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Background paper

Digital Culture, a Challenge and an Opportunity for Art Museums

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A lot has been written and said recently regarding the first ever photography to have been processed using Photoshop, back in 1987 (*Jennifer in Paradise,* a picture of his wife taken by John Knoll on a beach in Bora Bora, at a time when the couple was working for Lucasfilm on the special effects of *Who Framed Roger Rabbit?*). Photoshop was a revolution, as it brought to everyone the ability to use the kind of digital tool that was only affordable for big companies of the movie industry.

But nothing is known about the first work of art that was digitised, suddenly making it possible to make thousands of copies of it with a simple click, and to distribute them using the available digital supports at the time – let's assume it was before the rise of the internet. What was it? Why was it digitised? By whom? Using what type of equipment, software and format? And maybe the most important question: what remains of the file?

When today we browse online the collections of art museums worldwide, we get the feeling that these artworks turned into digital files have always been there. Or, at least, we assume that the process of digitising their collections has been completed by most museums in recent years. But as work package leaders of the work package "Digitisation" for the EC-funded project *Digitising Contemporary Art* (2011-2013) we, at the Royal Museums of Fine Arts of Belgium, soon found out that many art institutions all over Europe were still in the process of organising this complex, expensive and time consuming process. And one of the purposes of the project was precisely to help these institutions develop their own procedures to complete this crucial task.

When it was invented, photography fascinated the audience for its ability to reproduce reality. But what is expected today is to gain the ability to change reality using digital tools such as Photoshop, creating the archive of a world that does not exist. While basic smartphones are now equipped with cameras that only ten years ago would have been unaffordable for most of us, the almost perfect pictures they produce must be processed and irremediably modified through Instagram before reaching their final destination.

Yet, there are still areas where we expect the digital eye to bring us images that are as close to reality as much as possible, such as press photography. There was a huge (and still ongoing) controversy surrounding the winning picture of the 2013 World Press Photo, the terrible *Gaza Burial* taken by photographer Paul Hansen: was it modified to increase the dramatic light effect? Another famous case is the portrait of a Syrian rebel taken in 2014 by Pulitzer Prize winner Narciso Contreras, who was fired by the Associated Press after admitting that he had "photoshopped" the picture to erase a camera in the foreground.

In this perspective, when it comes to digitising cultural heritage, we enter a zone that is closer to photojournalism than it is to image processing. But both options must be considered by the museum: the visitor expects to be able to take his own picture of a painting by Bruegel the Elder, Instagram it and share it immediately through various networks, fulfilling his need to act on reality through digital technology (let's call this the "internet *Jennifer in Paradise*" effect). Yet the same visitor expects the museum to bring him online a high quality image of that same painting; that is as close as possible to the real artifact, and which has been validated by the institution. This visitor could be anyone, but I like to see him/her as a researcher, visiting the museum on a Saturday afternoon with the kids, taking pictures of paintings with his/her smartphone so they can

play with them, but knowing that he/she will soon need very high definition photographs of the same artworks for a paper he/she is working on.

The first case scenario implies that the museum develops an infrastructure that allows the visitor to create and share his/her pictures while in the exhibition rooms (and many museums don't allow pictures to be taken on their premises, let alone offer free access to a good wifi connection). The second case scenario implies that the museum develops a strategy to digitise its collections and gives access to it (and this has many implications, including the questions related to copyright when dealing with modern or contemporary art – even the Google Art Project avoids showing artworks for which copyright has not been cleared). Both scenarios are the two faces of the digital art culture an art institution has to consider today.

The collection database of the Royal Museums of Fine Arts of Belgium went online in 2003, with a sample of approximately 1 500 artworks. Most of them were illustrated with an image that was the scan of a photograph, either of an ektachrome or even of a black and white print. We then started to work with digital photography on regular basis in 2004, with a procedure aiming at reproducing the artworks with a very high level of accuracy. There were some issues at first, as there can be a big difference between a colour negative and a digital file, but also between the RGB[1]. file on the screen – and between several screens –, and the CMYK[2] file that is printed on paper Accuracy means that the image can be less flattering, but it must be the rule when delivering the content to the audience online.

But digitising also means delivering to that audience things they won't even see when looking at the artwork in the museum. We were the first museum in Belgium to join the Google Art Project in 2010, and produced with the Google technicians a 1 GB-pixel reproduction of a painting by Bruegel the Elder, *The Fall of the Rebel Angels*. In this case, it is preferable to sit at home behind a computer to enjoy details that would not even be noticed when looking at the original painting: and that is one thing museum conservators have been fearing ever since the process of showing collections online started. One way to avoid this is to bring back this experience within the museum, for instance by adding high definition screens in the rooms with added content, so that the visitor has even more reasons to come to the museum. Recently, Google produced an extraordinary image of the ceiling of the Opera de Paris painted by Chagall: this does not mean that there will be less visitors to the building, but they will enjoy viewing at home details they could not see on the site – or maybe it is worth including these images in the visit itself.

The next step in digitisation is capturing images that are literally invisible for the human eye. We have been working for several years now with the Paris-based company Lumière Technology, that has developed a very high resolution multispectral camera (they used it to digitise the *Mona Lisa* as well as the *Lady with an Ermine*). Apart from producing very

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[1] "RGB is an additive system of colour blending. This is a system that creates colours by blending other colours. White light is created when the three light sources converge with the primary colours red (R), green (G) and blue (B). One starts without light (black) and adds light with certain colours. The opposite of additive colour blending is called subtractive colour blending." See the online guideline developed as part of the EU-funded project *Digitizing Contemporary Art* : http://wiki.dca-project.eu/index.php/Sandbox.

[2] "CMYK is a subtractive system of colour blending. One starts with white light and creates colour by subtracting the primary colours. While the additive system RGB is used for display on screens, the subtractive system CMYK is used for professional offset printing." See the online guideline developed as part of the EU-funded project *Digitizing Contemporary Art* : http://wiki.dca-project.eu/index.php/Sandbox.

high definition images, this technique reveals what lies under the painted surface, in various wavelengths. This huge set of data must be interpreted and analysed, in order to bring to the audience a totally new way of looking at the artwork. In 2014, we set up a small show around two paintings that had been digitised with the multispectral camera, one by Gauguin, and another by Koskoschka. This means creating an exhibition that includes a lot of information, with multimedia documents shown alongside the original artworks. We also included an interactive interface, so the viewer could navigate through the various wavelengths. The next step would be to give access to such images through a mobile device, to bring added content to the visit. These interfaces already exist (such as the *Wet Paint* project developed by Praveen Subramani at the Massachusetts Institute of Technology (MIT) back in 2008), but still need to be spread out within the museum community.

Today, it seems like we are at a crossroads where digitisation technology allows almost everything to be done with cultural heritage – even the high definition 3-D scanning has become quite common, not to mention the 3D-printing –, but where the emphasis is still put on the process itself rather than on what can be done with the result. In French, the verb "numériser" (digitise) has now replaced "informatiser" (computerise), when it comes to describing the procedure that will lead to the online access of an art collection. There are consequences to this semantic shift, as "digitalising" means to transpose a work of art from one state into another, while the prefix of the French verb "informatiser" underlines the idea of *adding* information. Producing very high resolution and accurate images is great, but it does not make much sense if they don't have any added content. Looking at the online catalogues of some of the leading art museums, one can see that the available data is paradoxically reduced to a bare minimum compared to printed catalogues.

So maybe it is time to stop focusing on the digital image of the artwork as if it was just a reproduction, and to agree that it is an object in itself, and that it is the first access point to the physical museum's collections. This is why in the Royal Museums of Fine Arts of Belgium I created the Digital Museum department, with art historians acting as an interface between the physical collection and the online world. On the one hand we study how digitisation projects can lead to a better understanding of the artworks, or help preserve and manage them. On the other, we try to target the audiences' needs and wishes (and there are many different audiences), whether they are online or in the museum, and see how to fulfil them using digital technology.

We are therefore conservators of a new kind, dealing with specific preservation issues. Back in 1998, the Getty Institute started to study "the long term implications of relying on current digital technology to preserve our cultural memory". This is the famous "viewing problem" as described by Howard Besser, who states that "the default for electronic objects is to become inaccessible unless someone takes an immediate pro-active role to save them. Thus, we can discover and study 3,000 year old cave paintings and pottery (even though the pottery may be in shards that we need to piece together). But we're unable to even decipher any of the contents of an electronic file on an 8-inch floppy disk from only 20 years ago[3]".

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[3] Besser, Howard : *Longevity of Electronic Art*, submitted to International Cultural Heritage Informatics Meeting, 2001, written Feb 2001. UCLA School of Education & Information Studies. http://besser.tsoa.nyu.edu/howard/Papers/elect-art-longevity.html

Finally, it would also be good to remember that, in the digital era we live in, there is this thing called digital art. If art museums are able to face some of the issues connected to the digitisation of their collections, they are far from prepared for welcoming digital artworks – and this explains why there is still a big shift between art centres focusing on digital culture, and fine art institutions based on 19-century models. Some art museums, and not the least well-known ones (Tate Gallery, Centre Pompidou, Guggenheim Museum), acquired net art works (that is, works made with and for the internet) in the early 2000's, but this remained exceptional. Yet, we can agree with Besser that "from the conservation perspective, electronic works have more characteristics in common with performance art, conceptual art, site-specific installations, and experimental art", these "distant cousins" of digital works (Jon Ippolito[4]) art museums have been able to include in their collections.

The issues linked to the conservation of digital artworks actually meet the ones to preserve digital copies of ancient works of art. Digital art can therefore be seen as a challenge, but also as a chance for Fine Arts museums, that need to adjust to digital culture, and keep on playing their role of laboratories in terms of preservation, exhibition and comprehension. Art museums must embrace digital culture as a whole: by considering their digitised artworks not just as copies of the physical artifacts, but as key elements of online collections that require a specific preservation and comprehension strategy. But also by including digital artworks in their collections, as this is a challenge but also a chance for them to evolve towards new types of institutional models, and to ensure their role as keepers of the cultural heritage.

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[4] Ippolito, Jon : *The Museum of the Future: A Contradiction in Terms?* Artbyte, June-July 1998. http://thoughtmesh.net/publish/300.php