

Apollo and Daphne and iconographic research: digital methodologies for art history

Maria Francesca Bocchi

This project focuses on the digitalisation of works of art and extends their use and reuse on the web, exploring some tools that could improve iconographic research. As a case study, twenty-five works of art representing the myth of Apollo and Daphne, produced between the thirteenth and eighteenth centuries, in media such as sculpture, painting and illuminated manuscripts have been chosen. These images from different historical and artistic periods were sufficient to create an iconographic canon that can be studied using digital tools. The choice of Ovid's myth was motivated by the deep connection between the text (original and translated) and the extensive artistic production of the mythological subject which increased in the fifteenth century because of renewed interest in the Latin poem and the classical world in general.

Ovid's narrative style is ekphrastic and, in addition, the translations of the text, with the variation of some elements, sometimes generated variants of the original myths. Artists often followed the variant text, producing a different figurative outcome for the same story, a factor that ought to be included and considered when doing iconographic research.

The scientific research regarding images on the web implies their digitisation. Digitising a work of art means reproducing the image itself as well as the associated metadata, such as the information about the author, the title, the period and so on. In order to respect the principle of interoperability, which means the use, reuse and exchange of information from a software to another on the web, the digitisation must follow some international standards in both images and associated metadata. In my project I have decided to describe images' metadata using two standards in order to see which one was the most appropriate for the description of works of art. In particular, I have chosen to confront the DC standard and the CDWA standard: the first one is the most used because it can be applied to describe the largest number of types of item, not only images – in fact, it provides a set of 15 elements useful to describe the resource in a more general way. The CDWA standard, on the other hand, was released by the Getty Research Institute in order to have a vocabulary of elements to be used specifically for the description of works of art. This is an advantage but, on the other hand, the more specific the standard becomes the less it succeeds with respect the interoperability principle. In conclusion, the DC standard is to be preferred in order to make the images' use and reuse easier for everyone.

DC and CDWA are vocabularies, a list of elements that help to categorise the image: these are, in other words, fixed and empty fields to be filled with terms useful to the actual description. Once again, to facilitate interoperability, such terms also should be taken from a controlled vocabulary. In addition to the CDWA standard, the Getty Research Institute also developed other controlled vocabularies of terms and values to be associated with the description of works of art.

After creating the metadata, I decided to describe and make the images available using another standard called IIIF. This is a framework, a model, specifically developed to share objects on the web by using a JSON language. The working principle of IIIF is based on overcoming the silo model with which information is usually stored and retrieved on the web. This model allows only authorised software to access the objects stocked in servers, usually requiring a key or a password. IIIF instead works like a framework, a space on the web where software and server can be connected and share objects without using any key for the access or for the images' retrieval. Because of this, there are several advantages such as the possibility of accessing different and multiple servers containing images without downloading the object itself but manipulating it entirely over the web. There is also the possibility to compare images that do not belong to the same server and institution. Let's be clear by making an example: it often happened, in the past, that a painting, usually a polyptych, had been stolen and divided into pieces which were then sold to different buyers from all over the world. In recent times, after the rediscovery of the stolen pieces, their reconnection is not often a viable option due to the laws for the protection of cultural heritage: in other words, it happens that different pieces from the same work of art are preserved in different countries around the world in institutions that are hardly ever allowed to sell objects from their collection, not even in order to recompose the original work. Thanks to technology such as IIIF it is now possible to do this in a virtual way: the framework, in fact, provides a common digital space in which objects – in our example different pieces of the same painting – can be compared and reunited even if they are saved on different servers worldwide.

To respect the IIIF protocol, images must be at least associated to an Image API that is a JSON file containing all the information about the digital object, such as dimensions and format. Thanks to the Image API the image can be requested easily through software and shown in a viewer. In order to have more information about the image, a Presentation API must also be associated: this is also a JSON file containing the metadata associated to the image and a link to the annotation file. Annotations are generally information associated with a digital object and in IIIF to annotate an image means both the association of metadata to the image and the association of the image to a canvas, i.e. a virtual space in which the image is housed to be shared.

In my thesis project annotations have been used to assist iconographic research: each image has been analysed by identifying four types of annotations useful to describe the image in its constituent parts. In more detail, the first annotation concerned the iconographic subject chosen to represent the Apollo and Daphne myth, such as the moment before the transformation into a laurel tree or the

complete metamorphosis and so on; the second annotation concerned the setting in which the myth takes place; the third annotation identified the actors represented in the story; the last annotation was about the actors' iconographic attributes, such as bow and arrows for Apollo. From a technical point of view, annotations are collected in a JSON file called AnnotationPage that is linked into the manifest in order to be shown in the same way as all the other associated metadata.

Therefore, in an online viewer, is it possible to see the image itself, the descriptive metadata and the annotations that are displayed using different colours for each in order to distinguish the four different types. Thanks to these annotations, users have the possibility to explore the images in a more complete way, focusing on details and learning from them, and text can also be associated. In addition, there are useful instruments and tools that help navigate images and annotations, such as Storiies and Exhibit: both provide a user-friendly interface that help users to build their own journey into images, comparing them and associating also their own annotations. Comparison between images is the other important functionality that promotes the iconographic research: comparing different artistic manifestations of the same iconographic subject, in this case the Apollo and Daphne myth, highlights synchronic stylistic change and variations of the iconographic canon.

Learning how to use and implement IIIF is becoming easier thanks to the work of the IIIF Community: their purpose is to spread the knowledge and the use of this standard as much as possible in order to make it an instrument that is useful in different fields, such as museums, archives, libraries but also for teachers and researchers. Tutorials for the use and tools are available on their website (<https://iiif.io/>) and online meetings are programmed and open to anyone. Many institutions all around the world have already implemented the IIIF model in order to share their cultural heritage and to make it available for everybody. New documentation has been released and new functions are constantly implemented and upgraded. One hopes the community will continue to grow day by day giving the cultural heritage and the research as well new possibilities to be open and accessible to all.

Maria Francesca Bocchi graduated in Modern Literature at the University of Bologna in 2019 and in March 2022 she finished her studies with a master's degree in Visual Arts at the same university. In the last year she has combined her interest in the history of art with the discipline of Digital Humanities, deepening the theme of digitalisation and preservation of cultural heritage through digital media. In particular, she focused on the study of standards for the release of images on the web and their annotation for research purposes in the field of art history. She currently collaborates with the Department of Digital Humanities of the Bibliotheca Hertziana - Max Planck Institute for Art History in Rome where, among other things, she continues to do research on the topic of image interoperability.

mariafbocchi@gmail.com



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)