6.2 The interdependence of networked archives

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Archives, in the form of institutional collections of cultural artefacts, follow rigorous methods to enable the storage and retrieval of both objects and their associated information. Since digital media literally shape our perception and understanding of these institutions and their collections more than their physical structures and arrangements, and since their collections are usually their most important economic assets, the conceptual and technical investment in adequate digital representation essentially affects their public acknowledgement, but not necessarily their accessibility.

Digital assets vs. universal human knowledge

The digital presence of institutional collections has become increasingly important to the identity of institutions. If the public can access the representation of the valuable physical infrastructure and preserved artefacts from anywhere, this is a mechanism that can be directly translated into a potential reinforcement of the institutional brand and its holdings, increasing interest, reputation and audience. When we analyse the core structure of these collections, we can abstract it to the materiality of the objects in relation to the associated information. The digital representation of the materiality in any single or combined dimension (pictorial, photographic, sculptural, cinematic, etc.) allows for a comprehensive and virtual access.

This digital extension opens up the institutional space to the outside world indefinitely. The collection in its visual dimension, possibly including the stored or borrowed elements, is then structured as an asset within the institutional framework, together with all the verified information that confirms it.

However, there is a different perspective on these institutional assets as they are part of the culture produced worldwide and are not necessarily preserved by a single institution. Single items are often present in different collections, which in turn are connected to other objects, forming a vast network of cultural relations with countless possible pathways of knowledge and research.

This perspective is embedded in the networked structure that is at the core of the online digital medium, which in turn implies relationships and direct connections between representations of artefacts as a technical part of databases within the same infrastructure. This vision was already very present in the utopian early years of the web. The concept of building a horizontal infrastructure for free access to human knowledge was part of various collective efforts. In particular, the incredible opportunity of a medium with cheap access

to publishing and advanced visual possibilities triggered collective efforts. Websites like Discogs[1] and the Internet Movie Database,[2] for example, were born out of an enthusiasm to create the definitive and public global reference for certain cultural fields, and were often built and verified through crowdsourcing. This information, intended to be consistent and shared, gradually built a comprehensive online database for, respectively, (electronic) music and films. Having such a freely accessible resource, without the material content of what was presented, meant realizing a constantly expanding catalogue of productions that, thanks to its structure as a database, could connect records or films through search keywords and internal links. This structure enabled both the preservation of verified data on releases and the possibility of discovering new links and thus new perspectives on the registered items. In a way, they were a kind of test bed for an ambitious idea like Wikipedia, which was trying to build the idea of a free, crowdsourced and reliable online encyclopaedia that would extend the model of particular modes of cultural production to human knowledge as a whole.

These enormous editorial efforts would have been impossible without the commitment of legions of volunteers who give their free labour to build and maintain the content of the databases. Discogs claims 628,000 contributors,[3] while Wikipedia claims 34 million contributors (though only about 100,000 of these contribute regularly)[4].

While these important databases refer to entire cultural domains, they remain purely virtual, as the detailed information they provide is usually not directly related to an object housed in a specific space, like artefacts in a museum.

A slightly different concept has been developed over the years by Worldcat,[5] a huge database of hundreds of millions of books, scores and maps held in tens of thousands of institutions, mostly libraries, around the world. Here, the connection between the cultural product and the physical place where it can be retrieved is explicit, creating a global map of free printed culture that can be activated both to retrieve and use physical material, and viewed from above to discover a web of paths, patterns and unexpected connections.

It defines a different, freely accessible cultural space that is truly global through all the participating institutions and the interconnected catalogues of their cultural collections, where different cultures meet. This structure enables the global perspective mentioned above and radically changes the concept of institutional space.

Reconceiving institutional space

Institutional space, augmented by its digital representation, becomes a hybrid space that expands access to the physical site of culture through multiple representations of information. Furthermore, we can imagine such a space that does not focus on the institution, but on the content of the collection, which is connected to other institutional collections and forms a searchable global space of artefacts.

This hybrid space is collaborative rather than competitive in nature, connecting and contextualizing different materials rather than their institutional owners. It brings everything together and enables access through the equality of different internetworked connections. The network itself is collaborative by default, as it is the result of different sub-networks that support each other to function as a whole. The network as a concept is thus meant to enable and expand access.

Since the mid-1990s, museums' outreach practices have been central to engaging audiences on a deeper level interfacing with different social groups to broaden the acknowledgement and understanding of art and culture. In other words, they also create and expand access. Mediation in this context is a human process of giving colloquial metadata to the public. The task of providing the public with contextualized access to the collection can easily escalate in this hybrid space if we consider the totality of collected artefacts as a possible whole and the interested public as a possible single community.

Moreover, this hybrid space, enabled by the constant proximity to personal screens, leads to a different ecology of the physical objects represented. Their representation is taken and mirrored everywhere, while their physicality, which used to be the only reliable and referential information, remains within the museum walls.

For example, if we think of the very limited physical space around artworks, it is not possible to present much information. Instead, this is available online in vast quantities that, once curated, can create a comprehensive context. Hybrid space can liquefy and allow for a rhizomatic expansion of knowledge, focusing on valuable, preserved artefacts, which is a formidable opportunity to improve knowledge. If 'the world has become a data construct' [Sean Cubitt, Anecdotal Evidence] before our distracted eyes, then metadata and the gateways to wider related knowledge that it opens are of fundamental importance.

For example, if, when we change metadata it means that we change 'the way objects are connected to the rest of the world' (Crabbe, 2018), then 'they are never neutral' and we should ask ourselves for whom exactly we are choosing metadata.

Hybrid space has two different perspectives: One focuses on the physical space in which objects are located, typically a specialized perspective such as that of researchers. The other perspective is based on the knowledge network that focuses on these objects and extends throughout the digital space. There are some elements that are essential for such a system to work: the compatibility of metadata between collections to ensure the right connections between them; the curation of these connections to reduce the potentially overwhelming amount of related information; and the reliability of sources, which requires the involvement of editors and curators.

We should then imagine the constellations of different, compatible and independent archives having the capacity to develop spontaneous and organized practices that connect different of these collections and their elements, realizing expanded configurations and a potentially more diverse context. The enhanced possibilities to connect elements and subsets of these collections have been further improved through targeted digital tools and platforms. These practices can clearly benefit from being freer from strict institutional codified practices and based on the concept of the network, where collections and their elements become different 'nodes' sharing the same infrastructure and supporting each other.

Distributed and interdependent infrastructures

Based on the consideration that there are small but important libraries and archives on marginal topics, built and maintained by journalists and small institutions, I have personally experimented with the concept of a distributed archival infrastructure that can be realized with libraries, and call it a Distributed Library. Very specialized knowledge, like punk, new media

art or experimental theatre, is often archived and preserved through publications scattered in different places and by different entities (curators, journalists, artists, etc.) and subjects.

It is also a fact that these publications, especially the self-produced ones, are hardly or not at all available in institutional libraries.

So, we can think about a 'distributed library' which should simply manifest the presence of compatible subject libraries through a single organized network. The first step should be the online publication of catalogues of the compatible collections of such private libraries and small institutions that make the index of their contents available as a resource. In addition, a vertical search engine should search these catalogues, which could be extended to include the relevant digital files after explicit agreement with the author and publishers. Metadata can play a pivotal role here in guiding the search and indicating possible paths within this small archipelago of knowledge.

It is also important to circumstantiate the intention and nature of the materials at stake in such a project. The main task of a distributed library is to assemble material and share its location. And the material collected should not be taken for granted. For example, some of the participating libraries might have copies that were printed in very limited editions and whose fate is to become rare over time, donated to them because of their authoritativeness and commitment. The network of participating libraries strengthens its members/nodes, multiplies their importance and then potentially attracts valuable further donations that reinforce their role as preservers to be publicly recognized. Another relevant aspect of this structure is that once each institution publishes collection data online, it inevitably takes responsibility for its own collection before the public, leading to what Maderuelo defines as 'definitive accumulation' (Maderuelo, 2016), or a form of preservation of a specific field and, in particular, documentation of its history and memory.

As publishers of the magazine Neural, we have initiated such a project with a web platform that implements the first stage of these processes. The Neural Archive[6] is a textual and visual interface to a database developed in a highly transparent way: The code is publicly available and only free software has been used, together with the most common IT standards. The technological infrastructure is designed to store, display and search any collection of publications (but it can easily be adapted to other static media) and essentially has extended bibliographic data and an image of the cover. It houses the library of publications that Neural has accumulated since its inception in 1993, most of which were simply donated. It offers the opportunity to create an expanded and curated bibliography on media arts and, in particular, to build partnerships with other similar media arts libraries and archives, encouraging them to adopt and adapt the technological infrastructure and possibly develop similar catalogues for their collections.

The vertical search engine mentioned above could then search all the catalogues and create a useful tool based on expert knowledge and sometimes productions rarely found in the field, reflecting the physically preserved collections. Since the institutions involved do not usually allow public access to their collections (and this is also true for much of the collections of large institutions), this digital interface to databases guarantees consistent indexing and recording of the preserved publications of these specialized cultures. The main problem with such systems is the compatibility of the data between different libraries/archives and even more so with standards such as the Dewey Decimal Classification System for libraries, for example. Nevertheless, in a searchable and potentially compatible structure, these

systems fulfil what institutional collections usually lack, the missing half of them, so to speak. It is possible that at some point these systems will be integrated into the large institutional collections to provide an expanded and comprehensive representation of specific cultural areas.

Furthermore, as a concept, distributed libraries and archives can dynamically add and reconfigure nodes and data to expand at will. These structures offer a new perspective on the preservation and sharing of knowledge: they can be both self-organized and networked, promoting the dissemination of knowledge as a collective and public good. Moreover, this system is based on two fundamental aspects: transmission and storage. Kittler (1993) discussed their respective roles and values in the media, but in a distributed library or archive they are complementary. Indeed, storage is functional to the transfer of data, and the transfer of metadata supports proper preservation and thus storage. The physical and the virtual here support each other rather than compete. And sharing in the outer networks promotes recognition and further support.

Finally, the different institutions of a distributed archive or library share the same network, and being part of it implies an underlying cultural interdependence, as they also share the same cultural domains and form a richer view of them overall. These two combined qualities create the conditions for dynamic preservation of physical artefacts, supported by extensive and flexible online access to their representation and references.

If we consider these archives not as competitors in terms of audience (as is common in the competitive web and especially in the social media paradigm), but as complementary cultural ventures, we can note some remarkable features.

These collaborative practices are potentially scalable, as they are based on a networked structure that encompasses both the physical and digital dimensions. They represent a potential new model for collecting, documenting, maintaining and making accessible relevant and targeted cultural collections. The widely recognized and reliable information created by online linked databases of physical materials is an act of stewardship for the preservation of these artefacts. The consistent creation of an independent global map of artefacts becomes a methodological challenge.

Conclusions

Applying networked infrastructure to interconnected cultural assets instead of computer servers could open up a new democratic perspective on culture, with greater impact and accessibility.

Networked information can map culture through its physical artefacts, creating a different space that legitimizes each physical element through proper contextualization and localization. Thus, a distributed archive can be defined, which is the result of an appropriate connection between the different individual archives, offering a wider perspective and a much better contextualization.

This distributed archive, like the distributed library, enhances each of its parts by the whole it can create, as vision, as representation and as system.

Its physical location remains essential as the ultimate proof of its existence, and its interconnected, contextualized digital representation creates a mutual acknowledgement and interdependence through an expanded and richer vision of a specialized cultural sector.

Notes

1. https://it.wikipedia.org/wiki/Discogs.
2. https://it.wikipedia.org/wiki/Internet_Movie_Database.
3. Ibid.
4. https://www.washingtonpost.com/lifestyle/magazine/meet-the-most-prolific-contributor-to-the-english-version-of-wikipedia/2018/10/02/a6497a74-9411-11e8-a679-b09212fb69c2_story.html.
5. https://en.wikipedia.org/wiki/WorldCat.
6. neural.it The Neural Archive. Archive.neural.it. http://archive.neural.it (accessed 1 January 2018).

References

Crabbe, G. (2018). *Connecting Museum Collections with the Rest of the World - Interview by Gill Crabbe*. FNG Research. https://research.fng.fi/wp-content/uploads/2018/07/fngr_2018-4_crabbe_gill_article1.pdf.

Kittler, F. (1993). 'The History of the Media of Communication'. In J. Schmiederer and R. Woelfl (eds.), *On Line: Art on the Net*. Helga Schmiederer Jutta Woelfl Robert Zero The Art of Being Everywhere Konrad. Graz: Steirische Kulturinitiative.

Maderuelo, J. (2016). 'An Archive Is an Archive Is an Archive Is an Archive.' In Carrión, U. and Schraenen, G. (ed.), *Ulises Carrión: Dear reader. Don't read*. Madrid: Museo Nacional Centro de Arte Reina Sofía.