

# Kluwer Copyright Blog

## Copyright implications of Augmented Reality for cultural goods – Part 1

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Augmented Reality (AR) is a fast-evolving technology enabling the overlap of digital images with those from the real world. It makes use of several technological developments and in particular computing devices with wireless connectivity that let the user connect to the Internet and other devices in different places. Part 1 of this post outlines the technology, its applications in the cultural heritage sector and the potential copyright implications. Part 2 discusses the relevant copyright exceptions and limitations that interfere with the development of AR experiences.



Image by [Tumisu](#) from [Pixabay](#)

### Technical aspects of augmented reality

While creating AR experiences, so-called markers provide information on the real-world element of reference to be overlapped with digital images. Markers are visual cues triggering the display of the virtual information; they are real-world objects or part of them. A device embedding a sensor serves as a connection between the real-life object on which information is to be overlaid, and a cloud providing such information to overlay on the real-life object. When it is put in front of a marker, the sensor in the device sends a signal to the cloud. The cloud hosts databases. If the information sent from the device to the cloud matches with what is contained in its database, then the cloud-based software provides an input to the device-embedded sensor. The latter synthesizes the information next to the real-life object using location tracking abilities. The information transfer is realized to a large extent via multiple data reproductions and, when information is synthesized and overlaid on the tangible object, via data communication too.

Because the technology is complex, an example can help with understanding these technical aspects. In [the project L'Ara com'era](#), the initial colors and decorations on the Ara Pacis can be seen thanks to an AR experience. Parts of the Ara Pacis, currently in white stone, serve as markers. They are reproduced and stored in a cloud-based database. Goggles made available by the museum premises embed a sensor that recognizes when the person wearing them is in front of the markers, i.e. the part of the Ara Pacis reproduced and stored in the cloud-based database. When the said sensor recognizes it is in front of the Ara Pacis, it gives the order to copy the colored reproductions of some parts of the Ara Pacis, stored in a cloud-based database, and display them on the screen of the goggles. This means that when in front of the Ara Pacis markers, the goggles will show images overlaid on the ancient masterpiece.

## **AR and cultural heritage**

AR technology can have a wide range of uses, including in the tangible cultural heritage sector. Concretely, AR can be used on archeological sites, monuments or cultural heritage institutions (CHIs), such as museums, libraries and archives.

When AR is used in the cultural heritage sector, it plays an important role in satisfying both economic and educational interests of different stakeholders. It can be used to provide additional information about goods that may embed works of art protected by copyright. This provides the advantage of making the encounter between visitors and the art in museums or sites more lively, complete and informative. Thus, AR can be considered as a tool for boosting cultural heritage exploitation, helping achieve the educational mission of bodies governing cultural heritage, as well as enabling better participation in cultural life. As a result, AR may be attractive not only to potential users of the cultural heritage-related services, but also for market operators with commercial interests. At the same time, AR may be a catalyst for boosting the ecosystem surrounding bodies managing cultural heritage, because an attractive cultural site with entertainment features can definitely have an impact on the local tourism-related industry.

Consequently, it is not surprising that major museums and cultural heritage sites are already using AR, and thus have directly exploited or enabled the exploitation of their works for this purpose. As examples, it is possible to quote the [project on Ara Pacis](#), the [archeological parc of Tremona](#) and the [TATE Gallery](#).

However, as mentioned, AR can also be developed by third parties, and in particular by market

operators that have no initial connection with bodies managing cultural heritage. In such cases, a request for authorization to exploit cultural goods or collections, or at least part of them, is needed. This authorization may be grounded on property, contracts, cultural heritage rules or on copyright.

### **Copyright implications of AR in the cultural heritage sector**

The creation of AR experiences may involve acts of reproduction and communication to the public that have potential copyright implications.

AR can concern two categories of cultural goods – those that are in the public domain and those embedding a copyrighted work of art.

#### **(i) Public domain works**

The first group comprises goods that do not embed any works of art, such as items collected by science museums, and those that do embed works of art, but are too ancient to enjoy copyright protection. These cultural goods may be reproduced as markers and stored in the cloud-hosted database which is connected to the device embedding the sensor. The unprotected works can be overlaid by images displayed on the screen of the mobile device embedding the sensor. These displayed images may reproduce the real-world goods in a processed way, or may add to the latter complementary information, such as metadata, other images or motion pictures. The lack of copyright protection reduces, but does not eliminate legal issues entirely. For instance, moral rights may be at stake, as well as alternative forms of protection that may limit the availability of works, such as cultural heritage-related rules or contractual provisions. Faithful reproductions of cultural goods are also crucial tools for developing AR applications, in particular when access to real-world cultural goods is limited or non-viable. Art. 14 of the [CDSM Directive](#) which applies to reproductions of works of visual art in the public domain was introduced with a view to preventing the re-locking of what is already in the public domain and therefore may be of some help for facilitating the development of AR from digital reproductions (on this topic, see [here](#)).

#### **(ii) Copyright protected works**

AR content is often developed around cultural goods that embed works of art. This is certainly the case for monuments or manuscripts. This implies that copyright may protect the work incorporated by the tangible cultural good. This happens in particular in contemporary art collections. When copyright is involved, both economic and moral rights issues are at stake.

As to economic rights, copyright implies an authorization for activities of reproduction, communication to the public, distribution and creation of derivative works (adaptation). In order to develop AR initiatives, access to cultural goods or to their reproductions or to sufficient related data is mandatory to enable the exploitation via reproduction, communication to the public and adaptation. Copyright rules do not impede access. So, ‘entering’ the premises where the cultural good is exhibited for the purpose of reproduction cannot be controlled via copyright. However, access can be controlled through other legal forms of protection, such as contractual provisions or

property rights. In contrast, copyright may affect the access to digital copies of real world works of art, in particular when the copies are creative or when works reproduced in these copies are still under protection. Copyright entitles the owner to impose legally protected technological protection measures (TPMs) on these images. Alongside copyright, limits to the availability of reproductions may be due to the neighboring rights existing on non-creative photographs, critical editions or *editio princeps*.

Copyright implies exclusive prerogatives. Thus, ownership of such rights is crucial for exploitation purposes. As a consequence, the main issue related to the exploitation of cultural goods embedding protected works of art is rights clearance. Movable cultural goods and works of art circulate quite widely, but the rights on the works of art do not necessarily transfer or move from their rights owners to the bodies that manage the cultural goods themselves. This discrepancy leads to a situation where the owner of the tangible cultural good often does not own the rights to the intangible embedded with it. Identifying the ownership of rights to reproductions – if any – and their collections may be particularly challenging.

AR initiatives on cultural goods imply the exploitation of (copyrighted) works through their reproduction and making available to the public. Within a framework where rights clearance and subsequent use may involve high transaction costs, it may be questioned whether exceptions to copyright are compatible with AR initiatives and are therefore suitable tools for enhancing the human rights to education and participation in cultural life.

Part 2 of this post will explore the potential relevance of copyright exceptions.

This blogpost is an elaboration of the article Sappa, *Participating in cultural life via augmented reality on cultural goods: what role for copyright?*, published in *Grur. Int.* 2022, 618ff..

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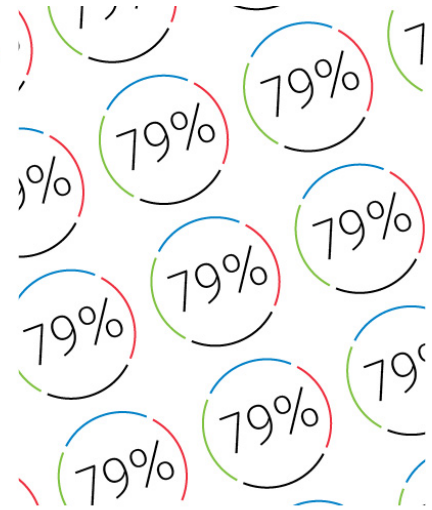
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