

## CREATIVE AND CULTURAL INDUSTRIES

### *Sector focus*



# The digitisation of culture

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## Technology in culture

**The impact of the Internet and the growing process of digitisation** in the Creative and Cultural Industries sector is a profound transformation that demands entities and professionals to **create online experiences to respond to the expectations and consumption patterns of the 21st century audience**. It also entails a change that requires rethinking projects, a new understanding of citizens' concerns and needs, how to cover them, with what resources to do so and with what technology to support them. This is a task that needs to be done in other economic sectors, but especially in the area of culture -as intervention is necessary to build new business models and/or redesign future creative organisations from a new perspective.

Increasingly, culture-consuming audience is increasingly used to having “experiences” rather than just “watching”, in a world saturated by a multiplicity of screens and information. Here is the success of **immersive and interactive experiences** that also have the advantage of being able to transmit information that was previously more difficult to communicate.

The digital and virtual environment has emerged as the setting where artists have moved their creative activity. Today, the **union of culture and virtual reality** represents a great opportunity to show artistic work to viewers around the world or to organise cultural events that transcend international borders. Virtual environments allow people around the globe to become involved in cultural activities or products as creators and producers, or simply as consumers of cultural events or shows.





For this reason, it is important to highlight the similarities between the real and virtual worlds in the field of Creative and Cultural Industries: the same conditions are being experienced in the physical world. The consumer public of culture produced by digital media goes to the cinema, the theatre, organises music events, attends concerts and, ultimately, the virtual world is not new for them because it reproduces activities that they already perform in the physical world. Thus, the **relationship between art and technology in virtual settings** has great potential. In this context, immersive experiences arise as a complement and an opportunity to generate added value to the traditional cultural product.

Traditional cultural circuits can be programmed and specific content may be created for the virtual environment, thus producing an **integral cultural experience**.

In this sense, the technology for creating immersive environments has been instrumental in expanding the impact and dissemination of cultural programming. Below is a brief description of the technologies that allow changing the perception of reality:

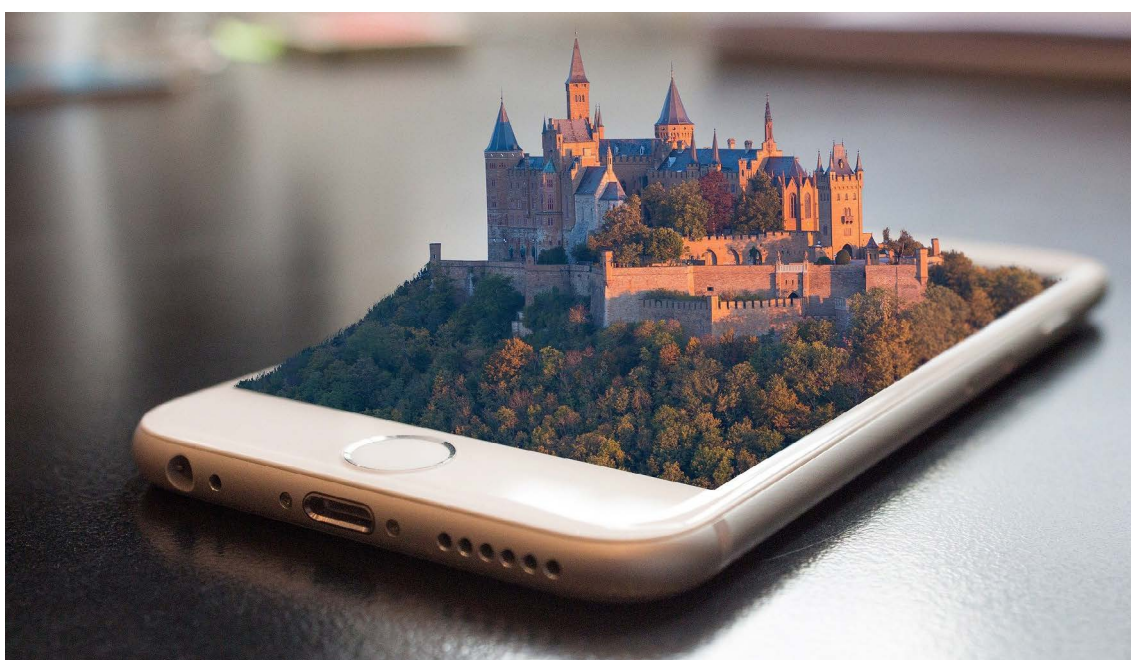
- **Virtual reality:** technology capable of replacing the environment of the subject, all that surrounds it, with another one generated digitally. It is carried out through a virtual reality helmet or vision-blocking glasses -and in some cases hearing is also blocked- because immersion helps the person dive into a purely virtual world.
- **Augmented reality:** It facilitates the overlapping of layers of information in the physical world. The main difference with virtual reality is that, in this case, the sense of view is not obstructed, but rather information is added.
- **Mixed reality:** this concept is more complex as it does not involve overlapping information over the real world, but instead merging the physical and digital worlds. This means that if a virtual element is created, such as a 3D-modelled chair, it can be placed (made appear) in the physical world. In addition, this element will be “conscious” of the world around it because it will have the ability to interact with its real environment: it will understand where the ground lies and, if a person passes through it, it will have the ability to hide or allow the subject to cross it. Consequently, sensation will be much more immersive because it will affect the illumination of the environment and everything will adapt to it, creating a world that mixes physical and digital things indistinguishably.



# Main implications of digitisation in culture

The digitalisation process is revolutionising working methods in all areas of the Creative and Cultural Industries. By means of example, **cultural heritage** can be mentioned as an emblematic case. Technicians, restorers and broadcasters can use new digital tools throughout the work chain: documentation, research, conservation-restoration and, finally, dissemination and accessibility.

The case of cultural heritage is illustrative, insofar as technology serves the **conservation and protection** of cultural heritage (buildings, sculptures, paintings, objects, etc.), understood as the essence of a territory's culture or as an identity to be preserved. In this sense, digital technologies offer solutions to ensure that **subsequent generations will be able to enjoy and take inspiration** from cultural assets throughout the 21st century, as cultural heritage can be easily damaged or disappear forever.

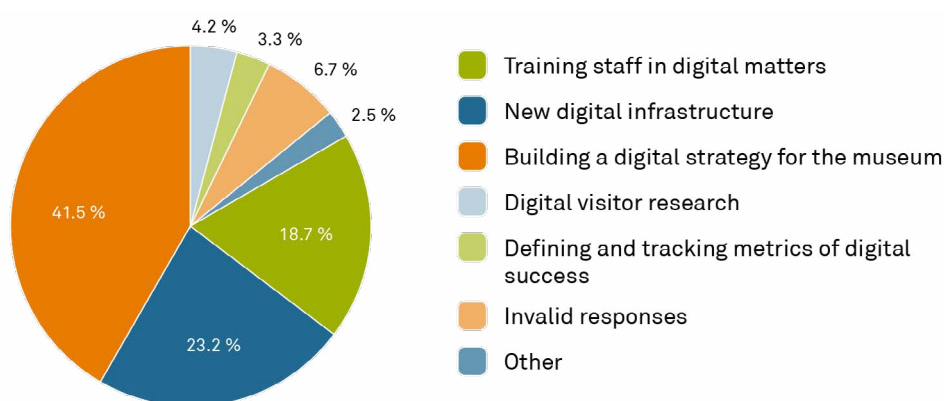


On the other hand, the tasks of **dissemination, promotion and access** to tangible and intangible cultural goods -coming from museums, galleries, libraries, archives, monuments or heritage sites- are the areas where digital solutions have been most experienced. **Direct contact with the public has allowed to test and offer more attractive formats** for bringing heritage closer through multimedia experiences, three-dimensional simulations, virtual visits and interactive environments that facilitate the discovery of cultural heritage, even without leaving the home. Technologies are also applied to improve the tourist experience of on-site visitors with immersive formats such as virtual/augmented/mixed reality, with adapted audios or texts, or through gamified apps, most based on narrative or storytelling, current languages that allow a connection with any type of visitor.

In any case, according to experts, the three technologies that will have the most impact on the Creative and Cultural Industries sector in the next decade are **Big Data** -and its processing through Artificial Intelligence-, **telepresence** (online meetings, virtual visits, ...) and **3D technologies**, from the capture of reality to its exploitation in digital formats, such as computer viewing, virtual reality or augmented reality.

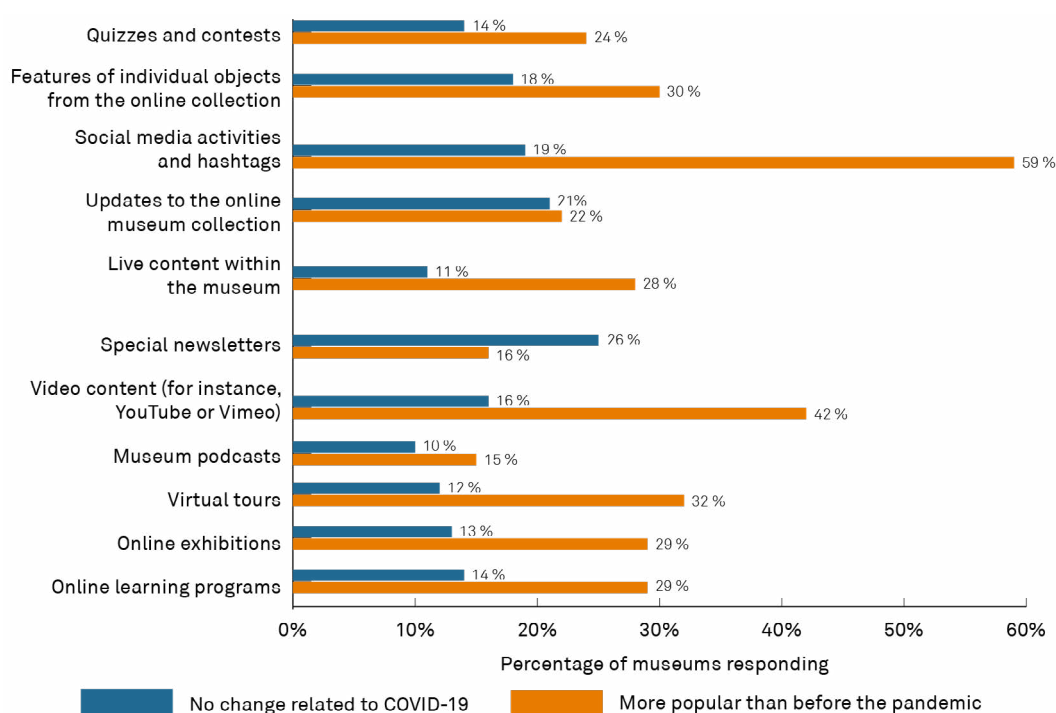
As highlighted in the recommendations of the latest report by NEMO (Network of European Museums Organisations), there is no going back on the digitisation process. As an example, some of the relevant data in the field of museums are presented below, as they are leading cultural agents in the Creative and Cultural Industries sector:

**Figure 1.** Priority areas for museums that require assistance in digital transition

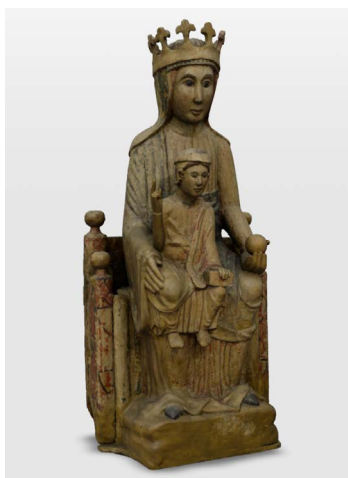


Font: Prepared by the authors based on the *Follow-up survey on the impact of the COVID-19 pandemic on museums in Europe* by NEMO.

**Figure 2.** Evolution of the popularity of online museum services due to the pandemic



Font: Prepared by the authors based on the *Follow-up survey on the impact of the COVID-19 pandemic on museums in Europe* by NEMO.

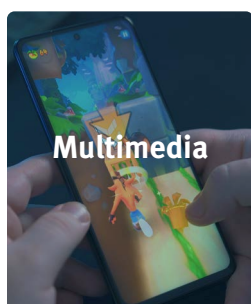


In Catalonia, the Ministry of Culture, through the Directorate General of Cultural Heritage, promotes the programme “**Giravolt. Experience cultural heritage in 3D**” for the digitisation of Catalan cultural heritage. This programme aims to promote the knowledge and use of the latest **3D scanning technologies for objects and buildings** by entities that manage Catalan heritage, and to offer citizens a new way of viewing and accessing cultural heritage. Giravolt is a collaborative and cross-cutting initiative from the start, providing a new format for the entire work chain of culture, and enabling the improvement of heritage management from conservation to final disclosure and reuse.

As it is already being demonstrated, digital technologies create new opportunities through **immersive environments in the many areas** that are covered by the culture and creativity sector. Literature, theatre or cinema have always had the ability to transport the reader or viewer to different places and times, recreating landscapes, cities or atmospheres that move, for a moment, to a different reality. This innate capacity of artistic creation is enhanced by these technologies, **improving the experience of the user**, who increasingly wishes to assume a more active role in their relationship with culture. Therefore, a wide range of applications are currently offered that impact across areas such as:

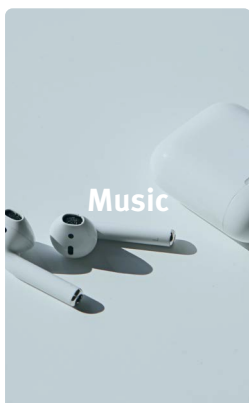


**Special effects** and the set of techniques used in shooting a film to convey the reality of certain scenes could be an example. Computer-generated images, from the increased capabilities of computer systems, lead to new ways of transporting and submerging the user into fiction. For example, special effects are being produced that use virtual reality.

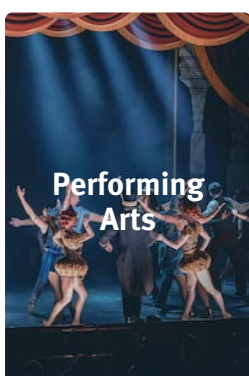


The establishment of **three-dimensional systems**, known as 3D, the boom of **virtual reality** and the generalisation of equipment necessary for using them, open up a field of experimentation for audiovisual creators with infinite areas of application. Above all, in the area of digital creativity, in the field of video games, which allows them to experiment with dynamic and interactive environments in an intense ecosystem of immersive creativity.

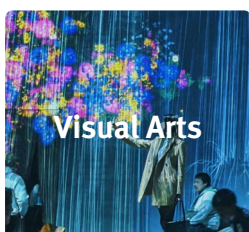




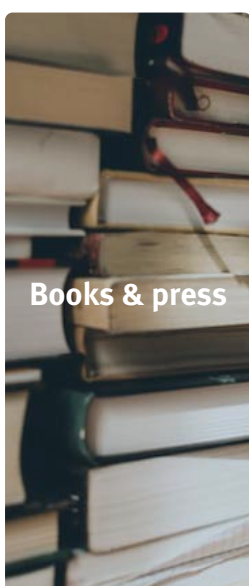
In the field of music there is the possibility of generating **three-dimensional acoustic fields** that combine perfectly with the immersive environment. Environments are created where the user can navigate and the sound is generated dynamically and consistently with the place where the person and sound sources of the space are located. Recently, audiovisual channels have emerged that allow access to these music experiences with virtual reality glasses, making it easier, for example, for those who use them to surround themselves with a philharmonic orchestra by placing themselves among musicians or moving between them.



The transformation in this area lies basically in how the viewer creates and experiences the content. New narration forms are offered that fill the immersive environment so that the viewer can feel, act and live through the story in a radically new and surprising way. In this sense, collaborative creative models are emerging that generate a special interest in the field of artistic creation, since they incorporate **three-dimensional elements** to the scene or introduce **interaction directly with the audience**, accentuating originality and improvisation.

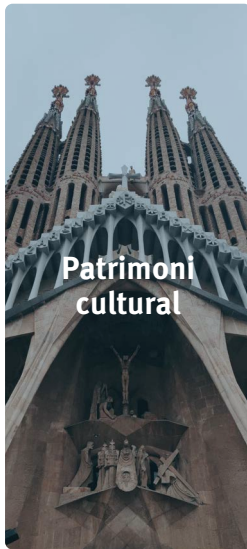


Art creation supported by the digital transformation impacting the sector results in cultural products such as **video performances** and **multimedia and interactive works**, where action can be driven by both the artist and the viewer. These new formats open the way to art, multiplying the possibilities of creation and experimentation.



The implications of digitising culture on the book market also exist insofar as they transform reading and writing as experiences. Thus, the large amount of information and interaction that occurs in the immediate environment (text messages, tweets, real-time news, personalised content recommendations, etc.) together with the ability to rely on the possibilities of technology, allows to offer reader a “deep and immersive reading” experience, changing the way literary texts are handled. Literary genres such as historical fiction, fantasy, or science fiction, for example, are enhanced by the **narrative qualities of other multimedia supports** such as images, video, or animations. The reader imagines each of the scenes described in the text, the characters, their situations and the locations known at the time of reading. In other words, digital resources complement the experience and produce an immersive effect.





**Immersive visits** are increasingly frequent on historical monuments, as well as the **recreation of 3D objects** or the application of **virtuality** in completely unfeasible realities -due to physical impossibility or conservation criteria-, allowing the person to immerse themselves in a true time journey. The technology is creating enhanced experiences for visitors, providing an **overlap of historical or cultural context information** relevant to the most visited places through augmented reality. Applications that range from the incorporation of all kinds of contextual information that stimulates the user's experience to the full recreational ability of the original environment should be mentioned. In many occasions, the original environment has already been lost, so reproduction allows a deeper understanding of the majesty, strategic importance or typology of the activity of the environment visited.

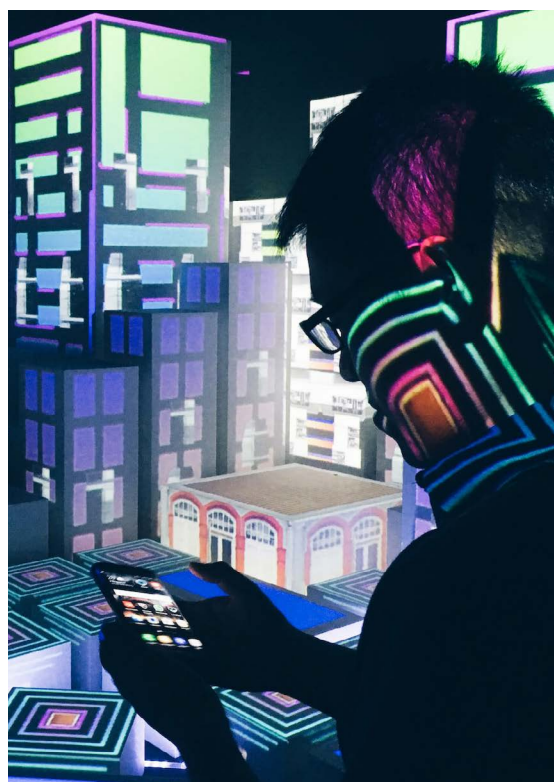
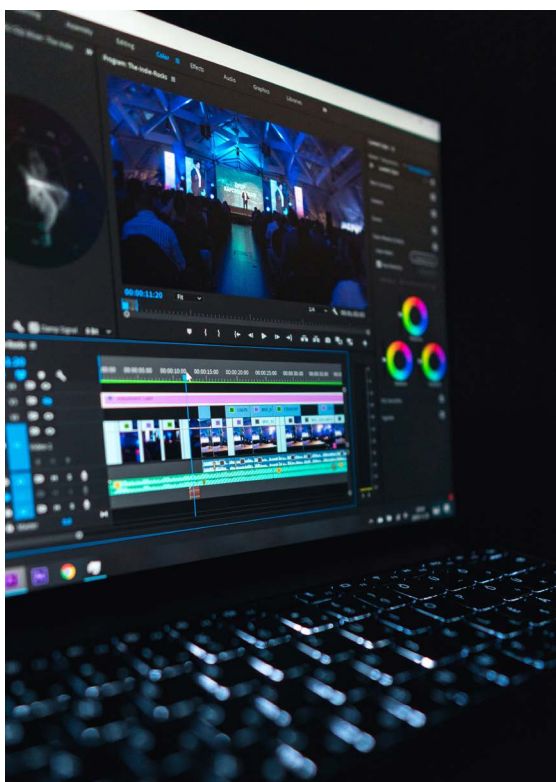
In short, **immersive technology** begins to be considered an additional tool in the creative process, providing new formats and media, one more element to facilitate access to culture and artistic creation, especially for new generations used to digital technologies, other narrative languages and other content experiences.

## Impact of digitisation on professional profiles

As mentioned above, the impact of technology on the process of artistic creation is a reality and a challenge, given that the acceptance and use of digital technologies is increasingly widespread. It is therefore necessary to **become familiar with these languages to connect with new audiences**, maximizing the capabilities of Creative and Cultural Industries to offer fluid, diverse and interesting user experiences. In short, we need to be able to respond to the new **needs for interaction**, to the **cultural changes in the consumption patterns** of audiences and to the various **channels of communication and dissemination** of creative content.

Adaptation to this new reality is creating **new business models** that incorporate the intensification of the technological component and its significance. More and more, **open environments with vessels communicate to multiple sectors** dedicated to cultural creation, promotion, distribution and dissemination. This trend has a clear impact on professional profiles linked to artistic creation, in the sense that they take a proactive role in new forms of collaborative and cross-sectoral work. The trend is to evolve towards more **decentralised**, small-sized, agile, globally active and horizontally-organised **creative and cultural organisations**, with freelance professionals and incorporating specialised professionals.

Below are some of the **most sought-after professional profiles** in the digitalised environment of the Creative and Cultural Industries sector which, in some cases, are in the process of being redefined.





**Cultural heritage coordinator:** this professional profile is asked to place special emphasis on **digital skills** and knowledge of the tools necessary to establish **optimal communication with the public**. Digitisation of culture impacts the changing process of mass consumption and requires training and constant adaptation to connect with the viewer. This involves promotion tasks characterised by more interactivity, flexibility and deeper knowledge of the visitors' profile, of their tastes, demands and needs.



**Content manager:** the changes in consumer behaviour and the commercial needs of the Creative and Cultural Industries have brought with them new skills that the market is able to value in this professional activity, basically motivated by the fact that companies are devoting more and more resources to their digital activity. For this reason, content managers are asked to make a difference, incorporating **ideas from digital marketing** into the same organisation and **categorisation of creative information**, away from traditional models of analogue culture.



**Audiovisual editor:** recently, there is an increase in self-employed workers specialised in the generation of digital content. The creation of podcasts and videos has been one of the opportunities to channel creative processes and reach the target audience. Accordingly, many professionals have reoriented their capabilities by incorporating **technical skills in video editing and content generation** (editing digital images and sounds), typical of the audiovisual sector, to be able to publish and promote their creations through blogs, social media, YouTube, podcasts, etc.



**Video game programmer:** video game design and development jobs are the most sought after by the market in recent years and **continue to grow**, especially in large metropolitan areas. The main skills that the market values today are video game programming, focusing especially on mobile platforms and online multiplayer games.

In any case, the digitisation of culture will also impact **professional profiles dedicated to the provision of cultural support and advice services**, for example in the field of event management and organisation, which incorporates the notion of “hybrid”: events that take place in a physical space, but also attended by an online audience. In all cases, what we need to bear in mind is that the **virtual component of stages** is affecting professionals in the sector in the sense of:

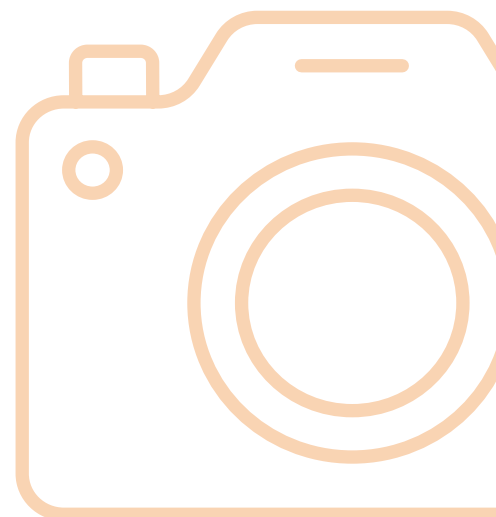
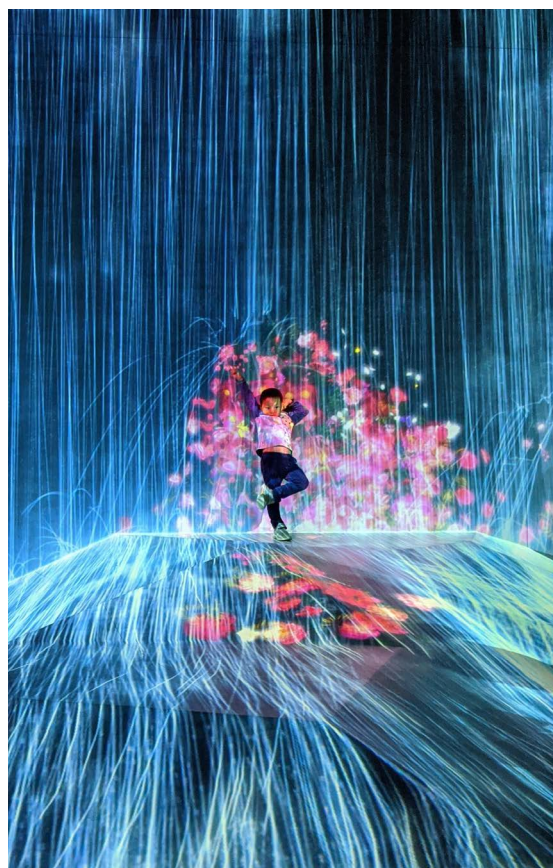
- Reaching much wider audiences
- Greater sustainability of creative and cultural activities -in terms of waste generation, for example
- A reduction in costs
- A durability of the content, which can be recorded and available online, with the consequent amplification of the audience and the increasing volume of information that this *ex post* interaction generates.

## A focus on the digitisation of culture

Each area of the Creative and Cultural Industries sector has its own identity that decisively influences the incorporation of language and digital creation, including the options of digitising services and having the resources to do so. For example, the cultural heritage sector has incorporated digital resources into the process of digitising collections and into other heritage elements in order to **improve users' experience**. In other cultural sectors, especially those based on physical presence -live arts or collective events linked to holiday periods- have greater difficulty in offering their activity through digital channels. However, this **digital prominence** presents a rising trend that invites to rethink business models and products to continue to offer quality creative and cultural content on a virtual stage.

Thus, the **vision of the future** is digital and **focused on humans** and their need to consume and create culture, because the real power that digitisation of culture brings lies in the value that people bring to creative and cultural experiences, which is a paradigm shift that needs to be incorporated into the reflection on the future of the sector. The future is affected insofar as culture is digitised and the viewer takes a more active role, interacting with and experiencing the creative proposal in a comprehensive way with the support of digital media.

Exploring the arts and the convergence with the technologies that artists now have at their disposal, as well as the consumers of cultural products, will make it possible to discover new horizons for both sides. Thus, a digital future scenario for culture opens up, which will mean a better understanding of the creative environment and digital media for all cultural agents, whatever the scope of the Creative and Cultural Industries they are dedicated to.





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