The cultural heritage of tomorrow: should we put a limit to the influence that new technologies have on culture and design?

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Technological and digital innovation is becoming more and more rapid and pervasive in its use and diffusion by tapping an ever-wider spectrum of processes.

These new generation technologies are increasingly integrating themselves and integrating various *cultural heritage* areas, such as the conservation, enhancement, and enjoyment of cultural heritage, and find applications in various projects such as increased reality, the *Internet of Things* and digital manufacturing.

This leads to new forms of musealization, fruition and dissemination of artistic and cultural heritage, in which the technological components make the difference and give the cognitive and emotional experiences a very important role; consequentially it is characterized a guest who is increasingly expected to be the protagonist of this cultural experience and not a passive spectator.

First of all, we are faced with an enhanced web, capable of modifying cultural aspects thanks to its content and the power of the media, from which we get a continuous exchange of information.

This ongoing flow leads the user to address the digital culture on three levels of time:

- BEFORE: "*before fruition*" the user is informed, having access to a news archive of any kind, ranging from those directly provided for example by the museum, to those of other users who evaluate their experience, comment and express opinions.

For example, if we decide to visit a museum, we can get information from two macrochannels: directly from the official website, where we will find detailed information on

timetables, fares and collections details, or from reviews and opinions channels such as Trip Advisor or channel company.

In this case we will have other information that we would not find on "classic" channels, such as what works deserve absolutely to be seen, as they liked most to users who have already gone to the same museum.

- DURING: "*during enjoyment*", that is, all that digital set of actions that the user performs directly when they receive the information. The use of interactive maps, smartphone apps, audio guides, increased reality, Li-Fi systems; all times when the user feels involved in the path and experience he is facing.

When we are in the museum or sometimes on the internet site we can immerse ourselves in virtual and interactive experiences that help us understand the work better and more deeply while guiding us along the way.

- AFTER: "*after fruition*", the user re-submits contents, comments, reviews and experiences to the web, as if he was still enjoying the work, giving new imput to users who are still beginning to enjoy.

Concluded the cultural experience we are now accustomed to "sharing", making public what we did, what we saw and how we felt to see it. By emulation or passion for the protagonist, nowadays most people use social, and even those who do not, by social status will be brought to tell their own experience that will be heard and shared with many.

So doing is fueling an acceleration of the irreversible phenomenon that culture produces; that is, a spiral loop that is self-feeding and pushes itself further: thanks to culture and with culture, another culture is created.

If the phenomenon exists for so long, today there is an implementation of speed.

A way to produce culture different from the one practiced until recently, driven by new technologies and users that can not be controlled. This results in the creation of a spontaneous communication in which the originality and truthfulness of the information is not known. Just refer to the scandalous expansion of *Fake News*. In addition to veracity, the manipulation of information has largely focused on attention for speculative purposes. The case of the scandal that invested TripAdvisor on "bought" reviews is a significant indicator.

The risk is to get to a point where only the "macro elements" of our cultural heritage will be known or those who will have a "sponsor" with greater influence. In the field of fashion, for example, this trend has already come into play with the entry of *Fashion bloggers*, *Ambassadors* and *Influencers*, so we could easily suppose, without even a great effort, that this could happen in other cultural areas.

As is well known, virtual and multimedia languages can thus have a revolutionary impact. Thanks to the unlimited ability to tell stories, the ability to rebuild the worlds and objects lost today is becoming available, plus the ability to enjoy it enthusiastically and emotionally. They can also support the documentation by creating digital, 2D and 3D archives that are useful to the entity that manages them, as well as stimulating new stimuli of interest and public affection for cultural goods. Digital archiving guarantees the indelible preservation of the work spontaneously triggering actions of care and safeguarding, knowledge and enhancement.

This abundance of digital data, as it creates new scenarios of new perceptual knowledge, crumbles the expectations that we have been accustomed to having in the near to the not yet known. Everything happens before it is lived.
Until recently, to see a work of art we had to go to a certain city, in a particular museum, and we did not know what was waiting for us, as it would have been to see it close, while now we can see it on the screen of our pc in very high resolution to the slightest detail, so in that sense you lose the surprise in having it really in front because somehow we have already seen, already experienced, we have already created an opinion about it.

The new opportunities that cultural institutions now have, increasingly require more information technology to better exploit cultural heritage.
Digital manufacturing can in fact be used in integrative restoration, digital reconstructions and the creation of high-definition models, in tactile alternatives for disabled and children, and also in museum merchandising. Through the 3D survey, it is possible to create digital archives in three dimensions of artefacts, artefacts and artworks for use both for dissemination purposes, such as the development of 3D online museums, as well as tourist applications and integration to cultural enjoyment. The use of this type of technology was initially limited in the useby high-cost and low-performing devices for the scholars,

while the general public has had a difficult approach due to the low availability of intuitive tools that they stopped using ease of use and immediate accessibility to real-time navigation.

However, the evolutionary acceleration of these technologies has allowed a widespread ramification of the success of these IT tools, making it easier to access and approach any level of use whether it is for researchers and operators in the industry, whether they are users concerned. An evolution that allows an ever-expanding dissemination of cultural heritage.

In this new perspective, Design plays a significant role. The 3D digital medium holds sensitive potential in terms of beneficial or disadvantageous relaunches for the dissemination of cultural heritage.
If digitization allows conservation and facilitation in propagating the value of the artwork, at the same time the problem of ease of counterfeiting is evident.
The copyright protection is, in fact, one of the most delicate issues for the 3D printing industry especially with the advent of mass 3D.
We could make a comparison with what happened a few years ago in the music world.
After all, a .stl file is a kind of .mp3 of the objects. With the advent of this type of file, the music industry has been invested by a real tsunami that has left behind its pros and cons.
Looking at the positive, we've come to an extreme usability of music content, but have also had negative consequences, such as ever-expanding digital piracy.
Such a scenario is reappearing with the advent of massive 3D printing, and it will not be enough to hide behind the idea that engraving a CD is much easier than printing objects in 3D because at the time, even for CD playback, we did not even take this easy access to music content for granted.

A very important and relevant issue is that of digital file protection, especially in the field of *cultural herritage* or design.
An increasingly emerging need to avoid counterfeiting of works and models, which will be increasingly subject to faithful reproduction of the original. As is known about this trend, highly innovative solutions have been developed and are still being studied but not yet

sufficient to contain or avoid counterparts which are acceptable to support the contribution of technological emancipation to knowledge and protection of cultural goods.

The contradiction between preserving, protecting, guarding and counterfeiting demands also implicitly impacts the use of digital technologies in designing new objects.

3D modeling assists each design phase up to the real simulation with the three-dimensional automated printing of the object itself. This allows you to have enormous possibilities of formal expression through digital tools that accelerate the process of visualization of an idea and make it even easier for the isometric control already visible in the virtual field before it materializes. That's the role of digital modeling assumes a value that asks distinction of identity as it happens in the authenticity of a work of art.

Both a monument and a design object need to be protected. The artwork and design object that can be circulated on the web, available to anyone, need more protection.

It follows that in order to benefit from digital technologies, it is necessary to increase the awareness of the type of use of computer tools and how to preserve their autoriality in every step of the dissemination.

Particularly with regard to Design, we can notice the deficiencies of this awareness caused by two major factors.

The first as a result of the diffusion of IT technologies in the project culture that enable 3D modeling a more direct and facilitated approach to the preview of the product to be achieved. The second factor, however, concerns the subconscious subjection that computer tools allow those who, enticed by their performance, do not absorb their potential but undergo such process facilitation.

The problem is that the tool is also predominant on the vision of the shape of things. These are the features, commands and tools of the program that dictate the form, not the design idea of the designer. In the academic sphere, this trend is very rampant, especially in those who, aspiring to the profession of designer, still do not know how to fully use these tools, which should remain the same, without becoming overwhelming on the final aspect of the product.

To illustrate this trend we could make a comparison between these new tools and the classic designer tool, pencil. If we take a pencil and try to draw circles, we will certainly find more difficulty than drawing simple curved lines, but that does not mean that we will exclude circles from our projects; we will only have to refine the technique.

Today, however, we see many young designers approaching these new technologies with a "surrender" attitude: they do not even try to draw shapes that they know they do not know how to model. As a result, everything flattens into definable shapes with very few simple commands, such as extrusion, creating products that do not represent the research for a formal idea of the designer, but the degree of software usage skill with which they were generated.

Gaining ingenuity, subtlety, or simple adaptability to the facilitating potential of the instruments, however, gives a fundamental consideration of how to deal with a future strategy.

Technological innovation opens up and raises new perspectives, but at the same time only a very strong sensitivity to awareness of what we have and what we can do to facilitate the exchange between ways of acting and ways of thinking.

A new focus that will distinguish between what we identify as a cultural heritage and what, through technology, makes us cultured with new skills with which we use computer resources.