

The rights of reproducing Cultural Heritage in the digital Era. An Italian Perspective

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Abstract

The spread of digital technology has led to a renewed phase within the debate on property rights in Cultural Heritage reproduction.

This topic is addressed in different ways, but it is currently under discussion both in Europe and USA. Italy holds a particular position in this debate, due to its large concentration of ancient remains and the peculiar structure of its laws.

The interesting experiments of total open access to Cultural Heritage reproduction on the one hand, and claims of the State Administration for control of Cultural Heritage exploitation and a consequent income (in any sense) on the other, are equally valid arguments. At the same time the blurred distinction between the concepts of 'reconstruction' and 'reproduction', of 'personal' and 'commercial' use, and the philosophical and mathematical difficulties in defining what is exactly a 'copy' in the digital context, make the matter harder.

The paper aims to analyse this debate, and to make a contribution to a new method of considering the economic dimension of Cultural Heritage, taking into account international discussion, while focusing on the situation in Italy, and trying to sum up the needs of the different subjects involved while expressing a proposal to resolve the problem.

Keywords: IPR, 3D models, Cultural Heritage reproduction, digital assets.

Introduction

Who owns the past? The question, stated in a political or symbolic way, may be given a concrete meaning when dealing with the tangible value (both intellectual and economic) of the property rights of Cultural Heritage objects' reproduction. This debate, which is not new, has gained a renewed relevance in the Digital Era, because of the new business models it may foster.

As a matter of fact, in the traditional context of Cultural Heritage, the only kind of object reproductions which had some economic value were pictures (three dimensional moulded copies had a very limited distribution), and although such a market could be remarkable, it is absolutely not comparable to the perspectives of 3D digital models.

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Indeed, the digital revolution has opened the way to a series of initiatives based on 3D digital assets whose multiplicity and relevance is probably still far from being completely realised: virtual exhibitions (Hupperetz et al. 2013; Pescarin 2013; Ray et al. 2013; Castagni 2016), merchandising based on 3D printed items (Palombini 2013), gaming (Bellotti et al. 2012; Stuart 2010) and the film industry (2014), are just a few of the many contexts which will be touched by such a phenomenon.

The changing scenario requires a series of actors and relation models to be defined, tested and included in a common framework for the research and business environment. Probably we live in the early stage of such a changing world, but our effort to understand and possibly drive it, is crucial in order to shape the future of the Cultural Heritage domain. Such a process will also need to be ruled by a clear legal framework, which has not yet been defined. My analysis will deal with such a topic, taking into account the current situation (mainly in Italy, but through an international overview).

Because of the variety of art and archaeological items, in this work I will use the expression *Cultural Heritage object* (hereafter CH object) meaning any tangible element having an historical/archaeological value, belonging to human culture (monuments, sites, furniture, arms, etc.).

Cultural Heritage exploitation models: *direct* or *indirect* income?

Referring to the general framework for managing CH objects, the first distinction to focus on is the nature of the *ownership* of artworks, monuments, archaeological remains, and whatever may be considered as tangible expression of Cultural Heritage. Since the early days of museum collections, in the eighteenth and nineteenth centuries, through the age of the trade in ancient antiquities, up to modern object loans for exhibitions, Cultural Heritage, in its tangible dimension, has always had a specific economic value in terms of attracting people and interest. Nevertheless, the ways in which advantage can be taken of such a value may be different in time and space and may not necessarily imply direct fees (as museum tickets or reproduction royalties). For instance, the presence of a freely-accessible monument in a particular place may attract many visitors there, thus indirectly benefitting the local shops and the community although it does not produce a direct income.

To clarify such a concept we may take as an example of *indirect* income the UK approach, based on free access to museums, which represents a trigger for other initiatives and exhibitions yielding an income; or the recent experiment of the Rijksmuseum (see below for a detailed analysis), where the free release of high definition pictures for any kind of use (also commercial) resulted in an increase in the number of museum visitors.

We may well take the Italian system as an example of *direct* income, where access to museums is for the most part subject to tickets, and object reproduction is tied to specific authorization released each time for limited and specific purposes¹.

Indeed, both *direct* and *indirect* ways of taking advantage from Cultural Heritage represent two specific branches of the behaviour of modern states and institutions through time (Palombini 2013: 122). Although the general legal structure of some states on the topic can be generally ascribed to one of such main directions, they cannot be considered as two drastically opposed categories. On the contrary, specific initiatives, even by the same authorities, can be defined as belonging to one of the two main approaches. For instance, any initiative aimed to the production of open data (available to the whole community) entails an *indirect* income approach, as it gives up a *direct* income (royalties, fees) from the CH object, fostering an *indirect* one, through a wide reuse.

Both approaches may have various aspects and shape different scenarios, but, when dealing with CH object reproduction, the *direct income* approach is challenged today by significant changes, closely connected to technological progress, which cannot be neglected.

For instance, focusing on the specific case of the photographic reproduction of a CH object for a publication, the expression *publication* may be misleading in comparison to the past. Some thirty years ago, publishing the picture of a museum object implied the deployment of a skilled photographer, the legal subject entity of a publishing house, and the resulting tangible presence of some printed copies.

Today, on the other hand, even a child may take a very high resolution picture and make it available online to millions of people in a few seconds, with very few chances to identify specific individuals responsible for any single action.

Such a situation drastically affects any rule definition for reproduction activities and their feasibility, even in the fairly old field of photography.

From 2D to 3D: reproduction vs. reconstruction

For a long time, the definition of a *three-dimensional reproduction* or *model*, in museum contexts referred to a physical object generally (but not necessarily) obtained through a mould (physical negative copy of the original)². Thus, laws and discussions on the topic were originally conducted referring to such a concept, and were then used – incorrectly, but being the only ones available – to address the creation and management of digital models, thus giving rise to difficult and sometimes odd contradictions, as concerning the “number” of specimens to be allowed through a single license³: once a digital model is used online, even in a locked context, it is simultaneously copied onto an undefined number of server disks.

¹ Up to the end of 1980s, Italy had no well-defined *direct* or *indirect* orientation. The rise towards the current situation started probably with the issue of a series of laws in the period 1990-1995 (see below).

² Regio Decreto 1913 n.363, art.7; Legge 1993 n.4, art.4; D.L. 2004 n.42, art.107; D.M. 20.04.2005.

³ D.M. 20.04.2005, art. 3.

Nevertheless, even taking into account the physical dimension of the objects, there is a clear distinction between two important concepts: *creation* and *reproduction*. The copies obtained by a specific (moulded) impression of the original piece are reproductions, and the ones obtained by a free sculpting or shaping operation (creation) represent different actions. In the latter case, the work is certainly closer to an independent artistic action than to a copying act. Digital models share the same difference: any digital 3D model may be the result of the *reproduction* of an existing object (through laser scanners or the process of photogrammetry), or the result of a *modelling* (creation from scratch) operation. The distinction is very clear, not least because of the different types of tools (software) and actions needed (Remondino & Campana 2014).

From a legal point of view, such a difference is tied to an equally-clear consequence because, as the *reproduction* can be subject to legal restrictions, the modelled digital objects are instead free products of human creativity, totally belonging to their author(s) and not subject to any external restriction. In this sense, the digital context presents the same features of the real world before computers: using a camera to take a picture of a monument is a *reproduction*, making a drawing of it is a *creative* effort. Nevertheless, although such a difference is apparently clear, in practice it is hard to draw a line between the two concepts. Getting back to the analogical example, a picture (reproduction) may be corrected and painted as to become something completely different from its original⁴. A 3D model may as well derive from a reproduction and be modified, becoming increasingly different to the original, and the definition of the point where it stops to be the *reproduction* and becomes *something else* is arguable and probably useless (as, in practice, it would be continuously re-discussed in different contexts).

A further example to illustrate the difference between a reproduction and a creative operation refers to the most accurate reproduction process currently available: 3D models obtained by a very high-resolution laser scanner. Scanned outputs probably represent the closest geometrical copies of their originals. Nevertheless, in its raw form, such an output is a cloud of points, each one defined by its spatial coordinates. To obtain from the point cloud a continuously surfaced shape (technically, a *mesh*), an interpolation is needed, which may be performed on the basis of different algorithms. Although the difference in the resulting output will be hard to perceive, it means there is no absolute truth, but many different final versions of the model (Callieri et al., 2011), that is to say: the concept of *reproduction* of an object is philosophically impossible to be fixed.

This aspect hardly affects CH contexts, as one of the most frequent operations in the field of virtual museums is the digital restoration of damaged objects or monuments, thus blending scans of the original parts (copy) and modelled pieces (creation). This practice, in archaeology, has recently been formalized in a systematic approach linking

⁴ For instance, Andy Warhol's artworks gave a strong artistic dimension to such an operation.

real and virtual stratigraphic units (Demetrescu & Fanini 2017), based on a framework well-rooted in the history of the domain: the Harris' Matrix (Harris 1979). The resulting front-end is a user interface capable of managing semantic and relational information regarding single archaeological items, which is in the first instance conceived for research purposes but whose structure is adaptable for dissemination and possibly commercial use.

In such a situation the reconstruction implies the tying of *reproductions* to newly- created models of the same object. How can we consider – in terms of property rights - such a mix?

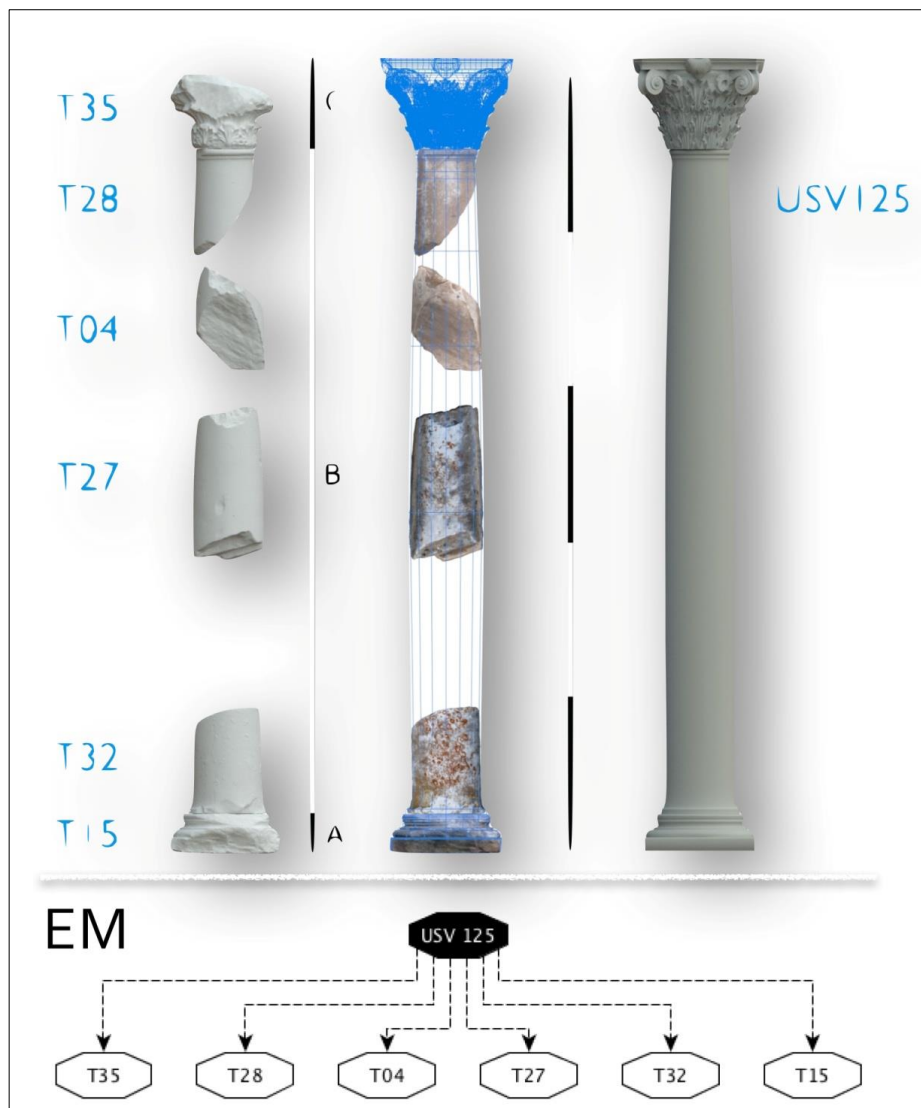


Figure 1. In the current context, material (reproduced) parts of an archaeological remain and modeled (newly created) ones, may be blended as to create a new whole: a stratigraphic virtual unit “USV”, as the column on the right side (after Demetrescu & Fanini 2017)

It can be argued that the result is something similar to a collage, an original composition which has a proper identity and is no longer linked to the original one. But in a legal

framework in which any CH object reproduction is authorized for a specific purpose is it licit to use it as a ‘brick’ of a new born object (Fig.1)? And is it licit to use it to ‘give birth’ to another reproduction (for instance, using pictures for producing 3D models through DSM techniques)? At the moment there seem to be no certain answers to such questions.

Where are we going? An overview

Generally speaking, according to property laws, an owner of whatever object also owns the rights to its reproduction, and determines the conditions for allowing access to it through specific agreements, which may be different each time and don’t need to be determined by specific laws.

But, when dealing with states and CH objects which are public property, as we may imagine a lot of requests in different places and the presence of many single individuals responsible for different transactions, it is reasonable to have a general legal framework to rule such a process, in order to avoid different reactions and shorten the duration of any procedure. In this sense, as the ownership of Cultural Heritage 3D assets is going to represent a very relevant resource for the future economy, the general lack of specific laws is surprising, whereas the digitization and exploitation of CH objects is subject, in different countries, to specific legal agreements that need to be drawn up each time between the State, as object owner, and the author of the digitization.

In the general lack of standard national rules, France and Italy, represent interesting cases because – although lacking specific rules – they are witnessing ongoing processes which may lead to a meaningful change of the situation.

In France, a strong initiative started some years ago in the general frame of the National Plan for digitization⁵. The aim is to provide, in couple of years, to the digitization of a huge number of CH objects owned by the State and to make them available to the community. The plan also aims to use open source tools and to product totally-open data. Specific calls for projects to be funded are currently ongoing this framework⁶. The programme represents a relevant political event following an *indirect* income approach.

The Italian situation is particularly interesting in this context, for its historical setting. Italy is characterized in being strongly oriented towards a *direct income* approach. Indeed, such a dimension started to appear clearly some thirty years ago.

⁵ <http://www.culturecommunication.gouv.fr/Thematiques/Innovation-umerique/Archives-numerisation/Appels-a-projets-de-numerisation>

⁶ http://www.gouvernement.fr/sites/default/files/contenu/piece-jointe/2016/12/ami_culture_patrimoine_et_numerique_161209.pdf

The earliest interventions for the constitution and ruling of a National Cultural law complex dates back to the late nineteenth - early twentieth century, along with the birth of the National State and the election of Rome as State Capital.

In that period, the new-born State, understanding the relevance of Cultural Heritage, started to confiscate a large proportion of private possessions in many places characterised by art and archaeological remains. Thus, the formation of the national “treasure” began and this today includes most of the Italian Cultural Heritage.

Despite judicial interventions throughout the twentieth century, a crucial date for this process is the period 1990-1995. In August 1990 a law was issued⁷ establishing ticketed access for many monuments and sites previously free. This was the premise for a deeper choice towards direct income, realised in the year 1993, when law 4-1993 (the so-called *Legge Ronchey*) stated a specific regulation for the definition of the royalties for the reproduction of CH objects owned by the state; and a related price-list was then issued.

Such a law represented a significant step towards a *direct income* orientation, which gave rise to a general political trend (to some extent still present) in the same direction: as a matter of fact, it was followed by a reform in 2004 (*Legge 42/2004 Codice dei Beni Culturali e del Paesaggio*), which shaped the law structure currently obtaining in Italy (Sandulli 2012).

As already stressed, the definition of ‘three-dimensional reproduction’ up to some 20 years ago, was exclusively restricted to physical copies, generally obtained through a mould. In this sense, the price list for copies established by the previous law would have been clearly useless if applied to digital contents. Moreover, part of the fee applied to such an operation was justified as deposit because of the wear due to the mould-making operation, and as deposit for possible damages⁸, but digital scanning does not produce any wear.

As for CH reproduction, the main differences between the *Codice* and the previous *Legge Ronchey* are relevant to our analysis. The new law stated that criteria and fees for reproductions, have to be referred, not to the Central Administration that is to the Ministry, but rather to single local institutions, such as local museums for instance⁹, thus avoiding a general price list.

Such a change, although conceived in continuity with the old idea of ‘physical’ reproduction, resulted in a new formulation, which is paradoxically suitable for use within the frame of the Digital Era, even if lacking a specific law on digital models, as it does not rely on the definition of the “number” of copies, but stresses the need for evaluating – as main criterion – the purposes of the operation to be considered in each

⁷ D.M.03/08/1990. See also: Palombini 2014.

⁸ D.M. 20 April 2005.

⁹ D.L. 42-2004, art.108.

individual case¹⁰. Giving such a power to local authorities allows the decision on specific policies (with or without the payment of fees) for different kinds of use of the resulting reproductions, and it is worth observing that this was exactly the aim of the authors of the law who wanted to de-centralize the decisions on the conditions to be applied for any single reproduction (Sandulli 2012: 833).

Recognizing different stakeholders

The debate on the nature and management of property rights of 3D models, and the above-mentioned orientation towards direct/indirect income approach, is clearly tied to the wider discussion on openness/closeness of data in general. In such a context, it is important to consider the specific interests of all the subjects involved: the owning authorities, who want to keep a reasonable control on the assets' utilization and – in case of significant earning – obtaining a part of it as a contribution to conservation expenses; those funding and authoring reproductions, who technically perform (on the owner's account) the reproducing operation as an investment that should lead to an income; and the community, who claim by right open access to Cultural Heritage 3D assets.

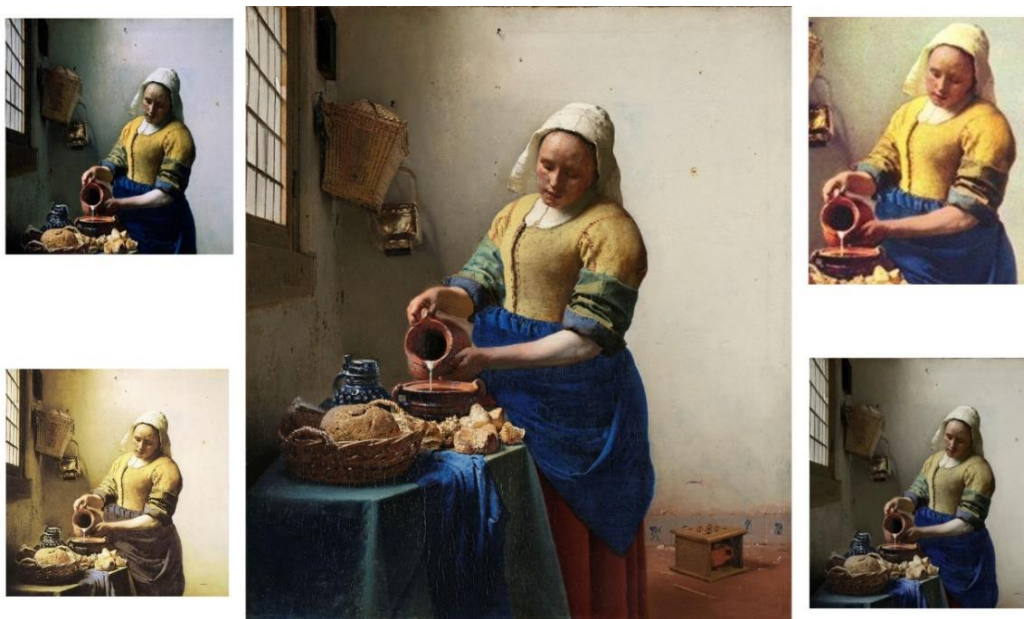


Figure 2. The Rijksmuseum choice of making freely available high resolution pictures of its paintings increased museum's visitors, but also resulted – as for the well-known case of Vermeer's Milkmaid – in the prevalence of an official version of the artwork picture.

¹⁰ “I canoni di concessione ed i corrispettivi connessi alle riproduzioni di beni culturali sono determinati dall'autorità che ha in consegna i beni tenendo anche conto: a) del carattere delle attività cui si riferiscono le concessioni d'uso; b) dei mezzi e delle modalità di esecuzione delle riproduzioni; c) del tipo e del tempo di utilizzazione degli spazi e dei beni; d) dell'uso e della destinazione delle riproduzioni, nonché dei benefici economici che ne derivano al richiedente.” (D.L. 42-2004, art.108).

In addition, it is worth adding some considerations on the concept of open data. Beyond the general advantages triggered by such an approach (for an overview see Van Rijmenam 2017), there are many examples of the beneficial effects of openness in data managing. Some wider considerations may be drawn from the whole of human history, as the chances of survival for artworks and texts have always been proportional to the number of copies produced (Greek statues copied during the Roman Empire, classical texts copied in medieval monasteries, etc.), thus supporting the claim to an open right of reproduction.

Moreover, the rapid evolution of computers and software naturally leads to an increase of file formats and to a shortening of their life before obsolescence (Addison 2008), thus making crucial the opportunities of open access, distribution and reproduction.

This said, recent experiments in open data approaches in museum contexts resulted in a clearly winning strategy, both in terms of visitor growth and information quality improvement. This was shown for instance by the decision taken in 2013 by the Rijksmuseum, to grant free access to its entire HR picture collection which enabled the museum to reach the highest attendance record with nearly 2,5 million visitors in 2014¹¹. Incidentally, such a decision resulted also in the establishment of an official version of the artworks' pictures among the many available online which were often misleading in terms of colour and detail (Leon 2012) (Fig.2).

Furthermore, a more extreme transformation, driven by the digital revolution, is currently challenging the traditional approach. Commonly, on the authorization for reproduction, a distinction is generally made between *personal* and *commercial* use of the data. Such a distinction is absolutely reasonable, as it would be very unfair to manage in the same way a commercial operation, which generates income for entrepreneurs, and one which is to facilitate the private or study needs of individuals. Nevertheless, the general distinction between a profit and non-profit (personal) use of data is today weaker and less clear than in the past. In fact, today any person may act as a sort of advertising hub: social networks and various web entities make money thanks to the exchange of private information, chat discussions, and personal relationships. Within this picture, it is hard even to distinguish private and for profit use of a picture, either if an income is earned by the web platform or if it is directly cashed by single users¹². To sum up, the drawing of a line between personal and for profit use of any data will become increasingly confused and impossible to state in the future¹³.

¹¹ Rijksmuseum press office communication. <https://www.rijksmuseum.nl/en/press/press-releases/rijksmuseum-sees-record-attendance-in-2014>. See below for a more detailed explanation of Rijksmuseum case study.

¹² Some new social platforms appeared, since a few years, following a pay-per-post or pay-per-friend approach, thus allowing users to directly earn part of the advertising income. For an overview: Walker 2017.

¹³ An interesting example on this topic is the Italian law 97/2013 (so called *ArtiBonus*), which allows the diffusion of pictures by private citizens through the web, for personal and nonprofit use. But actually, social web platforms are profit enterprises, and the publication of any material implies a money income and a copyright cession. Thus, the law is currently self-contradicting.

Finally, to further complicate the situation, another issue arises: authorship. An interesting debate is in fact ongoing, which resembles exactly the earliest stage in the history of photography. For a long time, photographic works were not subject to copyright since they were considered simple reproductions of the real world obtained through the chemical reaction to the light of a film. This implied that no creative effort by the operator was supposed to have taken place in the very act of shooting a picture (For a detailed discussion: Weinberg 2016: 4). Today, the same issue is open for discussion, and revolves around the following question: do 3D scans imply creative work (thus legitimising an authorship, and the related copyrights)? The matter is open but, at least for some cases, the answer seems to be positive, and this is of course another important factor to be taken into account for future, exhaustive approaches to the argument¹⁴.

Conclusions: a possible proposal for public policy on CH object reproduction in Italy.

Some thirty years ago Italy started (more or less consciously) a path towards a direct income approach from Cultural Heritage exploitation. Whatever the opinions on such an approach, it is today seriously challenged by different obstacles, both theoretical (the complexity in marking a border between the concepts of “reproduction” and “creation”, of “private” and “public”, of “profit” and “non profit”, of “single” and “multiple” use of assets), and practical (the difficulty in limiting the use of cameras and the diffusion of information, and in identifying who is responsible for single actions in this chain).

Considering this complex picture and the reasonable interest of the many actors involved, in my opinion, the polarization of the discussion between *open* and *closed* approach does not favour the search for suitable models for managing the whole property rights issue. The spread of 3D digital technology may be seen as a good chance to draft a general proposal on the matter, taking into consideration the possibility of pursuing a midway approach.

In order to clearly explain the proposal, it is useful to move back to the mentioned Rijksmuseum path towards its total open data choice.

At the beginning of such a path, in 2011, the Rijksmuseum inaugurated its market strategy making freely available medium quality images and selling at reasonable fees the high resolution ones. A first observation is that:

It is interesting to compare the revenue of the image bank over the years. In 2010, when nothing was available under open conditions, there was actually less revenue than in 2011, when the first set was made available. It is even more interesting to see that in 2012, there is an even more substantial increase

¹⁴ The discussion is more complex than this brief analysis. Considerations on creative effort must distinguish the scanning shot from the following operations of interpolation and post-processing. Nevertheless, there may be aspects decided at the scanning moment which impact on the final result. Weinberg (2016: 8-11) uses the definition “expressive scans” addressing the cases which clearly imply a significant creative work.

in sales. This shows that releasing the medium quality images to the public in 2011 still allowed them to have a viable business model, and in fact increased the amount of image sales (Pekal 2014: 11-12).

About one year later, the Rijksmuseum chose to make freely available all images, because the administrative effort in handling and processing royalty-driven copies was likely to be greater than the money income. In his analysis of the Rijksmuseum case study, Joris Pekel points out that

it is very likely that many institutions are not in the position to do this. For this reason the previous setup of the Rijksmuseum where they make good quality images freely available to popularise their collection, and charged for the master files can be a good solution for cultural institutions (Pekal 2014: 15).

Such a midway strategy seems to be a reasonable choice to meet the different demands of all parties involved. At least for those cases in which a state (through its local institutions) is the owner of CH objects, as in Italy for example, a possible proposal may be drawn up as follows:

- The state grants complete freedom of reproduction for any (including commercial) purpose both on pictures and 3D models building.

- At the same time, the State may grant, at commercial conditions to be defined every single time by specific agreements (as already possible, in Italy, within the frame of the current law), the use of its high-quality pictures and 3D models, which come with a State Quality Label and a non-transferable licence of use. What would be the consequences of such an arrangement? By purchasing the right of use on institutional pictures, the user would obtain, at the same time, the State Quality Label thus implying a sort of *Italian Cultural Heritage* brand, which would be an upgrade for the market value of any kind of use or derivative product.

- For pictures: it would be much easier for anyone to take a picture independently, and the purchase of institutional pictures would be therefore limited to particular cases (institutional relationships, or need of the associated brand)

- For 3D models the situation is very different, as it is still much more difficult to create a 3D model independently, by freely moving into a museum, not because of technological limits (there are many ways to take some pictures and create in real time a 3D model by photogrammetric procedures), but for logistic issues: it is not always possible, in a museum, to manipulate in all directions an object in order to shoot it from all angles required to get a complete, good quality 3D model. Thus, in this case, the user would be almost obliged to buy an officially-licensed model not only for the brand, but every time a complete and good quality model is needed.

In addition to such a general model, of course, specific public programmes may be conceived on the basis of the cited French National Plan for digitization, aimed at the production of total open access 3D models. In this way it is possible to imagine a more varied scenario, in which all interested parties may be able to meet their requests.

It is important to stress, as a final remark, how a correct way of managing the enormous work of a complete digitization of the Cultural Heritage, may represent a great chance to foster job opportunities and economic and cultural growth for a large part of the population, instead of being a source of income for only a few favoured subjects.

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