of the artefacts themselves, their use in ancient times and their role within the scenario that is set up in the exhibition. Therefore artefacts must be understandable for children, teen agers, the elderly and families with children.

This revolution is a ‘new’ way of seeing museums as a space for social integration. This includes the importance of migrant integration such as the Museum of the City of Liverpool and the European Museums in an Age of Migrations project (MeLa Project 2015), funded by the European Commission, which aims to

“delineate new approaches for museums in relation with the conditions posed by the migrations of people, cultures, ideas, information and knowledge in the global world. Its main objectives are to advance knowledge in the field and to support museum communities, practitioners, experts and policymakers in developing new missions and forms of museums and libraries in “an age of migrations.” (MELA website)

In order to facilitate adaptation and renewal of exhibitions and visitors’ engagement, museums should not be static. Instead of setting up new showcases (which MARC already has) the use of apps and innovative multimedia displays was preferred, all of them adaptable, so that everyone can benefit from a visit that is

accessible to all and thus shared. Multimedia displays will thus be designed in such a way that they are easily adaptable and renewable for new productions, new paths and new exhibition themes, and of course adaptable to include new findings and artefacts, because the MARC must be able to update its contents without losing its accessibility.

In addition to that, the museum staff will provide engaging guided tours, in order to receive visitors in the best possible way and enhance their enjoyment of MARC. Human contact, in fact, is not only complementary to multimedia devices, but essential to accessibility. The museum must be accessible from the moment it is entered and for that reason all staff member should be trained and prepared to offer the utmost welcome to all their visitors. The entire exhibition route inside the MARC will be revised and designed in such a way as to allow an independent and varied realisation of the museum's collections, and in doing so for instance, well known deterrents for disabled participation will be overcome. In this new blueprint, all the exhibition panels will be revised to follow the new design rules (e.g. using left alignment text, using proper colours, simplifying text, using multimedia support). We will organize a monthly meeting with associations inside the museum and co-organize special 'accessibility day' in order to stimulate the meeting between associations and citizens in order to transform the museum as a social space.

Unfortunately material limits and economic issues prevent MARC from undergoing architectural changes, nevertheless the collections contents (description objects, multimedia) will be updated, integrated and made accessible to all. Visitors, real or virtual ones, should have access to the contents and information that allow them to experience museums in a very personal way, but also to share contents, comments and photos with others visitors. For that reason, our project adopts the definition of a museum that can be found in the Act of Address Museums by ICOM which was included in the Art Bonus Decree (Decree 83/2014). It states that a museum is a civic and social space. This was also supported by the online course given at Leicester University entitled 'Behind the scenes at the 21st Century Museum' that also aimed for a new information and communication strategy in museums.

4.1 A New Meaning of Museum Accessibility

As already mentioned, in the past the term 'museum' generally meant a set of arranged spatial features, which created an area that was autonomous and easy for everyone to access, included disabled people. The Liquid Museum project follows the instructions drawn from the Design For All project (Acolla 2009) and the MARC is committed to addressing the key points given by the Italian Ministry regarding accessibility which include: orientation, reference points, signage, maps, overcoming distances, overcoming of differences in height, and equipment such as ramps. The innovation in the accessibility concept is strictly related to the content

of the museum, without forgetting the importance of breaking down architectural barriers, through many different aspects, which include:

- Physical. Removal of physical barriers.
- Sensorial. Visitors are given a chance to touch some original findings and/or 3D models (Zimmer 2008) that were made during teaching-learning sessions planned in the museum, in and CRS4 collaboration with Sardinia Research Center Fablab (Fablab Sardegna Ricerche 2015). The experience of being able to touch the objects or their reproductions is perhaps one of the most low-cost solutions, and makes the museum more accessible and friendly to visitors. These experiences always encourage more than one visit, as witnessed in the exhibition Tate Sensorium at the Tate Britain in London which offered visitors a chance to experience a museum that stimulates the hearing, smell, taste, touch (Tate Museum 2015). The Prado Museum recently has carried out 3D copies of some masterpieces, in order to make them touchable for visitors (MUSEO PRADO). In Italy, for several years, the National Tactile Museum Omero (Omero Museum 2015) has, as its mission, not only offered a touchable museum, but in its rooms there are the reproductions of some of the most important masterpieces of Italian cultural heritage. Their interest is also to provide support to institutions to organize a tactile or sensorial pathway.
- Digital. Generally the Information and communications technologies (ICT) are considered an important support in the management and use of contents both of the museum staff and visitors. Two case studies carried out by the European project The Learning Museum (LEM Project) shows that multimedia has to be well-built, with attention not only to the quality of the content (texts, images) but also the usability of instruments and their playful aspect. For the museum's Liquid Project, the artefacts will first be digitised by using different techniques (photomodelling, lasercan), and then 3D models will be created. Both processes are planned as a training activity open and free not only for the museum staff but also for students. The new technologies of digitalization applied to the museum context furthermore encourage the enjoyment of the collection via remote access. Recently, the British Museum added downloadable 3D models of its collections in the Sketchfab (2015) platform, under the CC-BY-SA (attribution + sharealike) user licence. This is undoubtedly an important step that confirms that museums who make their collections accessible online do not risk having fewer visitors and in fact increase the visibility of the museum itself. This is evident in the increasing number of museums on the Google Art project of the Google Cultural Institute (Google Art Project 2015), where there are photo galleries of 596 museum collections. Data associated with these collections are often open or downloaded directly from the site as open data (e.g. GITHUB MOMA). The most important reference regarding open access is given by the Open GLAM (Galleries, Libraries, Archives and Museums) project by the Open Knowledge Foundation (OpenGLAM 2015) and the GLAM project supported by the Wikimedia Foundation (GLAM 2015), where once again the British Museum is involved (GLAM British Museum 2015). These projects are

designed to give support to institutions in the form of procedures for sharing information such as mainly metadata and images of their objects. Starting with these examples, a key aspect of the Liquid Museum, after digitization, is the creation of the museum's website and its Digital Library (DL). The website, built with free Content Management System (CMS) software and according to the usability standards of W3C will be handled by specially trained museum staff, and will be designed as a real museum guide. Through systems such as Quick Response Code (QR) and Near Field Communication (NFC) the user may download and/or view the contents (video guides, images, insights) that help in the exploration of collections. Museum tours will be possible through a web-based geographical information system (Indoor WebGIS) able to help the visitor to discover museum paths and collections. A second WebGIS based on Openstreetmap API³ will be built in order to visualize and to research the archaeological sites whose findings and/or contexts are present in the museum.

The most important objects will have navigable online three-dimensional models, in addition to images. The blog of the museum will be integrated into the website to allow interaction with users-visitors. Metrics will be used to evaluate the performance and user interaction with the site content. Fundamental to the process is the how the exhibits impart knowledge, which is why the site will include a digital library of museum exhibits. The creation of the digital library of artefacts and sites will prepare for data acquisition (photos, video) that will be carried out by the museum staff. The museum currently has a database of findings in FileMaker 12, made during a program called Master and Back funded by Autonomous Region of Sardinia. During this project and thanks to co-financing supported from Autonomous Region of Sardinia and Superintendence for Archaeological Heritage of the Provinces of Cagliari and Oristano,⁴ three fellows have been employed for 2 years (from 2012 to 2014) at the MARC: the restorer Maura Mereu and the archaeologists, Enrico Trudu and Anna Maria Marras, who designed the database and wrote the users guideline. This database will be imported into the new database online, which will be implemented with open source software, following the Italian National Institute for Cataloguing (ICCD) guidelines and using metadata schema of Europeana (EUROPEANA 2015) in order to facilitate dialogue and integration with both systems. Datasets of the collections will be downloadable as open data from a section of the website, following the example of the Fondazione Torino Musei that, on the occasion of the Open Data day of 2014, has made this information available (Fondazione Torino Musei 2014)

- Training. Training is a key element for the accessibility of the project, which goes hand in hand with the web site creation, the new exhibition itinerary and the carrying out of multimedia solutions. Over the course of the project, several

³ Open Street Map (OSM) is a collaborative project born in 2004 to create a [free](#) editable [map](#). OSM is use also for indoor mapping.

⁴ <http://www.archeocaor.beniculturali.it>

different training sessions will be implemented aimed at improving how visitors are greeted, the abilities of the staff, and the expertise in using the different devices. In order to improve the knowledge of English, courses such as those provided by Massive Open Online Courses (MOOC) are to be held at the Museum. In order to enhance visitor reception a course called “Welcome and Smile” will be given by experts in the field. As already mentioned, in order to allow the museum staff to update their digital content in real time, training sessions for “digital acquisition objects” will be given and, moreover, the Museum will purchase a small laser scanner for surveys of small objects. Another training course will be given on the reproduction of 3D objects in collaboration with the FabLab of Sardinia Research and its makers and will be opened to students. Some workshops will also be planned in collaboration with citizens’ associations in order to enhance the spirit of sharing and participation that is the main goal of the Liquid Museum.

4.2 Technologies as Liquid Tools

Nowadays the importance of technology in cultural enjoyment is acknowledged and generally accepted. Technology is changing the way we think about museums (Levent et al. 2014). Being a trusted public space and a trusted source of information, museums have a potential to transform those technologies used elsewhere for commercial and surveillance purposes. Technologies, on the other hand, might have the potential to aid museums in redefining their unique place in public life (Levent et al. 2014). Technology is changing the relationship between the public and a museum object (Levent et al. 2014). Technology is more and more present in museums, helping develop new ways to enhance the enjoyment of the visit and providing the means to be more inclusive, like 3D, immersive technologies, augmented reality, video reconstructions and simulations. The relatively low cost and the use of open source software makes it easier for museums to use new technologies.

A critical issue, however, is the lack of sustainability (the importance of the term of sustainability is well explained in Pilotti 2003) for some of these technological tools and the difficulty in keeping up with the rapid evolution of technology. Unfortunately, even the most new and innovative app will become obsolete in a very short time, and visitors, who are very often conscious consumers of hi-tech software and devices, are left bored with museums that are filled with old equipment and/or computer screens that are no longer useful. To counter act this, we will use open source technologies, that can be sustained for longer and allow for constant maintenance and updating. At the same time, open formats for data and international standards for metadata will be used as open formats promote an easier re-use of information in different apps.

4.3 A Network for an Open Museum

Liquid museum is a museum without barriers. It is a museum that seeks a dialogue with its visitors and with other agencies to ensure that the project involves not only the entire City of Cagliari but also all Sardinia region. The museum must be connected with other museums. In order to facilitate this process, the international museum communities are improving their networks not only in terms of thematic but on digital and accessibility issues (e.g. NEMO and Museomix 2015). The plan for dissemination foresees that the project will be presented through the social network of the museum and the creation of a section of the blog which will be dedicated to the project and includes all activities related to teaching and training. Before any activity starts, however, the museum needs to better know, also through surveys, its audiences. The knowledge of both the museum visitors and the online museum visitors are important in order to understand who they are and how they support the museum's reputation.

Another Liquid Museum activity is the installation of book-crossing library inside the museum with publications on Sardinian archaeology, in this way the museum reaffirms once again its social role and the deep connection with the territory and the town.

5 Conclusion

In recent years the technologies applied to cultural heritage have become more and more accessible. The "open source revolution" has helped museums not only with lower production costs, but also, with access to open data. In the introduction to this chapter, we used the definition of 'museum' as is written in the International Council of Museums (ICOM) statutes, highlighting the role of museum as an institution in the 'service of society' and open to all. In drawing up the plan for our museum it was very important to highlight another aspect also written in ICOM definition, which is the 'educational role' of the museum.

Finally, if the project's main goal is to have a fully inclusive museum, it is necessary to better interpret several point of views and issues, to articulate and separate the different activities designed according to the different types of accessibility. These accessibility types are: physical, cognitive, sensory and also, for the first time involves the issue of digital accessibility. The latter is more important for the future of the museum and for the museum of the future, not only in order to promote online access to museum collections, but above all for a smart use of new technologies, able to support both archiving and the dissemination of information about museum's objects.

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The Museum as Information Space: Metadata and Documentation

Trilce Navarrete and John Mackenzie Owen

Abstract

Although museums vary in nature and may have been founded for all sorts of reasons, central to all museum institutions are the collected objects. These objects are information carriers organized in a catalogue system. In this chapter, the museum will be conceived as an information space, consisting of an information system related to different methods of reasoning. We will highlight the new possibilities offered by digital technology and the changes brought by the way in which visitors come into contact with objects. Our central claim is that the visitor moved from being onsite within the museum's information space to being outside the museum in the online information space of the Internet. This has fundamental implications for the institutional role of museums, our understanding of metadata and the methods of documentation. The onsite museum institution will, eventually, not be able to function as an institutional entity on the Internet, for in this new information space, objects, collections and museums, all function as independent components in a vast universe of data, side by side at everyone's disposal at anytime. Potentially, users can access cultural heritage anytime, anywhere and anyhow.

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1 The Museum as Information Space

Collected objects support entertainment, learning and research. Objects are collected and preserved with the purpose “to represent, to reconstruct, or to demonstrate a physical or conceptual phenomenon” (e.g., to represent a period, a place, a person, an order, a set of values, a specific idea, or a moment in time) (Buckland 1997: 805). As collections are formed, the objects’ original context is replaced by a new one. The new context is part of a space in which the museum professional exhibits objects to guide the information transmission process. As such, the object’s function is to inform a person observing it: objects are information carriers (Buckland 1997: 805; Leone and Little 2007: 362). The information they convey depends on the observer’s ‘reading’ of the object, based on acquired rules of interpretation and methods of reasoning. So, for instance, a painting may be ‘read’ differently by a painter (observing colour and brushstroke), an art historian (determining cultural and historical value) and a chemist (inspecting mineral composition).

Knowledge results from reasoning about objects, that is, from the capacity to make sense of things based on learnt rules and systems of relations (Boekhorst et al. 2005; Hooper-Greenhill 1992; Marty 2008; Navarrete and Mackenzie Owen 2011). As such, the museum is a space of communication. Traditionally, museums communicated with their visitors using what Hooper-Greenhill describes as the transmission model. She writes:

The ‘transmission’ model of communication understands communication as a linear process of information-transfer from an authoritative source to an uninformed receiver. Knowledge is seen as objective, singular and value-free. The receiver of the message to be communicated is conceptualized as open to the reception of the message, which is received more or less efficiently, and in the same way by all (Hooper-Greenhill 2007: 560).

After it had been questioned whether this transmission model indeed worked, some museums opted for a conversation model in which the audience participates and is able to attach meaning to the observed objects (Hooper-Greenhill 2007: 562). The more prominent role of the visitor in the museum space is related to the awareness of the constructivist nature of knowledge, which has already made the lay public demand alternative interpretations, explore new meanings and to critically confront the experts with their own views (Hooper-Greenhill 2007: 572). Museums, in turn, have presented alternative narratives to one object or one exhibit through temporary exhibits or multiple guided tours (McClellan 2008). That is, as objects get moved from one exhibition to another, curators can choose to present the same object as part of an artist’s oeuvre, as illustration of a genre, or as context to highlight the work of another artist. Similarly, guided tours may highlight a different aspect of the work within the same exhibit to best respond to the public’s needs (e.g. school tours).

These museums shape and control their information space through a series of decisions: selecting objects, placing objects in a specific context (next to other objects as part of a collection or exhibition), classifying and applying labels to them, and using specific methods of research and publication. Also the museum

building, its architecture and gallery design (e.g., lighting, wall colour, cases and stands), the routes to be taken, its guided tour and use of text labels, are all means at the museum's disposal to determine what information an object carries and transmits. In the onsite viewing context, the 'reading' of objects is constrained by the museum space providing the context in which to reason about the object. The process of allocating a context to an object is deeply ingrained in the work process of museums, both in the back end through object ordering and classifications as well as in the front end or exhibition space. In this respect, the history of object display is also important, for it may reveal systems of organization and thought which help to determine how to 'read' objects (Bennet 1992, 1995; Grognet 2007; Noordegraaf 2004).

2 The Polysemic Nature of Objects

Objects are polysemic. That is, the information carried by an object is diverse and changes over time due to such things as reclassification, becoming part of a temporary exhibition, or changing collections because of object repatriation, war, deaccessioning (disposal, exchange or sale), or other forms of organizational change (Hooper-Greenhill 2007; McClellan 2008). But how deliberate are the choices that museums make about the meaning of their objects; and how did they construct their information system to order and classify their objects as collections grew? Until recently, museums have worked with taxonomies and classification systems reflecting differences between museum types and academic disciplines, without being fully aware of what such systems excluded (Legêne 2008). David Vance reported in 1974 that the use of controlled vocabulary can be too specific and limit the polysemic nature of objects:

Does France include Martinique? Tahiti? Did it formerly include Algeria? How does the sense of this word change in a medieval context? Does it always include Burgundy—retroactively? What will be the consequences of calling Picasso Spanish but including him in the School of Paris? (Parry 2007: 40).

The polysemic nature of the object as information carrier has been limited by knowledge documentation systems based on 'flat files' and other systems, linking information to an object but isolating it from other objects and other object files at the same time. The desire to create structured vocabularies through thesauri, taxonomies and classification systems developed in academic disciplines, further limited the possible information value of objects (Bearman 2008; Hooper-Greenhill 2007). As museum professionals gained awareness of the polysemic nature of objects in relation to their own organizational structure and work processes, documentation systems evolved in systems capturing information related to the history of the objects in museum spaces. Awareness of the importance of this sort of information increased with the adoption of computers in the heritage domain. So now the question is: what happens to the object, the collection and the museum as

they enter the online information space? And what role has metadata to play in this transition?

3 Metadata and Information Management

Today we expect collection information management systems to support interpretations that may change over time. Information systems must allow for multiple perspectives and scholarly interpretations, and accommodate different vocabularies for different types of users (Bearman 2008; Marty and Jones 2008). Managers, for example, have different information needs than researchers, who in turn want other information from the information management system than curators and the interested public. The adoption of the computer meant a new phase in the history of museum documentation. The concept of metadata became central.

Metadata is information about the object as information carrier. Where museum objects carry external knowledge, metadata may be said to be the internal knowledge of the object (Mackenzie Owen 2007). The internal knowledge (metadata) of a book for example, consists of the number of pages, information about the author and the publisher, date and place of publication, the table of contents and the index; from a metadata perspective, the object's external knowledge would be the thesis that is argued for.

Documenting objects is complex for several reasons. Objects are polysemic in nature, they are connected to other objects and other collections, and objects collect a history as collections, exhibitions, research and preservation techniques develop and change over time. To accommodate the documentation process, specialized metadata categories are distinguished, such as descriptive, administrative, technical and preservation metadata (Baca et al. 2008; Beumer 2009),¹ including so-called paradata, that is, metadata enabling the documentation of "intellectual capital generated during research" (see London Charter Glossary).² These metadata categories structure the content management architectures, enabling a better management of diverse information sources, alternative readings of objects, and the multiple uses of the object.³

¹ It has been argued that digital objects and metadata are complementary 'goods' and therefore produced and consumed simultaneously. See Navarrete (2013), for an application of economic theory to digitization of heritage collections.

² Drew Baker proposed using the term paradata to document the process of data interpretation in the construction of 3D visualizations for research and dissemination to guide the London Charter (2009), an initiative to develop best practice. Strictly speaking, paradata refers to "documentation of change in collection information by adding new records while keeping the previous ones," including interpretation of sources in the process of visualization (Navarrete 2013: 252).

³ Content management systems are part of information architecture, responsible for giving structure, methods, and design to the organization of digital information (Wikipedia 2015). Information architecture refers to the use of physical space to order things, as museums have done with their objects and their information. Parry (2007) argues that the museum institution is the metonym of a universe of knowledge.

It is the metadata attributed to the objects that enables discoverability via cross-references, hyperlinks, multiple interpretations, and so on, all within one database. Objects and their metadata can be linked to other objects and their metadata enriching each other's information dimension. Links increase in direct relation to the metadata attributed to the objects. That is, administrative metadata can complement the technical dimension of the objects, in turn enhanced by descriptive metadata. The potential links available when linking to other databases expands exponentially.

Objects always require metadata in order to function as information carriers, that is, as documents, for it is the metadata that situates the object in both a material and an information context. Finally, we should note that that collections, which are always more than arbitrary sets of objects, too require metadata to support interpretation and contextualization: collections are also objects. As such, an object may be interpreted differently when part of a collection made by an artist, a collector or a national museum. Moreover, the meaning of the collection as a whole, as documented by its metadata, will in part govern the interpretation of the object's belonging to the collection. The same applies at an even higher level to the museum as a collection of collections or supra-collection. Some information management system providers are exploring visualization of information that consider the entire collection as object made of multiple units which can be organized through filters (e.g. colour, chronology, alphabetically, geographically, by related individual, by related event). These systems are based on linking objects to multiple types of information (e.g. location, individuals, events) to facilitate navigation while reinforcing object contextualization.⁴ This allows flexibility in object reading. In a digital world, access to an individual object can follow a path from (metadata about) the museum, to (metadata about) a specific collection, to (metadata about) an individual object.

4 A New Information Space

Embracing the Internet, museum collections and single objects are becoming increasingly accessible in digitized form. Technology allows for complex information dimensions, however, in reality, digitization strategies still tend to focus on access to museum collections through images with a brief title (subject) label, thus using a restricted set of possible metadata. Because of this, online collection databases on the Internet lack access to the rich set of contextual and interpretational clues that visitors normally encounter in physical onsite museums. On site, an object is presented within a set of objects, generally with an introductory text and

⁴ An example can be found at the Microsoft Live Labs Pivot visualization of images and Europeana's Linked Open Data (LOD) approach to structure data following the Resource Description Framework (RDF), which identifies the object, its characteristics and relations based on a subject, predicate, object format.

accompanied by a guided tour, all in addition to the brief label next to it. The informational value of digitized objects is thus severely constrained, not because of the limitations of digital technology, but because of the museum's policy decisions regarding digitization.

Establishing a context for digital collections online is an entirely different process from what museums and their visitors are used to. Onsite, museums control the environment in which the visitor can observe the object by giving it a specific context and the same object transmits different information when it is part of a cabinet of curiosities, a national gallery or a zoo. By giving the object a specific set of metadata, the information carrying potential of the object is restricted. Online, alternative contexts are possible as multiple metadata can be displayed. Furthermore, the user is no longer inside the information space provided by the museum but free to explore any context she likes, following personal interests and information needs, which, usually, change over time. The museum institution can no longer fully control the context in which its objects are observed. It can only control the quality and quantity of the metadata provided to assist the interpretation process. Such a realization has driven a handful institutions to make their collections available as open data, generally free access to images allowing reuse, to counteract the poor quality images available on the Internet. The museum can to a certain degree control the selection and use of its collection since users will favour those objects that contain metadata needed to find and interpret them. A query result containing an image and explanatory text makes more sense than only the image or only the text.⁵

Museums are reluctant to make a broad spectrum of their object-metadata available without context and look for a balance between accommodating users and building their own information management system. Oliver (2012) acknowledges that digital objects and collections exist in a vast information space (the Internet) that allows for multiple contexts and interpretations. Access to the objects does not have to be tailored through exhibition design, lectures, guided tours and other educational activities, as traditionally occurs within the physical exhibition space—even though these may be available. Instead, the context provided by the museum is but one of many possible contexts in which the user may find or situate the object. Then what is the role of the museum in this new information space? To answer this question we will first focus on the concept of selection.

Selection takes place at the institution and by the user and can take the form of selecting (or not) an object and a context. From the point of view of the institution, selection is crucial at the moment the digital object is published, placing it in the vast information space with a limited set of metadata. The institution chooses an object (e.g. from the highlights, from the permanent exhibit, from the new

⁵ For a study of users clicking to view a heritage document, based on contextual information available in viewed summary, see Fachry et al. (2010). They found that “contextual information about the document undoubtedly played an important role in (...) making a selection decision” (p. 48).

acquisitions) with a number of characteristics (e.g. image quality, type of metadata) to be made available. From the point of the user, selection is central when interacting with the metadata. The objects, when properly presented, serve as information documents (e.g. images with a context) that can answer a question or can be repositioned within a new context to further engage in communication. The information chain is thus conceived as a transaction space in which the essential role of the user in completing the information communication is acknowledged.⁶ Only when the object is selected and used as an information carrier can the communication process be said to be completed.

Users select information based on features such as reliability, validity, completeness, actuality, verifiability, relevance and accessibility, depending on the user's background and information need (Boekhorst et al. 2005).⁷ Interestingly, selection of information does not have to be the result of specific queries since users can also 'find' information by accident, through passive search or serendipity (finding something while looking for something else) (Boekhorst et al. 2005). In the digital information space "access of information is the ultimate form of valuation. The selection process that leads to accessing one item represents a synthesis of all other value frameworks" (Navarrete 2010: 7).

Next to digitization of collections, we also see museums participate in the creation of new born digital objects including websites. The increased use of networked media is responsible for a fundamental change in the way visitors come in contact with collections (and museums as their managing institutions). Content, users, institutions and context are all to be found, selected and accessed, within the same information space of the Internet. Therefore, museums, while applying information and communication technology, do not disseminate their content in a broadcast-like fashion to households, as Parry believes (Parry 2007). That is, even if digitization indeed uses a technology with broadcasting media capabilities to reach many people at the same time, it actually combines it with a primarily one-to-one communication style, similar to the telephone network (Keene 1998). It is not the museum that visits the household, but all individual components—the object, collection, museum, or metadata—are placed side by side at the user's disposal in the information space, and only the information that is selected by the user is consumed.

The user thus creates his or her own virtual museum out of the materials available in the digital information space. There is no guarantee that the user will remain within the boundaries of the 'virtual' space set by the museum. In many cases the user will create a superset of metadata, combining metadata provided by the museum with information found elsewhere. An example can be found in Flickr, where users can make multiple collections of images, adding relevant metadata

⁶ This model was originally used to explain the production and consumption of scientific articles (Mackenzie Owen and Halm 1989).

⁷ For an application of the information features to digital heritage, see Navarrete (2013).

hardly ever matching the information provided by the museum.⁸ This turns the museum into a facilitator of information in digital environments, acting as one of the many sources that provide users with objects and metadata with which she creates her personal cultural information space. This might lead to combinatorial innovation, as Varian (2010) argues: the objects, metadata, collections and museums are all considered to be individual components at the user's disposal to be combined at wish.⁹

The relation between the museum and its visitor changes fundamentally as the object, the metadata, the collections, the museums, the museum information system and the user, are all independent components in an information space. Hooper-Greenhill (2007) argues that "if visitors are offered the evidence from which to draw conclusions, given access to data (...) they are able to adopt a problem-solving approach to learning" (p. 572). She proposes to deconstruct the museum's system of knowledge, highlighting the polysemic nature of objects and allowing multiple readings, in order to allow for personalized systems of communication and learning. Providing digital content as a service would replace the traditional collection-centred, inward-looking data processing model, and turn collections into processes rather than products (Hughes 2011; Peacock 2008; Refland et al. 2007).

It is still a long way to the realization of the new information space conceived here. Museums do not think of the Internet as an environment in which objects, collections and museums all function as discrete objects at the user's disposal. What we mostly see at this moment is an attempt to copy the museum's onsite institutional entity on the Internet. In the long run, this strategy will most likely not be sustainable, as the public will move to spaces where information is presented in an open-reading, re-usable form, if not made by the museum institution then these spaces will emerge from alternative efforts (i.e. the free online encyclopaedia Wikipedia). Museums are rich information spaces and can enhance the information dimension of the Internet. It is undeniable that much has already been achieved by heritage institutions, though their potential has not been realized yet.

The digitization of collections has first of all provided new means of display of and access to existing museum collections. Benefits of digitization are usually based on the use of networked media (the Internet), which allows access from anywhere anytime anyhow. Objects can be accessed at home on a desktop at night or on the street from a mobile phone during holidays, freeing constraints of opening

⁸ The Flickr Commons is a project launched in 2008 for heritage institutions to publish their collections in a "safe and regulated space" (Kalfatovic et al. 2009: 268). The main goal is to increase access to collections (Flickr 2015). Some museums may want to lock their online visitors into their Online Museum experience, in hope of maintaining control of the context (Marty 2011).

⁹ Varian (2010) uses as example the Internet: "it offered a flexible set of component technologies which encouraged combinatorial innovations" (p. 2). Its component parts are all bits (e.g., programming languages, protocols, standards, software libraries, productivity tools) that could be sent around the world with no manufacturing time, no inventory management, and no sipping delay. That is why innovation has had such rapid pace.

hours, location and selection available at the exhibition halls. On the Web, an object can be presented in many different ways at the same time, with different contexts and interpretations, independent from its location in a museum. Furthermore, digitization permits a dynamic form of documentation where interpretation can be edited and extended. New systems to order and manage objects give preference to changing and layered readings, emphasising individual meaning-making, including terms that liberate objects from the straightjacket of predefined frames of reference (Parry 2007).

5 The Tangible, Intangible and E-Tangible Object

Museums have always revolved around the objects in their collections and will continue to do so in the future, with the difference that digital objects will become more and more part of their collections. Even when benefits are accepted, including personalization, reuse, and access of otherwise not accessible materials (in high detail view, because of its fragility, or simply because of living in another part of the world); many museum experts continue to emphasize the irreplaceable nature of the original (Economou 2008).

Since museums are about physical and real objects, the digital and virtual have been conceptualized in opposition of it. Cameron observes that physical objects determine the classificatory framework in which objects are interpreted, so that digital objects exist only in relation to the physical “seizing the real, suspending the real, exposing the real, knowing the real, unmasking the real” (Cameron 2007: 69). However, there are other ways to conceptualize digital objects. Parry (2007) proposes a broader definition of objects when stating that objects in museums are “discrete, contained units of human experience, identified and extracted in order to help substantiate (to evidence), record or define an individual or collective epistemology (system of knowledge) or ontology (sense of being)” (p. 57). This definition, he argues, liberates objects from being real, copies, digital, information, and so on; instead it defines objects in accordance with their nature as tangibles, intangibles and e-tangibles (Witcomb 2007).¹⁰ As we have argued from the start, all objects are carriers of information, and there are good reasons for doing so. It supersedes thinking in terms of the dichotomy of the digital and the non-digital, the virtual and the real and the copy and the original, allowing an understanding of objects as independent from technology and institutional context. It furthermore explains how interaction with objects and the user’s active role in constructing knowledge emerged more or less naturally. Museums have been complex information management institutions all along, rather than collecting and ordering physical

¹⁰ Witcomb (2007) suggests to define digital objects in terms of the way collections are accessed: through onsite kiosks (one of the most popular early applications for digital objects), visualizing three-dimensional and virtual reality exhibits (a variation of the kiosk made 3D), post-visit souvenirs (take away products such as the DVD), mobile computing and handheld devices (personalized and customizable kiosks), and on the Web.

objects they have always been collecting and ordering information (Parry 2007). Digitization merely brought the object's nature as a polysemic informational carrier to the surface.

Over the past decades, the international community has defined tangible, intangible and digital heritage. Heritage refers to the legacy inherited from past generations embodied in physical artefacts, monuments and places (tangible), in traditions and living expressions (intangible), and in digital information resources (e-tangible). These digital information resources can include single objects (e.g. digital image), but also databases (e.g. collections of images) and the software to allow their access. UNESCO has made legally binding agreements among the States Parties to the Conventions about the preservation of tangible and intangible heritage (the UNESCO World Heritage Convention from 1972, the Convention for the Safeguarding of Intangible Cultural Heritage, adopted in 2003, and the Convention on the Protection and Promotion of Diversity of Cultural Expressions, adopted in 2005). International agreements about digital heritage have only been left at the recommendation stage (the UNESCO Charter on the Preservation of Digital Heritage, adopted in 2003). Long and short-term access to objects has been considered fundamental in all the drafted Conventions, not only in their introductory goals but throughout the measures proposed. Maybe this reflects the tendency that, while museum work revolves around objects, objects are more and more considered to be information carriers, either as tangible, intangible or e-tangible object. Defining an object tangible or intangible (or e-tangible) has consequences for its preservation. For instance, the sound of music can be defined as intangible unless the goal is to document the carrier (e.g. LP) in which case it becomes tangible. When the object is defined as intangible, migration into new medium is used to ensure continuous accessibility. However, definitions are not straightforward, as we have argued, due to the polysemic nature of objects that allows multiple meanings and multiple readings so that a digital recording of a concert can be tangible (physical location where file is stored), intangible (sound of music) and e-tangible (no need to digitize).

6 Conclusion

To increase the access to and use of objects, both now and in the foreseeable future, a policy on metadata is of crucial importance. Museums have collections of objects that can be read in different ways. The process of digitization has brought the polysemic nature of the object as information carrier to the fore. The context in which the object is interpreted is determined by the metadata provided. The user depends on metadata to interpret objects and she will select the object with the metadata that is most likely to satisfy his interest or information need. Museums can support and increase the use and interpretation of their objects by enriching their metadata. Practices of documentation, indexing and enrichment of metadata have to be adjusted to the new information space in which users interact and add self created content. The fragmented presence of museum collections in the information

space on the Internet might lead to new and surprising viewpoints on objects and their relations. In the digital information space, objects, metadata, collections, museums and users, all exist as independent nodes in a vast universe of data. In such an environment, objects are selected based on their accessibility and potential to satisfy personal information needs. The origin of the object and its related metadata is no longer of interest to the user accessing the object on the Internet, for the Internet has become origin and context of all objects and their relations. All of this does not mean that the museum as an institution may become redundant in the digital world. For, as Parry argues, trust may be key in the way the user experiences collections: “Knowing (and caring) about the difference between a collection of digital things that appears like a museum, and a museum that is presenting digital things based on its collection, comes down to questions of trust and definitions of authenticity” (Parry 2007: 68).

A metadata policy will help museums face the challenge to find their place in the new information space. Naturally, it would seem, the museum would serve as a node in a network connecting objects, information, people and places. This requires opening up to information exchange, transgressing the institutional boundaries in virtual spaces where new collections are being created. Only then can museums truly provide access to their objects.

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The Museum of Gamers: Unmediated Cultural Heritage Through Gaming

Serdar Aydin and Marc Aurel Schnabel

Abstract

In the 1990s when Nicholas Negroponte published his infamous comparison between bits and atoms for *Wired* magazine, it was no longer strange to talk about a new concept for galleries, libraries, archives and museums (GLAMs). Pointing to a new future for libraries, Negroponte was already aware that being digital had its own reality, which was to create ambiguity in relation to the value of physicality or pure materiality, a reality that the world had been accustomed to since the Industrial Age. The Museum of Gamers, as a conceptual proposal we argue for here, sits at the convergence of these contrasting realities. On the one hand, there is a cultural artefact that has a concrete value attached to its authenticity. On the other, its digital interpretation has its own systems of values about being. And the visitor cares about a GLAM's auxiliary services as much as the objects. As information is now available everywhere, people expect a new normal from museums besides mere objects and explanatory texts next to them. As the emblematic medium of contemporary societies games offer engagement methods. Recent marketing strategies such as loyalty games and gamification prove that use of technology is moving ever closer to video games and game-design methods. The Museum of Gamers is a creation not only for the dissemination of cultural heritage information but also for its production through contemporary media technologies.

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1 Introduction

A decade ago, William Mitchell made a reference to Louis Kahn by adapting his brick metaphor to a pixel: ‘What does a pixel want to be?’ (Mitchell 2005). Kahn’s earlier version served to emphasise the material in architecture, whereas Mitchell stresses the ‘meta-material’ of digital world. This chapter looks at digital heritage and the use of contemporary media in museums. For us, whether a brick or a pixel, the aim of our thinking here is the same—it is not primarily about the technology but about people and their participatory experience.

Asymptote Architects were commissioned to design the Guggenheim Virtual Museum (GVM) in 1999. Planned to be one of the branches of the Guggenheim chain all over the world, the GVM was the first museum in cyberspace (Rashid 1999). Before the fully interactive multi-dimensional web-based environment of the GVM was launched, Alexander Galloway (author and associate professor in the Department of Media, Culture, and Communication at New York University) commented on the project in an interview—“It is exciting because 3D is a whole new realm, ready to be explored. . . If (the museum) is as good as *Half Life*, it will be a winner (Spingarn-Koff 2000).” Within the confines of then-current technologies, the GVM may mark the peak of the concept of the New Museology, a thought experiment on museums, which started before this millennium. However, as Galloway cynically denotes with a reference to a popular video game, new contemporary media applications likely offer more than imitating the real space of a museum in a skeuomorphic manner. In technological and economic contexts these kinds of initiatives, whether the result is a success or failure, are valuable contributions. But it would not be wrong to claim that the GVM was a model that mastered the idiosyncrasies of its physical precedents.

Moving from such a broadcast model to an internet model, the way for information to reach the receiver is multiplied. Museums have deployed the broadcasting model for many years. The inevitable change of the model forces museums to adapt. The magnitude of social media indicates heritage institutions should seek innovation. In 2012, Pennystocks designed a web page to count and display ‘how quickly data is generated’ through a range of social media platforms. The counter indicates that the number of uploads to Instagram exceeds 40,000 images within just a minute (Pennystocks 2014).

Digital networks create socially interactive communities online that easily create their own collections via the web. Facebook and Twitter are only two of many great examples for data aggregation all around the world. Because these networks help people tell their own stories and share contents museums may look to their participatory ways of communication to benefit from such new media technologies. However, questions of inequality and privacy also have legal and ethical implications. We can first discuss this while introducing the concept of the Museum of Gamers.

2 Gamers

The Museum of Gamers is populated by gamers. But who are these gamers? The answers to this simple question may sound as inchoate as our statement is simple. Statistics may malfunction and lead us to false assumptions. Figures from the US show that the average video game player is 35 years old (ESA 2015). However, it would be biased to deduce that video games appeal particularly to young generation. The reason why game playing frequency decrease with age is dependent on a range of determinants.

Borowiecki and Prieto-Rodriguez (2014) investigates video game playing as a cultural consumption like other art activities by taking into account socioeconomic variables as well as demographic and geographic factors. They divide gamers into two groups: those who never play and those who are likely to play, adding that they are both ‘heterogeneous populations’. Their results show that ‘affinity with new mediums’, i.e. overcoming technological barriers, is a highly significant determinant in engagement with game playing. According to experiments, gamers aged between 63 and 92 have ‘higher well-being and lower depression rates’ compared to peers who do not play regularly (Borowiecki and Prieto-Rodriguez 2014). In other words, video games appeal to the elderly as well as other means of cultural participation. Another grouping of gamers may be defined by gender difference, i.e. females play less than males. Apparently, the definition of gamers requires further investigation to go beyond binary conclusions while deal with the heterogeneity of gamers. But, here are gamers characterised with regards to the role they are entitled to in literature and philosophy.

Baudrillard is ‘ambivalent’ about gamers who, he says, express boredom from the banality of the actual world in game worlds (Coulter 2007). For him it is better to be a gamer than a jogger, who is primarily concerned about health, to engage with society in the production game. A gamer is an experimental explorer, a traveller into our future of digital realities (Baudrillard 1993). Can we generalise procedurally confined virtual spaces of game worlds as digital realities that his gamers are to explore? Baudrillard does not put it this way without a reason.

For an instant, let us ponder whether these digital realities—that we want the new museum to use so as to access an unmediated cultural heritage—can be discussed in a political manner. One of the top promoters of the Information Age, former US Vice-president Al Gore, defined a Global Information Infrastructure (GII) in a speech:

I believe that an essential prerequisite to sustainable development, for all members of the human family, is the creation of this network of networks. To accomplish this purpose, legislators, regulators, and business people must do this: build and operate a Global Information Infrastructure. This GII will circle the globe with information superhighways on which all people can travel (Mosco 2004: 39).

Deleuze helps us understand the nature of these superhighways with his well-known quote:

A control is not (no longer) a discipline. In making freeways, for example, you don't enclose people but instead multiply the means of control. I am not saying that this is the freeway's exclusive purpose, but that people can drive infinitely and 'freely' without being at all confined yet while still being perfectly controlled. This is our future. (Deleuze 1998: 18)

Thus Deleuze makes a distinction in the history of the world that was previously read as 'disciplinary societies' by Foucault. Instead, Deleuze introduces the 'societies of control' that are based on 'flexibility' which is fetishized by new mediums via all kinds of parameters and modulation tools. Today's most prevalent museum concepts emerged at the threshold of 'disciplinary societies' of post-industrial world after the 'society of sovereignty' classified within the medieval. The Brooklyn-based arts blogazine *Hyperallergic* makes a very good point in Twitter by asking their followers: 'Why don't more Americans go to Museums?' (Vartanian 2015). Nothing is very significant in this tweet, but the way it is carried through gives an answer. The explanation below the tweet clarifies, "in the past we may have turned to pollsters or psychics, while today we turn to Twitter to look at the hive mind and discover why..." That is the way how things work today; it is no longer a 'disciplinary society' that deploys physical means like museums for information delivery. Instead of actual documents and ink signatures there are soft-copies encrypted with codes and passwords. But what have gamers to do with this?

In *Gaming: Essays on Algorithmic Culture*, Galloway (2006) elaborates an intricate relationship between video games and contemporary political environments. For him video games, almost without exception, are a fetishization of "flexibility" in "informatic control" as cinema was that of the "disciplinary society" in modernity. The former privileges horizontality, wherein the latter is vertical, hiding the message in depth. However video games let the gamer "learn, internalise and become intimate with a massive, multipart algorithm." Therefore video games are an emblematic medium of the allegory that addresses directly the contemporary political expression. By "play-acting" the gamer is taught the system gradually through the gameplay. To play the game one should execute the code of the system and to win the game is to know the system. In contrast to traditional reader-text hierarchy, games reduce it on a horizontal plane, with the gamer in the act of gameplay (Galloway 2006). So far, the text may be understood as a prescription that tells museums to do games to prevent self-extinction. However play-acting easily undermines the real purpose if the key element, flexibility, is exposed to over-exploitation via algorithms.

Nordin (2012a) examines the futures (plural) of the algorithmically wired world by looking at Shanghai Expo 2010. By analyzing a digital media application that visitors experience at the Siemens pavilion, she argues that there is an ambiguity between the freedom given by technology and its results that generally have contradictory impacts. The faces of visitors who enter the Siemens Pavilion are tracked and turned into avatars. Eventually, each avatar is displayed on the screen, singing a song together in the form of pre-programmed design. Every visitor has a chance to be a star only provided that she/he agrees to the condition of being an

avatar, forfeiting identity. Nordin concludes that to build pluralistic imaginings, sustaining contestation between players within the algorithm is the solution; this is in contrast with disingenuously putting everyone into a harmonious hub defined by algorithms that eventually assimilate identities (Nordin 2012a). Her advice for contestation sounds similar to Buckminster Fuller's platonic 'World Game' where nobody is allowed to gain advantage at the expense of somebody else. But it is critical to note this difference: Nordin argues against the purely harmonious clustering of such a holistic view.

Museums can take a role in Nordin's 'futures', with a mission akin to being like a "hacker" of this system. Hackers generally do "illegal" stuff through the holes of the net. But what about a hacker being a legitimate company, asks Vincent Mosco in *The Digital Sublime* (2004). His exemplary case reveals a conceptual perspective in this regard. In 1999 Zero-Knowledge Systems (ZKS), based in Montreal, reacted against a code in Intel's Pentium III processor. Their website showed how to activate the embedded code which tracked user movements. Admitting the existence of the code, Intel responded with software to disguise it and even made an agreement with an anti-virus software company to turn off ZKS's "hostile code", which was virtually impossible. Mosco says that 'there is a trickster quality' in this case. In the information age, museums may have similar responsibilities to deliver 'real' information to the public. Advocated by Nordin contestation can be a key concept for such platforms.

So gamers constitute a perfect clientele profile for museums to explore gold mines hidden in information networks. Following Baudrillard's definition, the Museum of Gamers is a virtual hive that feeds and stocks our 'travellers' who allegorise Deleuze's definition of the "control societies". To allegorise means to be creative, not merely commenting or scanning through (Galloway 2006). Unmediated cultural heritage as interrogated by the RICHES Project can be then implemented. Fervent attempts to implement mere social media applications are inclined to being a part of the control society throughout its system. That would fetishize the information that is expanded by links and algorithms without fair play. In other words, as the distinction between users/creator and work/leisure is disappearing through networked relations, museums can embark on initiatives that are more ethically-engaged forms of social collectivism within digital realities.

3 The Museum

A very commonly-referenced diagram of the 'Reality-Virtuality (RV) Continuum' by Milgram et al. (1995) is a classification that grounds itself less on experience than on the medium (Fig. 1). As described by its authors "(it) is limited strictly to visual displays." As discussed above, the Guggenheim Virtual Museum is exemplary of this attitude by analysing a linearity between reality and virtual. The RV Continuum is ill-defined unless the reality is reduced for comparison to the same plane as the virtual. But it is possible as long as the focus is on the technological side.



Fig. 1 Diagram of the reality-virtuality (RV) continuum (Milgram et al. 1995)

Table 1 Virtuality matrix (Richens 2014)

Visitor	Site	Content	Richens’ definition	Schnabel and Aydin
Real	Real	Real	Reality	
Real	Real	Virtual	Augmented reality	
Real	Virtual	Real	Mixed reality	
Real	Virtual	Virtual	N/A	Museum of gamers
Virtual	Real	Real	Telepresence	
Virtual	Real	Virtual	N/A	Museum of gamers
Virtual	Virtual	Real	Virtual museum or set	
Virtual	Virtual	Virtual	Virtual reality	

The diagram of the RV Continuum consists of a line between opposite ends wherein anything named as Mixed Reality (MR) if not fully real or fully virtual. MR applications include Augmented Reality (AR) and Augmented Virtuality (AV). With reference to museums, we can still refer to Richen’s Virtuality Matrix for an explanation of experiences (Richens 2014). Again, this is because it is based not only on technology but in relation to visitor-site-content aspects (Table 1).

The two types of applications have not been met yet. The Museum of Gamers is located on two slots. The upper one consists of a real visitor(s), a virtual site(s) and a virtual content(s), whereas the lower one follows a virtual-real-virtual sequence. This suits Mitchell’s question: “What does a pixel want?” For Murray (1998), there are three key pleasures in cyberspace: immersion, agency and transformation. Among these three, the RV Continuum and the Virtuality Matrix only touches on the first one, immersion. The fun part of cyberspace starts with the second, agency (meaningful experience) and continues with the third, transformation (fully-fledged freedom granted in digital realities). And he suggests that all of them exist in games.

The world’s largest LAN (Local Area Network) party which hosted 22,180 game players was held at the DreamHack Winter 2013 in Jönköping, Sweden (GWR 2015). Calling itself “The World’s Largest Digital Festival”, the event beats its own record repeatedly since its first gathering in 1994. After 20-plus years the organisation still keeps its average attendee age at 18.3 according to 2014 figures, with several hundred thousands more visitors watching online via Twitch.tv (Cordell 2014; Segal 2014). These intriguing numbers indicate that games can be more than an individual play-act, occupying online platforms, stadia and sports arenas to attract visitors at all age to socially engage with each other whether they play or not. Several similar events all over the world (e.g., Esportspool 2015) also break boundaries of time and space.

E-sports are not fully indiscriminate though, naturally having the symptoms of games as culture (Salen and Zimmerman 2004). But the question to answer is how games create engagement, content production and interactivity in active and passive forms of experiences. Game design methods offer a wide range of techniques that are modelled in the MDA (Mechanics-Dynamics-Aesthetics) framework by Hunicke et al. (2004). Gamification that is to ‘use game design elements in non-game contexts’ is a controversial term in game design context (Deterding et al. 2011). We are not going to discuss this in depth. We are interested in the potential that games offer for more in-depth discoveries within and outside cyberspace. Briefly, museums can focus on the core of games instead of mere interactive screen technologies to engage people with collections. This requires a cyberperspective rather than simple virtual/real differentiations that focus on technical, or infrastructural aspects like the type of display medium even though this is easily appraised as a solution by the critics of the New Museology movement (Mancini 2008). In New York City, MoMA’s collection of video games is exemplary to this kind of new curatorship that resonates with the New Aesthetic art movement that we will touch upon later (Antonelli 2012).

Going back to the “disciplinary societies” of modernity, museums served a specific audience. They formed exclusive and divisive platforms for the exposition of their collections (Ross 2004). Since the 1970s, this has changed and the idea of diverse participation at all ages has gained momentum together with movements like the New Museology (Bennett 1988). But museums are at least decades-old institutions, therefore, the New Museology had to face resistance at the beginning (Ross 2004). The profound use of internet and social media causes pressure for museum curators to seek innovative ways that meet present demands. It is no longer the collections but the services and marketing that make a difference for people. While our focus is not to show or justify apparently prevalent changes for museums, nevertheless we see a correlation between the resistance towards the New Museology and the confusion on the New Aesthetics about art mediated by computers.

The definition of unmediated cultural heritage is convergent with the New Aesthetic in which people like to tell and share their own stories through social media. James Bridle, who famed the term ‘the New Aesthetic’ at the SXSW interactive conference, aggregates his collection in a crudely curated way that resembles to social media’s anonymousness. Bridle’s collage of satellite images, pixelated screens, slit-scanned photographs and so on, is exhibited on his Tumblr (Bridle 2015a, b). While admitting that he had been collecting those items to talk about an immediate new aesthetic of the future, Bridle’s blog can be seriously thought the ‘museum’ of what The New Aesthetics is meant to expose (Bogost 2012b). In Bridle’s own words (2013):

It (the New Aesthetic) is an attempt to “write” critically about the network in the vernacular of the network itself: in a tumblr, in blog posts, in YouTube videos of lectures, tweeted reports and messages, reblogs, likes, and comments.

Bridle’s introduction to the New Aesthetic quickly sparked optimistic (Borenstein 2012) as well as contrary opinions (Sterling 2012; Berry 2014).

Sterling's response on *Wired* propelled much of the discussion. One of his arguments for ignoring the project as art—"machines are never our friends"—is a reflection on the scope of the New Aesthetic which is bounded to the relations between humans and computers (Sterling 2012). Borenstein then relates the New Aesthetic to a movement in philosophy called Object-Oriented-Ontology (OOO) that unprivileges the human-centric relation with other things and instead favours every possible relations between them (Bogost 2012a). Bogost (2012b) who is deeply affiliated with the OOO takes this seriously and suggests Bridle extend this relationship to a wider spectrum. Bogost's interpretation of OOO concerns the experience of objects, put with a metaphoric question:

Why stop at the unfathomability of the computer's experience when there are airports, sandstone, koalas, climate, toaster pastries, kudzu, the International 505 racing dinghy, and the Boeing 787 Dreamliner to contemplate?

As indicated in the introduction of this chapter, Mitchell had asked "what does a pixel want?" Being a video game designer, critic and researcher, Bogost makes a similarly inexplicable interrogation. In his article Bogost outlines his four suggestions for improving the New Aesthetic (Bogost 2012b):

- Look beyond humans and computers
- Take the experience of objects seriously
- Make collecting an aesthetic strategy
- Make things for understanding things, not just for human use.

Here we do not have to look into each of them specifically. These suggestions will lead us first to the New Museology movement and then to the Museum of Gamers.

The New Museology scholars offer a wide range of expectations on museums' roles, purposes, management, services, curatorship and even its relevant scholarship (McCall and Gray 2014). Among many of these, interactive multimedia technologies is one of the developments that are advocated most (Mancini 2008). This, however, does not make a shift in the relation that museums make between things presented and visitors. Objects of collections, whether interactive screen technologies or an ancient pottery, are historically mediated through such institutions. As one of Bogost's suggests, museums should look beyond humans and computers; take the experience of objects seriously; make collecting an aesthetic strategy; and make things for understanding things, not just for human use.

This may sound fictional. But "the fictional is authentic, the authentic fictional" (Ruggeri 2015). When these words were published in BBC Travel, the title of the article, "Turkey's most creative, daring idea", did not reflect the merit of The Museum of Innocence, written/built by Pamuk and Freely (2009). Rewarded as "Europe's Museum of the Year" in 2014 (EMF 2015), the museum, and/or its eponymous novel, is perhaps "the world's" most creative and daring idea.

Pamuk collected regular objects before writing his novel, *The Museum of Innocence*. Representing life in Istanbul, these objects are attached to a woman

for whom the main character collects them in the novel. Being in a two-way communication, objects start to talk when the reader who is literally given a free-ticket within the novel visits the actual museum that displays the objects that are collected by Pamuk for creating his masterpiece. In this sense, Pamuk takes the experience of ordinary objects seriously. Pamuk not only aggregates things but also makes an aesthetic compendium form out of them. Bogost's suggestions are in parallel with Pamuk's creative and daring idea that is also attributable to the New Museology. Introducing the items in the collection, his catalogue-brochure, *The Innocence of Objects*, suggests that museums should look into ephemeral details of daily life (Pamuk 2012). The Museum of Gamers is meant to address this point through games and gamers that are identified as travellers into our future in digital realities by Baudrillard (1993).

Besides services such as souvenir shops, coffee shops and restaurants, and even restrooms on which our museum preference for leisure time heavily depends, access to museums is mostly relevant with the engaging quality found in exhibitions. One example for engagement was the *Demented Architecture* exhibition at the City Gallery in Wellington (CGW 2015). *Demented Architecture* carried some of the qualities found in the New Aesthetic project.

Basically, there was a long rectangular table in the exhibition hall and white Lego pieces were left on its top to be assembled by participants. First of all, it was "collectively intelligent" inviting everybody from all age groups to join in the creation of a constantly changing, open-end art problem in the form of architectural model making. Art and architecture are more often than not relevant to high-class expertise and elitism. But *Demented Architecture* is comprehensible, fun and unexpected in its result, breaking the boundaries of the mythology of the architect. In a constructive manner, *Demented Architecture* can be seen in parallel with the New Aesthetic based on Sterling's (2012) interpretation. But what actually makes it relevant to Bridles's New Aesthetic is that it looks like an 8-bit pixelated image. The process of its transformation from one art form to another resembles to real-time aesthetics of algorithms and digital representations. These blocks create pixelated patterns which, in turn, cause problems by experiencing, in Berry's words, "digital pareidolia", that is:

"cognitive dissonance with individuals expecting (pixelated) pattern aesthetics everywhere [...] Indeed, they may seek digital or abductive explanations for certain kinds of aesthetic, visual or even non-visual which may not be digital or produced through computational means at all, a *digital pareidolia*." (Berry 2014)

He also identifies one more aspect of the New Aesthetics' pixelated images and blocky representations which, stemming from early 8-bit images, are "mere ornamentation in actuality. . . and aestheticisation of computational technology." It is therefore "firmly human mediated", although the New Aesthetic's claim is 'seeing like machines' (Berry 2014). The same criticism is valid for the movement of the New Museology that focuses on mere renewal of museums' position in the society without a take-off from its nostalgia of institutional power. This discussion may lead us to a political discourse. By merely looking into social media where

aggregation is privileged more than a compendium form (Bogost 2012a), cultural heritage will not be unmediated. The Museum of Gamers aims at creating meaningful and aesthetic construction, not just aggregation within digital realities.

4 The Interplay

The attempt of this chapter so far has been to extrapolate how unmediated cultural heritage through contemporary (living) media can be redeposited to museums. In the first chapter where gamers are analysed, the key reference is Nordin's conclusion on algorithmic future(s) of the world, advocating "contestation" for subjectivity specifically in interactive technologies (Nordin 2012a). Consequently, museums are appointed to a "trickster" role to occupy a vectoral space between two forces, "subjectivity" (social responsibility) and objectivity (institutional background). The Museum chapter interrogated further digital realities to show a correlation between the New Museology and the New Aesthetic. Respectively, "inclusiveness" and "indiscriminateness" from the two are discussed on the basis of Object-Oriented Ontology (Bogost 2012b).

Play is the touchstone of everything else being discussed here. Play is what gamers are addicted to. Play may refer to a do-it-yourself (DIY) manner, to decentralised and collaborative activism in its romanticism within social context, or to simply animals play-biting each other. The architectures of such romanticism matters most (Wark 2015). SimCity™ has been a historic game that is most articulated with the god-like role of architects whose sense of aesthetics are relied upon to create 'beautiful' environments for others. The game mechanics of SimCity displays a lo-res representation of supposedly real data. The play does not privilege other objects within the game, articulating a special mission to the gamer. SimCity exemplifies Nordin's criticism of contemporary digital media use. As a commercial tool, it works extremely well. For museums the architectures of play should be able to permit high-definition realities of low-class/ordinary objects. Then the behaviours, barriers, environment and the motivation of gamers together with other objects start to be of use. This is most relevant to the transformative power of play. Salen and Zimmerman (2004) explain transformative play:

(It) is a special case of play that occurs when the free movement of play alters the more rigid structure in which it takes shape. The play doesn't just occupy and oppose the interstices of the system, but actually transforms the space as a whole [...] bouncing a ball against a wall is at odds with more utilitarian uses of the architecture. At the same time, the action conforms to certain rules afforded by the formal structure of the building, leading to a particular type of architecture.

Transformative play unnecessarily requires the creative and destructive nature of people who are represented as non-players in SimCity. The game is set up as if the player, having the role of the mayor, is the god. Binarised data then is useful but the play is not transformative in the sense that it does not permit playing the game from a non-player's point of view.

Following his keynote address at the transmediale 2015, McKenzie Wark, who writes about media theory, critical theory and new media, discusses SimCity and similar role-play games with the audience members (Catlow 2015). One of them likens it to “madness” by referring to an allegedly Einsteinian quote of ‘insanity’ which is “doing the same thing over and over again and expecting different results.” An interesting question asked of him is “what kind of play do we need to avoid this madness?” Wark does not give a concrete reply. But he explains that “most data does not collect itself, there is human-agency involved [...] is unconscious.” The moderator of the discussion, Ruth Catlow, insistingly goes over the point by asking “is it just hard to [do] that with algorithms ‘replicating’ artificial intelligence and artificial human feeling?” Wark’s conclusion is that “it is kinda useful to think of yourself not as the playable character but as the non-player character. Most games have other humans at the background, or other figures, that are governed by the algorithm. It is like you play the game from its point of view other than from the point of view you are given” while pointing to a target that is “repurpos(ing) the game to achieve that goal because we are all non-player characters in a game that no one is controlling.” Then Catlow recalls a sample: Julian Oliver’s 2nd Person Shooter (2ndPS) game where the player sees through the eyes of the shooter while running away from it (Oliver 2005).

So following transformation, agency comes in relation to the experience of the player in a game. And instead of a Hegelian first-person experience, Wark’s conclusion is liminal to an object-oriented operation which is distinctive to a protagonist/antagonist dogmatism. Julian Oliver’s 2ndPS is a good example for critiquing this point. He explains:

“In this take on the 2nd Person Perspective, you control yourself through the eyes of the bot, but you do not control the bot; your eyes have effectively been switched. Naturally this makes action difficult when you aren’t within the bot’s field of view. So, both you and the bot (or other player) will need to work together, to combat each other” (Douglass 2007).

Games build experiences for players (Salen and Zimmerman 2004). In a chapter titled as “Games as the Play of Experience” in *Rules of Play*, Salen and Zimmerman (2004) characterise play this way:

This is play: the experience of rules set in motion. Players experience this system: as blinking pixels on a screen, as sharp electronic sounds from a speaker, as sweaty fingers on a trackball and button, as lighting-fast strategic planning. Play culminates in a whirl of perceptions and emotions, thoughts and reflexes, inside the mind and through the body of the player.

Sutton-Smith (1986) frames game experience with a model of five elements; visual scanning, auditory discriminations, motor responses, concentration and perceptual patterns of learning. Within digital realities, Oliver deploys the transformative power of play by dislocating vision on agency, which in turn immerses the player in a radical type of experience. So sensorial acts, physical reactions and cognitive mechanisms involved in games offer an aesthetic aggregation technique for the Museum of Gamers to focus on in more detail.

To this point we have touched upon the three key pleasures of cyberspace (immersion, agency and transformation) which are all found in games (Richens and Nitsche 2005). Play is an ambiguous term by nature which is widely discussed as such in academia and literature (Sutton-Smith 1986). The scope of this work does not allow further discussion here. But now, a brief introduction to a museum of gamers will be given, which attempts to bring these aspects of digital realities together with a design-research project.

5 A 'Museum of Gamers': Augmenting Kashgar

“Games are serious, more serious than life”—J. Baudrillard in *Seduction* (1979)

Augmenting Kashgar is a design research project in the field of digital heritage, which ties together architecture, history, and game design (Aydin and Schnabel 2015). Facilitating the revitalization of Kashgar's architecture, digital platforms are being designed and developed to enable the public to actively participate in the creation, interpretation and sharing of cultural heritage information. Having started in Hong Kong in 2014, Augmenting Kashgar is planned to be a digitally-oriented museum developed at DARA (Digital Architecture Research Alliance), bringing together researchers from China, Hong Kong, Canada and New Zealand.

Kashgar is the westernmost city of China, described as “the heart of one of the most lovely and bountiful oases in all Central Asia (Starr 2013: 307).” The historical urban fabric in Kashgar is “the best-preserved example of a traditional Islamic city to be found anywhere in Central Asia (Michell et al. 2008: 79).” However, Kashgar's enduring architectural heritage is threatened by unbridled pressure from fast urban development (Florenzano et al. 2010; Aydin and Schnabel 2014). Within an organic urban fabric, Kashgar preserves a unique architectural style and outdoor life through its narrow alleyways (Fig. 2).

This old city is a product of interwoven arrangements, where strong social relationships are fundamental to its agglomeration. Pyramidised through mud-brick houses, the outdoor space in Old-Town Kashgar resembles Cedric Price's 'Fun Palace' designed for social interaction (Mathews 2006). Mechanic qualities of the Fun Palace appear in a vernacular format in Kashgar. Tangible and intangible heritage complement each other in its multifunctionality. We call it play culture in which gossiping neighbours, children playing football, and even cats play-biting each other are involved as the elements, or objects, of the game. To interpret this complexity is to allegorise the political situation. This is not meant to be hard-core and one-sided ideological politics, but refers to the system that we are all in as parts of the 'control society' as elaborated earlier. Therefore, the project automatically obtains the quality of a museum in discourse as well as in outcome.

At this point, it is useful to track back and refer to Nordin's examination on “narratives at Expo 2010 Shanghai China as an instance of the local constitution of” the world's future (Nordin 2012a, b; Schnabel and Aydin 2015). Her departure point is the Chinese concept of *tianxia* (all-under-heaven) which refers to a



Fig. 2 Kashgar's old and new architectural exposition (Photo by S Aydin)

harmonious future. She elaborates her view via the SIEMENS pavilion that interests us most within this article. She writes:

Entering Siemens's harmonious and commercialized rendition of tianxia, we are photographed. As in a miracle of scientific development our faces appear on a film screen at the exit, manipulated to sing together in harmony with the Expo theme tune [...] We are allowed into the spotlight on the condition that we become avatars that sing simultaneously in one voice to the Chinese melody.

This accords with Deleuze's interpretation for the "societies of control". Her conclusion is that

The Expo worldview portrays itself as 'from the world', yet insists on the singular China's Future as the (Harmonious) World's Future. On this view, there is only one Future, and it does not welcome contestation [...] We can refuse scripting our songs in the pre-programmed manner suggested by pre-dominant imaginings at the Expo. It can indeed be possible to step up to the challenge of coeval multiplicities that time and space should present us with [...] Building such pluralistic imaginings of China in the world remains a task for future research.

The Augmenting Kashgar Project sits at the heart of the task that Nordin suggests for future research. To make an analogy, there are two players in this game: a top-down decision mechanism that seeks a "harmonious" future, and an ethnic minority that tries to endure its value within the circumstances of a contestation-zero atmosphere. Therefore the aim of this project is to provide this game platform without any interfering political dead-lock. Nevertheless, its message transcends the level of allegory to a creative recreation of heritage within digital realities. An unmediated form for the dissemination of Kashgar's cultural heritage information is to be designed through gaming which is to be a realm for contestation with an expectation for futures instead of The Future.

The project looks into borderlines between self-other, topophilia-topophobia and units-whole. The first is to argue about the identity, the second about the place and

the third being the time perception. These three aspects converge with the structure of previous chapters, namely gamers, the museum and the interplay. Gamers represent agency as an identity. Separating focalisation from agency is a game design problem to address. Via alienating disassociation from agency, the game manifests itself by not privileging a single type of experience. The museum as an immersive place is created with relationship between possible game worlds. And the transformative power of contestation brings a meaningful interplay between rigid structures of real conditions and possible digital emancipations.

6 Conclusion

The Museum of Gamers frames a theoretical discourse on the place of living media in which games are the most dynamic. Derived from NegroPonte's comparison between bits and atoms, it is emphasised that contemporary media is promising. This chapter argues that it is more than a technological change which is to burden museums into bigger responsibilities. Nevertheless the changes are seen and proven as opportunities throughout the text. The analogy of Mitchell's empathy with pixels emphasises how one of the greatest names of modern architecture, Louis Kahn, communicated poetically with a building material, namely brick. There may not be much difference between the subject-matter of architecture and that of digital realities. But our focus includes Object-Oriented-Ontology by connecting the New Museology and the New Aesthetic movements. To some extent the chapter describes the interplay where three key pleasures of cyberspace are completed by showing how they are brought together. In the last part a design-research project, *Augmenting Kashgar*, is briefly introduced where the core component of this project is to enable interaction with the objects in question, which are the narrow alleys of Kashgar. Interpreting the diachronic details of lived lives in Kashgar via games presents a sample task for developing an unmediated cultural heritage platform where contestation brings engagement and interactivity.

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Part III

Co-creation and Living Heritage for Social Cohesion