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CULTURAL HERITAGE 2.0

Digitalisation as a new form of communication

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INTRODUCTION

In the dynamic intersection of cultural fruition and the digital realm, Europe finds itself at the forefront of a transformative journey. This thesis embarks on a comprehensive exploration, weaving together threads of cultural engagement, technological evolution, and sustainability within the intricate tapestry of the European experience.

The overarching questions guiding this thesis are rooted in the essence of cultural dynamism in the digital age: How does the interplay between cultural fruition and the digital landscape shape the European narrative? And how can the heritage sector adapt and thrive in a world where technology, community and climate converge to shape the future of our cultural institutions? Each chapter contributes a unique facet to this overarching inquiry, delving into specific dimensions that collectively sketch the contours of a profound narrative.

The opening chapter unfolds against the backdrop of Europes cultural landscape, dissecting the patterns of cultural fruition and the evolving landscape of digital culture. From Eurostats lens, we scrutinize participation rates, identifying generational nuances, economic divides, and the spatial dynamics of urban and rural engagement. The narrative then shifts to the characteristics of cultural fruition in Europe, examining the intricate interplay between digitalization and cultural engagement. It unravels the multifaceted impact of digital technologies on the production, distribution, and uptake of cultural content, sketching a portrait of European culture shaped by historical, socio-economic, and technological forces.

With the second chapter, we transition to the exploration of European cultural policies in the digital age, unveiling the strategic initiatives and efforts that position Europe at the forefront of shaping its narrative within this evolving landscape. The need to promote and preserve cultural heritage has catalyzed the inception of European projects. These initiatives serve as catalysts for cultural institutions to redefine their roles as disseminators of knowledge and culture, urging them to leverage new tools and technologies. Acknowledging the pivotal role of aligning museums and cultural sites with contemporary advancements, both governments and cultural organizations in Europe have recognized the significance of embracing digital technologies to safeguard, share, and innovate upon their rich cultural legacies.

The subsequent chapter builds upon this foundational understanding, delving into the post-COVID environment and the pivotal role museums play in contemporary society. This exploration examines the profound impacts of the global pandemic on cultural accessibility and preservation. In response to the challenges posed by the pandemic, UNESCO spearheaded initiatives aimed at supporting and

preserving cultural heritage. These efforts focused on utilizing digital platforms to maintain the visibility and accessibility of UNESCO heritage sites when physical visits were restricted. Collaborations with platforms like Google Arts & Culture facilitated captivating online exhibitions, ensuring that the treasures of cultural heritage remained accessible and engaging. Insights from NEMOs research studies further illuminate the response of European museums to the pandemic, showcasing a significant shift in the dynamics of engagement marked by an increased presence on social media, virtual tours, and online exhibitions. However, challenges, such as tracking online visitors, highlight the need for a more dynamic and strategic approach to digitalization.

This chapter seamlessly transitions into a specific case study: the Cultural Heritage 2.0 project. The initiative exemplifies a proactive response to the challenges posed by the pandemic, showcasing the innovative potential of museums and cultural institutions in the face of digital evolution trends.

The Cultural Heritage 2.0 project, part of the Erasmus+ programme, is designed to reevaluate the innovative potential of museums and cultural institutions within the evolving landscape of our digital society. Through the process of exploring trends, analyzing key drivers, and engaging in collaborative dialogues, this strategic planning approach for the future of Cultural Heritage aims not only to identify emerging trends but also actively involves the dynamic interplay of factors shaping the cultural future. The distilled insights and trends generated from this process serve not only to inspire the Cultural Heritage Sector but also act as dynamic catalysts for actionable points of departure. An integral part of this project focuses on anticipating and examining four future scenarios set in the year 2035. These scenarios offer a forward-looking perspective on the potential trajectories that the intersection of cultural fruition and the digital landscape might take. By envisioning these scenarios, the thesis seeks to provide insights into the diverse challenges and opportunities that European cultural institutions may encounter in navigating the evolving landscape shaped by technology, community dynamics, and climate considerations.

The resulting four final scenarios represent a collective vision of the European Cultural Heritage Sectors future, reflecting the dominant views and opinions of the participants.

These scenarios serve as instruments not only for envisioning potential futures but also for fostering adaptability and resilience within the Cultural Heritage Sector. They encourage stakeholders to actively engage in shaping the future landscape by embracing diverse perspectives and preparing for multiple potential futures.

The final chapter embarks on the exploration of the transformative power of technology in cultural appreciation, delving into various facets ranging from 3D models and holograms to interactive systems and the emergence of virtual museums.

The journey begins with an examination of 3D models that has significantly enhanced museums accessibility and preservation efforts. Notable projects such as the Digital Giza Project and the Michelangelo Digital Project exemplify the transformative impact of 3D technology in creating detailed replicas of ancient monuments and renowned sculptural masterpieces.

Moreover, holography, with its intricate optical techniques, takes center stage as the exploration unfolds. Despite its initial limited integration due to costs, holograms prove invaluable in crafting three-dimensional reproductions and animations, particularly for fragile or lost artifacts.

The exploration culminates in the realm of virtual museums, introducing the concept of "impossible museums." This term encapsulates virtual museums that exist solely in the digital world, lacking a physical institutional counterpart.

As we traverse through these technological landscapes, the chapter contends with the delicate balance between the virtual and the tangible. While technology opens unprecedented avenues for exploration, the intrinsic value of direct, physical engagement with cultural artifacts remains irreplaceable. In this chapter, we invite readers to navigate the intersection of technology and cultural heritage, acknowledging the transformative role of digital innovations while cherishing the timeless essence of direct encounters with our shared human history.

From these analyses, the thesis draws a principal conclusion: a technological future for cultural institutions is not only conceivable but actively underway. The delicate balance required for sustainable integration is illuminated, emphasizing the ongoing efforts to reshape how we engage with cultural assets. The lessons derived extend beyond academic realms, advocating for the essential role of technology in navigating the evolving cultural landscape. This thesis, therefore, contributes a nuanced understanding of the interplay between technology and culture, providing practical insights for the future of European cultural institutions.

CULTURAL FRUITION AND DIGITAL CULTURE IN EUROPE

This chapter conducts a thorough examination of the current landscape of cultural fruition and digital culture in Europe, drawing insights primarily from recent Eurostat reports and other relevant studies. Cultural fruition, encompassing a blend of historical, socio-economic, and technological factors, is explored as a dynamic phenomenon shaping the European cultural experience. Simultaneously, the chapter investigates the contours of digital culture, focusing on the transformative impact of technology on cultural content production, distribution, and consumption. Our exploration begins by unraveling the multifaceted nature of cultural fruition. Grounded in Eurostats Culture Statistics and its 2015 ad hoc module on social and cultural participation, the chapter unveils patterns of engagement in cultural activities across different demographics. Shifting focus, the chapter then explores the evolving landscape of digital culture. In the era of Society 4.0, where technology permeates daily life, the Digital Economy and Society Index (DESI) becomes our guide. This section examines trends in internet accessibility, the integration of digital technology in businesses, and the digitization efforts within cultural institutions.

As we progress through the ensuing chapters, the echoes of this exploration will resonate in discussions on policy implications, challenges faced by cultural institutions, and the prospects of cultivating a culturally sustainable future within the dynamic embrace of the digital era.

1.1 CHARACTERISTICS OF CULTURAL FRUITION IN EUROPE

The digital revolution has had a profound impact on the cultural landscape of Europe. This chapter examines the intricate interplay between digitalisation and cultural fruition, elucidating how European communities have adapted to and been swayed by digital culture. It delves into the effects of digital technologies on the production, distribution and uptake of cultural content, and how these changes have fundamentally moulded the essence of European culture.

Cultural fruition in Europe is a multifaceted and dynamic phenomenon, influenced by a blend of historical, socio-economic and technological factors. It not only mirrors the exquisite diversity of European cultures but also facilitates the formation of identities, promotes cross-cultural comprehension and contributes to societal harmony and economic progression[1].

Culture and creativity hold significance in the European Union. Audio-visual content, music, literature, live performances and other forms of cultural expression serve to connect individuals and communities. Europe has a well-known cultural legacy that enriches lives, promotes European values

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[1] Arizpe, L. (2000). *Unesco Publishing.* World Culture Report, 2000: cultural diversity, conflict and pluralism.

and strengthens mutual understanding. Participating in creative and cultural activities can significantly improve an individuals quality of life, contributing to overall well -being and enhancing a sense of belonging within society[2]. A general reference framework starting from the analysis of concrete and reliable data is useful to understand the current situation of the European cultural heritage in terms of participation and valorisation, in the light of the strong social changes brought about by the advent of a real digital revolution in the last two decades.

Eurostats article Culture Statistics [3] is based on data from an ad hoc module on social and cultural participation carried out in 2015 as part of the EU Statistics on Income and Living Conditions. The report reveals some interesting insights into peoples engagement in cultural activities, exa mined across different socio-economic characteristics such as gender, age and education level. The cultural activities studied include going to the cinema, attending live performances, visiting cultural sites and practising artistic activities such as playing musical instruments, singing, dancing or painting.

In 2015, some 62.6% of adults in the EU (aged 16 or over) said they had participated in cultural activities such as going to the cinema, attending live performances (such as theatre or concerts) or visiting cultural sites (museums, historical monuments, art galleries or archaeological sites) in the previous year. The highest rates of cultural participation were observed in Nordic countries such as Denmark (85.3%), Sweden (85.0%) and Finland (83.7%), together with the Netherlands (83.7%). In contrast, in Greece and Italy (both 46.9%), as well as in Croatia (36.6%), Bulgaria (28.6%) and Romania (27.4%), less than half of the adult population reported having participated in any cultural activity.

- Cultural participation by age: In 2015, more than 82.5% of young people (aged 16-29) across the EU had participated in at least one of the three cultural activities analysed in the 12 months prior to the survey. In contrast, only 50.5% of older people (aged 65-74) had participated in these activities.
  This trend was observed in all EU Member States. Specifically, in 2015 there were only two Member States where less than 70.0% of young adults had participated in cultural activities: Bulgaria (52.1%) and Romania (48.5%).

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[2] EUROSTAT, *Culture statistics – Cultural participation,* Statistics Explained, n.d.

[3] EUROSTAT, *Culture statistics – Cultural participation,* Statistics Explained, n.d.

Conversely, there were five Member States where more than 70.0% of older people participated in cultural activities: Luxembourg (70.5%), Finland (77.8%), Sweden (78.8%), and Denmark (80.0%).

In particular, there were significant generational differences in cultural participation, especially in countries with lower rates of cultural participation. In the Nordic countries and the Netherlands, the difference in participation rates between young and old was less than 20 percentage points. However, in several other EU Member States, the proportion of young adults participating in cultural activities was at least double that of older people. This gap was most pronounced in Slovakia, Lithuania, Cyprus, Malta, Hungary, Poland and Italy, and was more than three times higher in Greece, more than four times higher in Croatia and Romania and almost five times higher in Bulgaria.

Eurostats lens unveils a generational tapestry, where the echoes of the past meet the aspirations of the future. The statistics, while quantifying participation rates, transcend the numerical, revealing a profound narrative. Young adults, with an 82.5% participation rate, stand as torchbearers of cultural enthusiasm, while their older counterparts navigate cultural avenues at 50.5

- Cultural participation by income: In 2015, there was a strong association between income level and cultural participation among adults (aged 16 or over) in the European Union (EU). Among those in the highest income quintile (the top 20% with the highest income), a significant 80.3% reported having participated in cultural activities in the previous 12 months. In contrast, only 40.1% of those in the lowest income quintile (the bottom 20% with the lowest income) participated in cultural activities during the same period. This income-based pattern, with higher cultural participation rates among those with higher incomes and lower participation rates among those with lower incomes, was consistent across all EU Member States in 2015. In particular, in countries such as Croatia and Romania, individuals in the highest income quintile were more than three times as likely to participate in cultural activities as those in the lowest income quintile. The largest gap was found in Bulgaria, where the highest income quintile was 7.7 times more likely to participate in cultural activities than the lowest income quintile.
  Cultural participation rates for those in the highest income quintile varied across EU countries, ranging from over 95.0% in the Netherlands and Sweden to 55.2% in Bulgaria and 50.3% in Romania. In contrast, there was a wider range of participation rates among those in the lowest income quintile. For example, 76.4% of this group participated in cultural activities in Denmark (with similar rates of over 70.0% in the Netherlands, Finland and Sweden), while the participation rate for this quintile was significantly lower in Bulgaria, at 7.2%.

From the datas it's clear that income becomes a brushstroke in this canvas, painting a portrait of participation patterns that transcend borders. The affluent revel in an 80.3% participation rate, while the less privileged navigate cultural realms at 40.1%. Eurostats data, a tableau of economic disparities, beckons us to ponder the implications—questions of access, inclusivity, and the transformative power of cultural engagement in bridging societal gaps.

- Cultural participation by degree of urbanisation: In 2015, almost two thirds (65.8%) of the population of the European Union (aged 16 or over) living in urban areas participated in cultural activities. This percentage exceeded the rates for people living in towns and suburbs (60.0%) or rural areas (52.3%). This difference is likely to be due to the higher concentration of cultural facilities in and around cities.

   The trend of higher cultural participation rates in urban areas and lower rates in rural areas was observed in most EU Member States in 2015. This pattern held in 21 of these countries, particularly in those with lower overall cultural participation rates. However, there were some exceptions:

   - Belgium, Lithuania and Portugal reported higher participation rates for residents in towns and suburbs compared to those in cities.

   - In Luxembourg, the participation rate of those living in rural areas was higher than that of those living in cities, while the lowest participation rate was found among those living in towns and suburbs.

   - In Latvia and the Netherlands there were slight variations, with participation rates slightly higher in rural areas than in towns and suburbs.

   These data underline the influence of the urban environment in promoting cultural engagement across most of the European Union, although there were notable exceptions in a handful of countries.

   The dichotomy of urban and rural cultural participation, standing at 65.8% and 52.3% respectively, sketches a narrative of spatial dynamics. Cities emerge as bustling cultural hubs, nurturing higher participation, while rural landscapes grapple with access challenges. Yet, nuances in Belgium, Lithuania, and Portugal defy this dichotomy, revealing the nuanced interplay between geography and cultural dynamics.

- Main reasons for not participating in cultural activities: The Eurostat study provides an insight into the main factors preventing the adult population of the European Union (aged 16 and over) from participating in three major cultural activities: going to the cinema, attending live

performances and visiting cultural sites. Whats fascinating is the mosaic of motivations that underpin their non-participation.

First and foremost, lack of interest emerged as the dominant reason, with 39.1% of respondents in the EU refusing to visit a cultural venue, 37.5% skipping the cinema and 36.6% skipping live performances. Clearly, the spectre of disinterest loomed large.

However, financial constraints were the formidable runner-up in these cultural avenues. Its worth noting that 18.4% of respondents cited financial constraints as the main barrier to attending live performances, while 17.1% found it financially prohibitive to go to the cinema and 15.0% couldnt afford to visit a cultural venue.

Curiously, the survey revealed that a relatively small proportion of respondents cited lack of proximity. Only 8.6% cited distance as a deterrent for going to the cinema, 7.6% for live performances and 6.7% for visiting cultural sites. It seems that geographical distance wasnt the main culprit.

There was also a significant proportion of EU adults who cited other, perhaps more complex, reasons for their cultural abstention. This group, which accounted for more than a third of non-participants, could include individuals who were constrained by time, family responsibilities or saturated by alternative cultural channels such as home entertainment such as television, DVDs, Blu-rays or streaming services. Their motivations reveal the complex web of factors that influence cultural participation, or in some cases, lack thereof.

Eurostat, in unraveling barriers, lifts the veil on the intricacies of cultural abstention. Lack of interest, a specter haunting cultural venues, shares the stage with financial constraints—a formidable force in shaping the cultural narrative. Yet, beneath the surface, the reasons are as diverse as the cultural tapestry itself. Financial hurdles manifest differently across domains and countries, underscoring the need for tailored approaches in cultural policy.

It is noteworthy that a significant proportion of individuals who did not participate in cultural activities cited financial constraints as their main reason for not doing so. Across the European Union in 2015, the highest proportions of non-participants for financial reasons were observed in different cultural domains. For example, in 19 EU Member States, the majority of non-participants who cited financial constraints as their main barrier were those who didnt attend live performances. Conversely, in seven Member States, the highest proportion of people who cited financial constraints as the main reason for non-participation were those who didnt go to the cinema, while Slovenia stood out as the only Member State where the main reason for non-participation due to financial constraints was not visiting cultural venues.

Notably, in Greece and Spain, more than a quarter of all non-participants aged 16 and over in 2015 cited financial reasons as the main reason for not going to the cinema, with rates of 27.7% and 26.7% respectively. In Lithuania (38.1%), Greece (33.6%), Latvia (28.1%) and Spain (25.8%), financial reasons were the main reason for not going to live performances. In contrast, in Finland, Malta, Luxembourg, Sweden and Croatia, financial reasons were the main explanation for non-participation in each of these three cultural activities for less than 10% of non-participants. A recent study by Martin Falk and Tally Katz-Gerro[4] therefore sought to identify the common factors that shape the cultural behaviour of European citizens. Their research was based on data from a sample of 350,000 people aged 16 to 44 living in 24 European Union countries. The study looked at how demographic and socio-economic characteristics influence the frequency of visits and the decision to visit (or not to visit) museums, art galleries, historical landmarks and archaeological sites. In analysing the data collected, Falk and Katz-Gerro found that several factors influence the likelihood and frequency of participation in cultural activities. Individuals living in households with a higher per capita income, those with a higher level of education, those in prestigious occupations, students and adults living in large urban areas are more likely to participate in cultural activities and do so more frequently. On the other hand, the unemployed, people over 65, people with disabilities and retired people are less likely to participate in cultural activities or do so less frequently. When the researchers looked at the marginal effects of these variables, they found that the likelihood of cultural engagement increases with increasing household income and educational attainment, while the effects of gender and age are comparatively less significant. This suggests that cultural participation is more influenced by what Falk and Katz-Gerro call attained status (income and education) than by intrinsic characteristics such as age and gender.

This finding underlines two important implications. First, it highlights that cultural participation is significantly influenced by factors such as education, income and employment status.

This pattern appears to hold across European countries, suggesting that recent cultural policies aimed at making cultural venues more accessible to a wider audience may have fallen short of their objectives.

Secondly, the research suggests that educational attainment is more important than household income in determining both the likelihood and frequency of an individuals cultural engagement. This finding is corroborated by Eurostats cultural statistics, which show that for all types of cultural activities

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[4] Azzarita, V. (2016). "La mappa della partecipazione culturale in Europa". *Il Giornale delle Fondazioni.*

surveyed, people with tertiary education tend to participate most, while those with only primary education often have limited involvement in cultural activities.

Falk and Katz-Gerros [5] (2016) study highlights that education is more important than income in terms of its impact on ones ability to engage with culture. This suggests that human capital is more influential than economic capital in shaping an individuals access to cultural experiences. The recognition of this consistent pattern across nations in the determinants of cultural participation can serve as an invitation to a thoughtful and coherent examination of the role of education. It suggests that education should be considered as a new fundamental factor, emphasising the need to shift the focus of cultural policy from the economy to society.

1.2 CULTURAL SUSTAINABILITY

The concept of cultural sustainability is relatively new compared to economic or environmental sustainability. The journey towards cultural sustainability began in 2002 with the Agenda 21 for Culture, the first document to link cultural development with sustainable development and offer support to governments. Its important to understand that culture is seen as the fourth pillar of sustainable development, alongside economic, environmental and social aspects. This recognition emphasises that a communitys cultural heritage, creative industries and cultural practices are not only assets for the present, but also strategic resources for future generations.

Culture is seen as a form of capital that includes both tangible and intangible assets[6]. Like economic or natural capital, this cultural capital should be managed with sustainability in mind. [5][6]

This concept is rooted in the theory of cultural capital, which is related to the broader concept of natural capital, the foundation of sustainable development. Cultural capital includes both tangible and intangible elements and highlights the need for sustainable development strategies to respect and take into account cultural specificities, identities and diversity, and to involve different stakeholders.

The importance of culture in sustainable development stems from its influence on various factors, including human relations and economic development. Numerous studies have demonstrated the positive economic benefits of preserving cultural heritage[7].

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[5] Martin Falk e Tally Katz-Gerro, "Cultural participation in Europe: Can we identify common determinants?", *Journal of Cultural Economics*, 2016, vol. 40, issue 2, pages 127-162

[6] Throsby, D. (1999). "Cultural Capital". Journal of Cultural Economics, 23(1-2), 3-12

[7] Gražulevičiūtė, I. (2006). Cultural heritage in the context of sustainable development. *Environmental Research, Engineering And Management, 37*(3), 74–79.

According to Rypkema in 2005[8], the importance of cultural heritage in sustainable development lies in understanding how its preservation contributes to environmental, cultural and economic sustainability. From this perspective, digitisation offers several opportunities to contribute. Digitisation of cultural material can enhance the visitor experience, facilitate the development of educational content, support the creation of documents, enable tourism applications and even introduce interactive gaming elements. This shift towards online accessibility has the potential to transform traditional models and greatly enrich our engagement with cultural heritage.

In terms of environmental sustainability, digitisation plays a crucial role in the preservation of cultural heritage. Climate change, urban development, natural disasters and conflict often threaten our cultural heritage. Digitisation not only facilitates the sharing and innovative use of cultural heritage, but can sometimes be the only means to protect it: in the face of escalating threats such as climate change, urban development, natural disasters, and conflicts, the vulnerability of our cultural heritage has never been more pronounced. Physical artifacts, monuments, and documents are subject to degradation, destruction, or displacement, making the preservation of cultural heritage an urgent and challenging endeavor. Digitization emerges as a powerful ally in this battle against the erosion of cultural legacy. By converting physical artifacts into digital formats, cultural heritage can transcend the limitations of time and space.

Digitisation also promotes accessibility and reduces inequalities in access to information. Cultural institutions are using digital tools to engage with their audiences and democratise culture and knowledge. However, to achieve full cultural sustainability in the digital realm, we need specialised tools and platforms, as well as strategies for content reliability, business models, partnerships and digital rights protection.

In summary, cultural sustainability is about recognising culture as a valuable resource and using digitisation to preserve, share and make it accessible to all, while ensuring its economic and environmental sustainability.

1.3   THE DIGITAL OFFER OF EUROPEAN CULTURAL ISTITUTIONS

In recent decades, weve witnessed significant and transformative changes in our economic, political and social landscapes that have profoundly shaped the way people live in the 21st century. A key catalyst for this change has been the rapid technological and digital revolution that began with the birth of the World Wide Web in 1994. This revolution has had a profound impact on almost every

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[8] Rypkema, D. (2005). *Cultural heritage and sustainable economic and social development*. European Cultural Heritage Forum, Cultural Heritage Counts for Europe, Brussels.

facet of our lives, resulting in people being constantly connected and engaged in a wide range of daily activities. The daily lives of both men and women are increasingly intertwined with and dependent on digital devices, especially smartphones, PCs and tablets.

This technological revolution is closely linked to the continuous development of Information and Communication Technologies (ICTs), allowing their integration into almost every sector of society. For example, a smartphone can be used to perform a wide range of activities, such as listening to music, sending emails, storing documents, shopping, reading, playing games, keeping updated with global news, remotely controlling devices and appliances, accessing a wealth of information and data, connecting with people around the world, sharing content, editing text, images and video, and countless other tasks that harness the power and speed of the Internet. This era is often referred to as Society 4.0, characterised by a dynamic, fast -paced, hyper-connected society in which the spaces of our daily lives are becoming increasingly virtual. This transition is not only evident in the world of work, but also in our personal and social spheres.

A Eurostat study 2022 in Digital economy and society statistics[9] shows how the ongoing health crisis has underlined the indispensable role of internet connectivity in the normal functioning of modern economies.

Information and communication technologies (ICTs) have become readily available to the general public, not only in terms of accessibility but also affordability. A major turning point was reached in 2007, when a majority of EU households, 53%, had access to the internet. This figure has continued to rise, exceeding three-quarters in 2012, four-fifths in 2014 and reaching 90% in 2020. By 2022, the proportion of EU households with internet access will have risen further to an impressive 93%.

The internet is first and foremost a communication tool, and communication is an essential aspect of everyday life in many areas. As a result, the Internet has extended its reach into a wide range of areas. Information and Communication Technology (ICT) surveys collect data on how the Internet is used for many purposes, including communication, access to information, entertainment and more.

Regarding the current state of digitisation in Europe, a study carried out in 2021[10] analyses the digitisation process as a driver for sustainable development in the cultural sector. Assessing the progress of digitisation in European countries is of great importance in the field of cultural

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[9] EUROSTAT, *Digital economy and society statistics – households and individuals,* Statistics explained, n.d.

[10] Macrì, E., Cristofaro, C.L. (2021). The Digitalisation of Cultural Heritage for Sustainable Development: The Impact of Europeana. In: Demartini, P., Marchegiani, L., Marchiori, M., Schiuma, G. (eds) Cultural Initiatives for Sustainable Development. Contributions to Management Science. Springer, Cham.

digitisation. Its a matter that calls for strategic and political planning, especially when Europes rich cultural resources can be a significant driver of both the digital and real economy.

The importance of digitalisation can be seen in everyday life: in the context of the commercial sector, lets consider a scenario where a modern customer wants to dine out, possibly in an unfamiliar place. In such cases, they typically turn to dedicated websites and online platforms to find restaurant recommendations. This is precisely why a strong online presence for restaurants is crucial to attracting customers and building a solid reputation.

Similarly, when it comes to cultural institutions such as museums, their website serves as a central tool for sharing information about their existence, their cultural heritage and the services available to the public, both online and on site. However, despite the importance of these platforms, museum websites have often been limited to mere display, often lacking effective organisation and aesthetic appeal. Users tend to receive basic information passively, which does little to foster meaningful communication and educational engagement[11].

To underline these points, the Macrì and Cristofaro (2021) looked at the Digital Economy and Society Index (DESI), an indicator that measures how well European countries are performing in terms of their digital capabilities. Delving into and analysing the different components of the DESI is of paramount importance, as it helps to determine whether Europe has a solid foundation for a profound digital transformation.

There are five components analysed in the Digital Economy and Society Index (DESI): 1) Connectivity: broadband infrastructure coverage and quality; 2) Human capital: skills needed to take advantage of digital opportunities; 3) Internet usage: consumption of online content, video calls, online shopping and banking; 4) Integration of digital technology: digitisation of business and e-commerce; 5) Digital Public Services: digitisation of public services.

If we compare the results of the DESI 2018, theres been a notable shift in the top position. Finland is now in first place, pushing Denmark down to fourth. Sweden secures second place and the Netherlands moves up to third. At the other end of the spectrum, the last four positions are occupied by Poland, Greece, Romania and Bulgaria.

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[11] Kabassi, K. (2016). *Journal of Cultural Heritage.* "Evaluating websites of museums: State of the art." Review.

While there has been progress in the digital performance of all EU countries over the past year, there is still a long way to go. As a collective entity, the EU needs to make further improvements to remain competitive on the global stage.

Digital Economy and Society Index (DESI) ranking 2019:
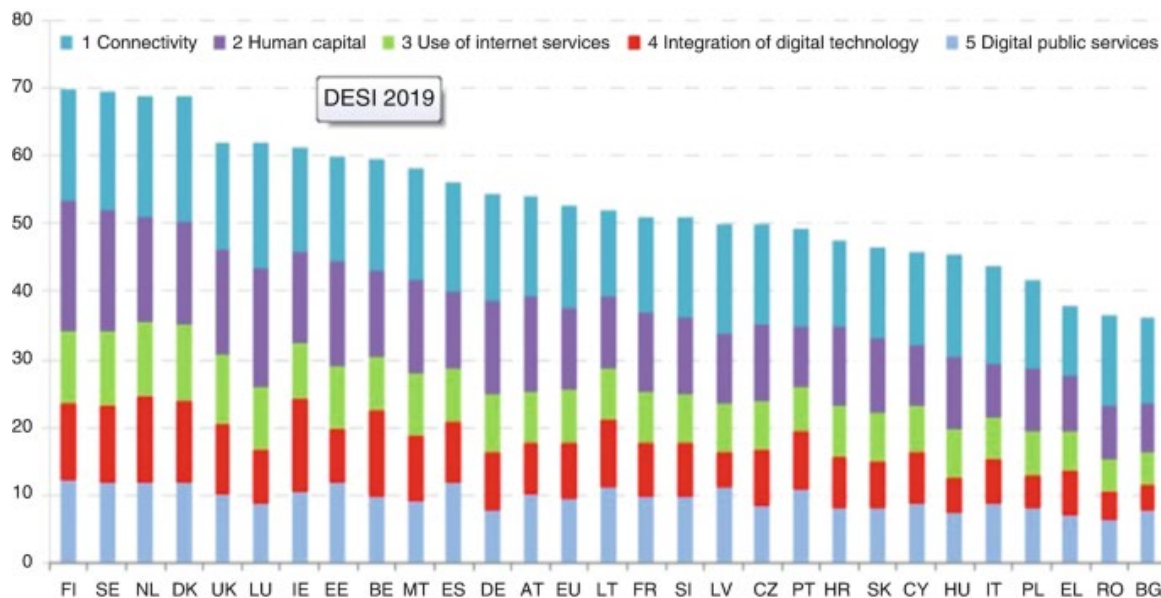
While some European countries may still be playing catch-up with regard to various aspects of digitisation, there have been significant efforts across the continent by both public and private institutions to transform physical cultural heritage into digi tal formats. The European Commissions Directorate-General for Communication Networks, Content and Technologies has played a crucial role in coordinating Member States cultural policies, particularly in the areas of digitisation, online accessibility of cultural material and digital preservation.

The ENUMERATE "Core Survey 4"[12] is a valuable source of data on the extent of digitisation of cultural heritage. This survey collects information on digitisation initiatives related to cultural heritage collections across Europe. The 2017 survey is the fifth in a series that began in 2008, and its the second to be organised in collaboration with Europeana. It includes data from 983 participating institutions in 28 countries, categorised into four main types: museums (37%), libraries (27%), archives (21%) and other types (15%). The survey covers five key dimensions: the current status of

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[12] ENUMERATE the Core Survey 4 Report. (2017). *Make the case for investments in our digital activities*. Europeana-pro.

digitisation activities, the size and characteristics of collections, digital accessibility, preservation strategies and related expenditure.

The results of the survey show that:

- 82% of institutions have a digital collection or are engaged in digitisation activities, but only 42% of them have a digital strategy.
- 49% of all institutions measure the use of digital collections and 90% of these use web statistics.
- 27% of institutions have a written digital preservation strategy, but 45% of institutions do not yet have a long-term preservation solution based on international standards for digital preservation.
- 58% of cultural heritage collections have been catalogued in a collection, 22% of cultural heritage collections have been digitally reproduced, but 54% still need to be reproduced.
- Overall, institutions report that 51% of their descriptive metadata is available online for general use, and 51% of digital objects available online are consulted within the institutional website, which remains the most popular channel for institutions to provide access to their digital collections.

While the ENUMERATE statistics provide a solid foundation, its clear that there is an urgent need for cultural institutions to be the recipients of more proactive awareness-raising initiatives. Furthermore, the sector needs structural adjustments and motivational incentives to move digitisation strategies from sporadic exceptions to established practices. In essence, a concerted effort is needed to promote a cultural shift towards the acceptance of digitisation as a fundamental and integral part of cultural preservation and dissemination[13].

In summary

Our exploration into the confluence of cultural fruition and digital culture in Europe has uncovered a rich tapestry woven with diverse threads of participation, barriers, sustainability, and digitization. As we reflect on the myriad patterns and dynamics unveiled in this chapter, a profound narrative emerges—one that beckons us to contemplate the evolving essence of European culture in the dynamic embrace of the digital era.

Cultural fruition, as illuminated by Eurostats lens, extends beyond mere statistics. It is a reflection of societal nuances, generational shifts, and economic divides. Young adults emerge as torchbearers of

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[13] Rizzo, I. (2016). Technological perspectives for cultural heritage. In The artful economist (pp. 197–214). Cham: Springer.

cultural enthusiasm, navigating digital avenues with an 82.5% participation rate, while financial disparities and urban-rural dynamics paint a complex picture of access and engagement.

The barriers to cultural participation, from lack of interest to financial constraints, highlight the intricate dance between personal motivations and societal structures. Eurostats data not only quantifies these barriers but prompts us to consider the transformative power of cultural engagement in bridging gaps, fostering inclusivity, and shaping collective identity. The digital landscape of European cultural institutions, as illuminated by the Digital Economy and Society Index (DESI) reflects both progress and the need for further strides. Society 4.0s hyper-connected reality intertwines with the cultural domain, emphasizing the role of digital platforms in preserving, sharing, and democratizing cultural knowledge.

In essence, our journey through the heart of European culture in the digital age invites contemplation on the role of technology in shaping the cultural narrative. It prompts us to ponder not just the statistics but the stories they tell.

The chapter to follow will unravel the European initiatives and programs that bind technology and culture, navigating the intricate intersection where innovation meets heritage.

THE DIGITAL DRIVE IN EUROPEAN CULTURAL POLICIES

The growing need to promote heritage has spurred the introduction of decrees and the initiation of European projects. These initiatives encourage cultural institutions to reconsider their roles as knowledge and culture disseminators and to harness new tools for achieving this goal. Both governments and cultural organizations have recognized the importance of aligning the management of museums and cultural sites with the advancements in contemporary society, particularly the increasing utilization of digital technologies available in the market.

Regarding European efforts, its been notable since the late 1990s that the European Commission for Culture has been actively involved in initiating various projects to encourage the digitization of European collections. The primary aim has been to enhance accessibility for both the public and the scientific community while also ensuring preservation and memory in case of loss or destruction.

For instance, back in 2001, the European Commission prompted the establishment of the *National Representative Group* (NRG). This groups key responsibility was to coordinate and align national policies, programs, and digital content creation projects, with the overarching goal of making this cultural content accessible to the entire European population.

European countries have been proactive in the development of online platforms and portals that enable access to digitized works from museums across the continent. These platforms are designed to be open source and multilingual, ensuring broad access for all European nations[14].

Europe has played an important role in driving the creation of online platforms and portals, ensuring that all European countries can access digitized works from museums across the continent in a manner thats both open source and multilingual. These collaborative efforts between Membe r States and the European Commission aimed to establish a common vision for actions and programs related to the accessibility and online availability of cultural heritage. They also served as valuable tools for guiding and supporting the digitization and technological development processes of European cultural institutions.

In order to account for the digital drive at the level of European policies for culture, here, we'll examine (a) the main European programmes dedicated to the topic, (b) the main European guidelines or influential documents on the topic, and (c) the most salient specific projects that have so far delved

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[14] CAFFO R., Il Piano d'azione dinamico per il coordinamento europeo della digitalizzazione di contenuti culturali e scientifici, in «Digitalia», vol. 1 (2006), p.119

into the realm of digital technology and its application for the advancement of the museum and cultural system.

2.1 EUROPEAN PROGRAMMES INVOLVING DIGITAL AND CULTURE

The most significant European heritage digitization initiative is EUROPEANA[15]. Established in 2008, this online platform serves as a hub for a vast array of content, including images, texts, sound recordings, videos, and three-dimensional reconstructions from 28 European countries

Its accessible in 30 different languages, and the platforms purpose is to create a digital library open to users throughout Europe. This digital library offers free access to a rich cultural repository, promoting its use, reuse, and even dissemination through various channels, including social media.

The European Commission has continued and continues now more than ever to work for the development of the European cultural system, having specific interests in digital culture:

"The Commission is working on legislation that supports the creation of a true Digital Single Market of content and promotion of media freedom and pluralism in Europe. It makes sure that the right regulatory framework in terms of copyright is in place for all citizens to fully benefit from the great opportunities offered by a truly connected digital single market. In the context of social media platforms and networks, the Commission addresses the various challenges around fake news and online disinformation and the spread of illegal content. Open data and re-use of public sector information, open government data is promoted and encouraged. The digitisation of Europes cultural heritage of collections held by Europes libraries, archives, museums and audiovisual archives makes it accessible and available to everyone".[15]

As part of the broader strategic framework known as "Europe 2020 - A strategy for smart, sustainable, and inclusive growth," there exists a specific cultural program known as Creative Europe.

This program was delineated through the EU Regulation No. 1295/2013, which was endorsed by both the European Parliament and the Council in December 2013. A primary aim of this project is to provide support to the cultural and creative sectors by means of three distinct sub-programs, namely media, culture, and a cross -sectoral section. These initiatives are geared towards helping these sectors harness the opportunities presented by the digital age, and they come with a substantial allocation of 1.462 billion euros[16].

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[15] https://www.europeana.eu/it

[16] In the chapter Investing in People of the EUs long -term budget proposal, a new programme for Creative Europe for the period 2021-2027 has been drawn up, which envisages an increase in funds to 1.85 billion.

Recognizing the profound impact that the digital realm has on the production, dissemination, accessibility, consumption, and monetization of cultural and creative goods and services, it is paramount to leverage this transformative force. Furthermore, the European Commission acknowledges the role that cultural heritage plays in driving the economy of the European continent.

In this regard, the European Commission, through initiatives such as Horizon 2020 [17] and, more prominently, Creative Europe, aspires to contribute to the evolution of museum activities.

With a keen focus on enhancing accessibility and fruition, the European Commission seeks to work towards engaging new audiences, reducing production costs, exploiting the advantages offered by innovative digital technologies, fostering the acquisition of fresh skills, and developing novel governance models. The overarching goal is to stimulate the transnational exchange of experiences and know-how, thus bolstering the cultural and creative sectors in the digital age[18]. This multifaceted approach not only bolsters the cultural richness of Europe but also bolsters its economic prospects.

As we stand on the brink of a new era, the European Parliament is currently engaged in the task of revising and rejuvenating the Creative Europe program for the period spanning 2021-2027[19].

This endeavor is driven by a clear and compelling ambition to bolster cultural funding, reflecting the programs role in nurturing the rich tapestry of art and creativity across the continent. Italy, for instance, was a beneficiary of EUR 41.2 million from Creative Europe during the 2014-2020 period, a commendable feat that supported a total of 180 projects within the cultural and creative sectors. However, its important to acknowledge that Italy, along with other nations, is striving to keep pace with countries like France, Germany, and the United Kingdom, which have masterfully harnessed their resources to secure larger allocations and effectively championed the coordination of numerous projects[20].

2.2 GUIDELINES AND INFLUENTIAL DOCUMENTS

A series of programs were outlined in the **European Agenda for Culture,** which was originally introduced in 2007. This agenda represents a time-bound action plan that has undergone periodic updates to adapt to the evolving needs of cultural institutions and contemporary society.

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[17] Horizon 2020 (Horizon 2020) is Europes largest funding programme targeted at research and innovation, drawn up for the period 2014-2020 with a budget of approximately EUR 80 billion.

[18] Regulation (EU) No 1295/2013 Of the European and of the Council, 11 December 2013 establishing the Creative Europe Programme (2014-2020).

[19] AA.VV., Creative Europe, Navracsics (EU): Increased funds, flexibility objective, in AgCult, 2019. <https://www.agenziacult.it/ >

[20] AA.VV., Creative Europe, Italy fourth in EU for funds to cultural projects, France first, in AgCult, 2019.

It aims to encourage collaboration among European nations, facilitated through the establishment of the Open Method of Coordination (OMC) group.

In 2010, a **European strategy** was developed with the goal of responding effectively to the economic downturn that began in 2008. This strategy not only sought to address the immediate economic challenges but also envisioned a brighter future for the people of Europe. It was designed to promote smart, sustainable, and inclusive growth, thereby focusing on creating a prosperous and inclusive future for European citizens[21].

Within the 2010-2020 plan, seven flagship initiatives are identified, one of which is the **European Digital Agenda**. This initiative is designed to address seven significant challenges common across Europe. These challenges include the fragmentation of digital markets, issues related to interoperability, the rising threat of cybercrime and the erosion of trust in digital networks, insufficient investments in digital infrastructure, a lack of commitment to research and innovation, deficits in digital literacy and e-skills, and missed opportunities in addressing societal problems.

The European Digital Agenda is structured around specific, well-defined actions aimed at emphasizing the role of information and communication technologies, particularly in the domains of public services and cultural content. Concerning cultural content, the agenda prioritizes the promotion of cultural diversity and creative content. It primarily focuses on devising a sustainable financial model for supporting the EUROPEANA platform and the digitization of Europes cultural heritage [22].

In parallel, Europe has been diligently working to harmonize its diverse national policies concerning the digital realm. The importance of this endeavor cannot be overstated, and it has been an ongoing mission since **2015 when the European Commission issued a pivotal communication**. This communication urged all European member states to strategically collaborate in constructing a seamless and unified digital marketplace, one that readily welcomes digitization and the utilization of cutting-edge technologies in all aspects of contemporary society[23].

This approach envisions a future that is more globally integrated, streamlined, and oriented towards online practices[24].

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[21] BARROSO J., Europa 2020, "Una strategia per una crescita intelligente, sostenibile ed inclusiva", Bruxelles, March 2010.

[22] European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the, 245, A Digital Agenda for Europe, Brussels, 2010.

[23] European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Strategy for a Digital Single Market in Europe, COM(2015)192, Brussels, 2015.

[24] Cattari, M. (2016). Digitalia, "La Strategia per il Mercato Unico Digitale in Europa", vol. of 2016, p.152

The crux of this strategy is to enhance access to digital goods and services throughout Europe. By doing so, it creates a conducive environment for the expansion of digital networks and maximizes the growth potential inherent in the digital economy. In a world where technology is driving progress and innovation, fostering a vibrant digital economy is not just a forward-looking vision but a necessity, positioning Europe as a global leader in the digital age.

In the year 2017, a significant milestone in the realm of European cultural cooperation was achieved by the OMC group, which has been entrusted with the task of fostering collaborative efforts in cultural policy. During this period, they crafted a comprehensive report titled **"Promoting Access to Culture through Digital Channels: Policies and Strategies for Audience Development."**

This document stands as a noteworthy investigation into the profound impact of the digital revolution on the cultural landscape, spanning across various dimensions, including individuals, artistic products and services, promotional and distribution channels, and underlying processes.

An important aspect of this report involves the active participation of the Member States, each of which contributed by encapsulating their respective national digital policies for audience development. Furthermore, these contributions were enriched with exemplars of commendable projects that had taken root and flourished within their borders. This collective effort symbolizes a commitment to the advancement of cultural accessibility and audience engagement, echoing the rich diversity and dynamism inherent in Europes cultural heritage.

The document serves as a testament to the evolving landscape of cultural interaction and creativity, which is increasingly intertwined with the digital realm. It demonstrates the forward-thinking approach taken by European nations, working in synergy to foster a climate where culture and the arts are not just preserved but actively thrive in a digital age, reaching a broader, more diverse audience[25].

As elucidated by the dedicated working group responsible for crafting the report, it is imperative for cultural stakeholders to remain cognizant of the shifting patterns in audience behavior.

In this evolving landscape, the emphasis should be placed on gaining greater control over content and its administration, all the while meticulously upholding the principles of copyright and authors rights laws. This delicate balance is fundamental in nurturing a thriving cultural ecosystem.

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[25] De Niet, M., Karvonen M., Kallman R., Stepan P. (2017). "Promoting access to culture via digital means: policies and strategies for audience development" – European Agenda for Culture: Work Plan for Culture 2015-2018, Publication Office of the European Union, Luxembourg.

Moreover, the advent of novel technologies presents a plethora of opportunities for engaging traditionally hard-to-reach audience segments. Through judiciously harnessing these technological possibilities, cultural entities can transcend barriers, bridging the digital divide to involve a more diverse and inclusive audience. In doing so, they contribute to the enrichment of cultural engagement on a broader scale.

Resource allocation and prioritization must also undergo a rigorous reassessment. Cultural operators should engage in a profound exploration of the dynamics governing accessibility and utilization.

Such introspection often leads to innovative approaches and the formulation of new business models, thereby fostering sustainability and adaptability in the ever-changing cultural landscape.

A paramount focus for cultural practitioners should be the promotion of technology utilization to enhance the accessibility and usability of cultural content. This dynamic endeavor transcends mere digitization; it encompasses the creation of user-friendly interfaces, interactive experiences, and novel ways of engaging with the artistic and cultural heritage, ensuring that culture remains vibrant and accessible to all[26].

In the realm of recommendations and guidelines pertaining to European culture, a noteworthy document emerged on May 22, 2018. This document is none other than the Communication of the European Commission, titled A New European Agenda for Culture. It lays out its multifaceted objectives across the social, economic, and external dimensions. With an unwavering commitment to the enrichment of European cultural heritage, this agenda is a driving force that not only promotes social inclusivity but also champions transnational collaboration. It fervently aspires to catalyze the establishment of cultural and creative institutions and industries, proficient in harnessing new skills and leveraging cutting-edge digital technologies to infuse innovation into the cultural sector.

In essence, this European cultural agenda resonates harmoniously with the overarching vision delineated in the Creative Europe Programme 2014-2020[27]. It underscores the dynamic evolution of the cultural landscape and the essential role that digital transformation and innovation play in preserving and advancing Europes rich cultural heritage, transcending boundaries and enriching lives in the process.

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[26] Ivi, pp 35-36

[27] European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A New European Agenda for Culture, COM(2018)267, Brussels, 22 May 2018.

2.3 SOME EXEMPLARY SPECIFIC EUROPEAN PROJECTS INVOLVING DIGITAL AND CULTURE

To provide a glimpse of the myriad digital initiatives that have sprouted over the past decade, a few notable ones merit mention. Among these initiatives, two projects stand out for their significant impact and outcomes, often exceeding expectations. The first is the **MINERVA**[28] project (Ministerial Network for Valorizing Activities in Digitization), launched in 2002. The second is the **MICHAEL**[29] Project (Multilingual Inventory of Cultural Heritage in Europe), initiated in 2004.

MINERVA is a project financed by the European Commission under the IST (Information Society Technologies) programme and is the result of a close collaboration between the European Commission and the Member States with the aim of facilitating the creation of a common European vision in the definition of actions and programmes in the field of accessibility and usability of cultural heritage on the Web. Minerva has set up a network of European Ministries for Culture under the leadership of the Italian Ministry to coordinate and harmonise the digitisation of scientific and cultural heritage. The project partners are the ministries in charge of cultural activities of the following countries: Italy, as network coordinator, Austria, Belgium, Czech Republic, Estonia, Finland, France, Germany, Greece, hungary, Ireland, Luxembourg, Malta, Norway, Poland, Portugal, Slovak Republic, Slovenia Spain, Sweden, United Kingdom[30].

The project operates as a shared network among European countries, offering cultural institutions a valuable resource for accessing comprehensive information and guidelines on digitization.

These guidelines have been meticulously crafted by a panel of experts who delved into critical issues like ensuring the accessibility of cultural websites, promoting multilingualism, addressing copyright concerns, and other subjects that can no longer rely on the interpretations of individual museum entities. Notably, this project produced a noteworthy outcome known as the "Handbook for the Quality of Public Cultural Websites" in 2006.

The **MICHAEL** project complements the efforts of MINERVA by facilitating the sharing of digitized cultural content, ensuring that it is usable by all European members in multiple languages.

It consists in a collaboration between the Ministry of Cultural Heritage and Activities, the French Ministère de la culture et de la communication and the Museums Libraries and Archives Council of the United Kingdom, and aims at the creation of a trans-European multilingual portal for accessing digital cultural collections produced in the partner countries. In May 2005, the MICHAEL Plus

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[28] < MINERVA EC Website (minervaeurope.org) >
[29] < Michael Culture Association - Michael Culture (michael-culture.eu) >
[30] < https://www.istitutodatini.it/biblio/htm/minerva.htm >

proposal was submitted involving a consortium of 28 public and private organisations with partners in: Finland, France, Germany, Greece, Hungary, Italy, Malta, the Netherlands, Poland, Portugal, the United Kingdom, the Czech Republic, Spain and Sweden.

Based on standards and guidelines identified by the MINERVA project, Michael made the descriptions of the digital collections surveyed searchable according to multiple search strategies: type, subject, institution, etc.

In the realm of European cultural initiatives, another noteworthy project, supported by the European Commission of Culture and sanctioned under the esteemed Erasmus+ / Sector Skills Alliances funding program, is the ***Mu.SA: Museum Sector Alliance[31]***. This endeavor, which took root in 2016, emerged through a collaborative partnership among diverse institutions hailing from four European nations—Belgium, Portugal, Greece, and Italy. At its core, Mu.Sa aspires to bridge the ever-widening chasm that separates formal education, training, and the dynamic world of museum work. This divide has grown primarily due to the advent of new professional roles and the rapid assimilation of cutting-edge technologies, especially information and communication technologies (ICT), within the museum sector[32].

The paramount mission of Mu.Sa centers on the creation of invaluable tools geared towards equipping cultural professionals with the digital skills necessary for the ongoing development of the museum landscape. In addition, it serves as a thriving platform for the exchange of experiences, the promulgation of guidelines, and the dissemination of best practices. By fostering this collaborative spirit among professionals, Mu.Sa fortifies the knowledge-sharing network, uplifting the industry as a whole. The diligent efforts of Mu.Sa have culminated in a rich tapestry of achievements. Through rigorous research, a cooperative endeavor undertaken by all project partners, Mu.Sa has published a plethora of scientifically significant works. Furthermore, it has organized pivotal conferences that have invigorated the digital discourse on a European scale, consistently pushing the envelope in understanding and embracing technologys role in the museum sector.

The multifaceted approach of Mu.Sa revolves around four key thematic areas. First and foremost is the endeavor to propagate a pervasive digital culture. It also seeks to weave communities of professionals, fostering a sense of togetherness and shared purpose. Another key facet involves the delineation of digital professions and competences, recognizing the evolving landscape of museum work. Lastly, the project remains steadfast in its commitment to enhancing museum accessibility and

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[31] < http://www.project-musa.eu/it/ >
[32] < http://www.project-musa.eu/it/il-progetto-musa/ >

security, ensuring that cultural treasures remain protected and readily available to a diverse and global audience. In essence, Mu.Sa stands as a beacon of progress and collaboration in the ever-evolving domain of museum management and preservation.

In the landscape of European cultural development, a pioneering initiative akin to Mu.Sa had already set its course back in 2013: the **RICHES** project, co-funded by the European Union's Seventh Framework Programme for research, technological development and demonstration. This venture was spurred into action by the collaborative efforts of ten partners hailing from six European nations: Denmark, Germany, Italy, the Netherlands, Spain, the UK and one associate country, namely Turkey[33]. At its core, this endeavor aimed to unravel pressing questions that lie at the heart of cultural innovation and preservation. Questions such as "How can cultural institutions revitalize themselves?" and "How can European citizens actively contribute to the co-creation of their cultural heritage?" underscored the projects ambition. Moreover, it sought to explore the profound potential of new technologies in representing and promoting our invaluable cultural heritage[34].

RICHES has the following goals:

1. Develop a conceptual framework for research on cultural heritage (CH) in the digital age, addressing CH-related copyright and intellectual property rights (IPR).

2. Investigate forces impacting CH, design preservation scenarios, and explore methods for digital transmission across audiences and generations.

3. Identify ways to maximize CHs impact on social and community development, integrating IPR and economic considerations.

4. Devise instruments and methodologies for knowledge transfer, skill development, job creation, and economic growth through CH

5. Narrate Mediated and Unmediated CH stories, applying research results through practical case studies with end-users.

6. Produce evidence-based policy recommendations, foresight studies, awareness platforms, and best practice guidelines for cooperation initiatives in CH[35].

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[33] < https://www.riches-project.eu/partners.html >
[34] RICHES (Renewal, Innovation and Change: Heritage and European Society), General presentation, English version, 2013
[35] < PROJECT (riches-project.eu) >

This initiative embarked on an ambitious journey. Comprising research actions and an extensive dissemination of scientific knowledge, RICHES (Renewal, Innovation and Change: Heritage and European Society)[36] emerged as a guiding light for cultural institutions. It delved into multifaceted domains, addressing the development of sustainable and contemporary cultural policies. Furthermore, it paid heed to the emergence of new e-skills and professions, responding adeptly to the ever-evolving demands of the digital age.

Guidelines and recommendations, firmly rooted in empirical evidence drawn from real-world contexts, were among RICHES noteworthy contributions. Funded by the European Union, this visionary project remained in active pursuit of its mission until 2016. Along this journey, it generated a rich tapestry of research outputs, including scientific publications that stood as a testament to its intellectual rigor. These publications offered valuable insights and case studies that shed light on the evolving landscape of digital culture and cultural policies.

RICHES also crafted recommendations that offered a roadmap for the development of fresh guidelines and cultural agendas.

These insights were enriched by information on nascent digital networks connecting cultural institutions and reports detailing seminars conducted by the projects partners themselves. Through its tireless endeavors, RICHES has left an indelible mark on the European cultural landscape, reaffirming the profound impact of innovative strategies, digitization, and knowledge-sharing in preserving and revitalizing our shared cultural heritage.

In summary

In summary, this chapter showed how European cultural policies have been increasingly encompassing a digital policy for culture. Indeed, a multitude of efforts have been put forth to regulate and harmonize cultural policies, with the objective of fostering a common digital cultural landscape on a European scale. However, these endeavors appear to be fragmented, rather than forming a cohesive, interconnected framework. This fragmentation has resulted in a landscape characterized by individual and often non-consolidated initiatives, which have yet to gain unanimous endorsement from all European states.

The prevailing sentiment is one of a constellation of micro-projects, many of which found their genesis during the European Year of Cultural Heritage in 2018. These initiatives, while commendable in their own right, often operate in isolation, with limited networking capabilities. They tend to exist

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[36] < https://www.riches-project.eu/index.html >

as self-contained entities, each contributing to the overarching mosaic of digital cultural preservation, but without a seamless thread binding them together.

Therefore, what emerges is an imperative for the standardization of policies and programs to the greatest extent possible. This harmonization is envisioned without compromising the rich cultural diversity inherent in each European nation. These policies must be redefined in accordance with the evolving needs that have transpired over the past few decades, as a result of the advent and rapid proliferation of information and communication technologies (ICTs). These technologies have profoundly disrupted and continue to revolutionize the dynamics of communication, dissemination, and cultural engagement. Therefore, the challenge at hand is to strike a balance that upholds cultural diversity while fostering a unified, technology-enabled European cultural landscape.

In the following chapters we will see how the European museum context has changed post-pandemic, what the actual changes are and what the possible future scenarios will be.

A FOCUS ON POST COVID: IMPORTANCE OF DIGITALISATION

Following the comprehensive overview of the cultural fruition landscape and digital practices in Europe (Chapter 1) and an exploration of the digital impetus within recent European cultural policies (Chapter 2), this chapter delves into a focused examination of the post-Covid environment. Beginning with a retrospective look at the pivotal role of museums in our contemporary society, the chapter proceeds to analyze the profound impacts of the Covid-19 pandemic, drawing connections between the increased demand for and the potential of digitalization. As the global outbreak compelled a reassessment of cultural engagement, this chapter explores how museums, as vibrant hubs of cultural richness, have responded to the challenges and opportunities presented by the evolving digital landscape. The discussion unfolds against the backdrop of initiatives, collaborations, and shifts in audience engagement, providing insights into the transformative role of digital cultural heritage in navigating the uncertainties of the post-Covid era. Through an examination of strategies employed by cultural institutions, the chapter underscores the vital importance of digital initiatives in preserving and sharing cultural heritage, ensuring the resilience and adaptability of these institutions in an ever-changing digital landscape.

3.1 THE PIVOTAL ROLE OF MUSEUMS

Museum institutions play a multifaceted role in our society, beyond the preservation of both tangible and intangible artistic treasures. One of their primary objectives is to disseminate and communicate cultural heritage to a wide-ranging audience, fostering an appreciation and understanding of this heritage. This mission extends not only to the general public but also to the scientific community, comprised of experts and insiders who seek to explore, study, and appreciate the depth of cultural heritage.

Within the museum sector, audience development has emerged as a paramount objective, often occupying a central place in the strategies employed by museums. In fact, the most forward-thinking museum strategies are frequently described as "user-centered" due to the paramount importance they ascribe to the role of the audience. These strategies emphasize the active participation of the public in the processes of enjoying and creating cultural value, enriching the overall cultural experience.

Delving into this concept of audience development, we can refer to a report by the European group OMC (Open Method of Coordination), which extensively contemplates this theme within the cultural sector. The report discerns four distinct categories of audiences that museum institutions must address:

1. Core Audiences: This group comprises the most dedicated and loyal patrons of museums, individuals who consistently engage with and support the cultural offerings of these institutions.

2. Occasional Audiences: In this category, we find those visitors who may not frequent museums regularly but still partake in occasional visits, exploring the diverse offerings museums provide.

3. Potential Audiences: Potential audiences consist of individuals who have not yet ventured to museums but possess the potential to do so. The challenge here lies in motivating these individuals to embark on their museum-going journeys.

4. Non-Users: The final category encompasses individuals with minimal or no interest in visiting museums, representing a unique challenge for institutions as they seek to engage and connect with this less-inclined audience.

By categorizing their audiences in this way[37], museum institutions gain valuable insights into the diverse needs, motivations, and interests of their visitors. This understanding enables museums to tailor their outreach efforts, programs, and exhibitions to ensure that they resonate with the widest possible audience and fulfill their mission of making cultural heritage accessible and enjoyable for all. In doing so, museums contribute to the enrichment of society, fostering a deeper appreciation of cultural value and heritage across various segments of the population. The mission of museums consists in cultivating and sustaining a strong connection with their various audience segments. In this context, their primary goals encompass maintaining a high level of loyalty among their dedicated clients, retaining the interest of occasional visitors, bridging the gap with those who only occasionally engage with their offerings, and, crucially, kindling the curiosity of individuals who have not yet explored the enriching world of museums.

Moreover, museums are not just repositories of cultural artifacts but are integral to the democratic fabric of society. They are charged with the responsibility of ensuring accessibility to citizens, irrespective of socio-economic or cultural background. This democratic ethos compels museums to systematically dismantle any barriers that obstruct the educational and cultural processes they have established to disseminate knowledge and culture. Such processes are fundamental and represent driving forces for the advancement and development of contemporary society.

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[37] De Niet M., Karvonen M., Kallman R., Stepan P. (2017). "Promoting access to culture via digital means: policies and strategies for audience development" – European Agenda for Culture: Work Plan for Culture 2015-2018, Publication Office of the European Union, Luxembourg.

A nation that recognizes and values the role of culture, and believes in its vast social and economic potential, demonstrates a profound commitment to innovation, growth, and the assertion of its unique identity. This commitment is an affirmation that culture holds the power to foster progress and transformation, both at the individual and societal levels. This conviction is vividly reflected in initiatives like the Creative Europe project, which we previously discussed.

This project, rooted in the belief that culture can be a cornerstone of a sustainable European economy, underscores the pivotal role that cultural enrichment plays in driving economic vitality and societal well-being. In this light, museums serve as vibrant hubs where the threads of culture, identity, and knowledge converge, interweaving to create a rich tapestry that not only preserves the past but also guides the trajectory of an innovative future. The continual expansion and evolution of cultural institutions, alongside the steadfast commitment to inclusivity, reinforces the cultural richness and dynamism of societies while contributing to their enduring growth and prosperity. In todays landscape, cultural institutions face an imperative that cannot be ignored - the integration of marketing strategies. This entails leveraging the tools of marketing to construct a robust museum image that resonates with a broad and diverse audience, to pinpoint specific target audiences on which to concentrate their valuable resources, and to effectively promote their wide array of activities and services. For an extended period, cultural institutions grappled with skepticism from the intellectual elite, who harbored reservations about applying marketing dynamics and processes to these institutions. This skepticism stemmed from a deeply ingrained belief that the realms of art and culture should not be commodified or reduced to mere market-driven entities driven solely by profit motives. This apprehension, born from the desire to preserve the intrinsic artistic and cultural value, deterred museums from embracing more overtly managerial and economically oriented perspectives. This hesitance to fully adopt a management and economic logic in their operations has, in some instances, hindered the progress of museums, causing them to lag behind their counterparts in other European and global regions, limiting the opportunities for museums to flourish and engage with a broader, more diverse audience. However, it is essential to recognize that the evolving landscape of cultural institutions necessitates a pragmatic approach. By integrating marketing strategies, these institutions can effectively navigate the modern eras complexities, remain financially sustainable, and continue to fulfill their cultural and educational missions. Indeed, there is a middle ground where the preservation of cultural integrity and identity can coexist harmoniously with the pragmatic application of marketing tools. This synergy can enable cultural institutions to both safeguard their core values and engage more proactively with a society that is progressively influenced by marketing dynamics. In embracing this duality, museums and cultural institutions can position themselves as vibrant and dynamic entities that not only preserve our heritage but also connect with the public and adapt to the

changing needs and expectations of the modern world. By doing so, they can become resilient and responsive centers of cultural enrichment that extend their reach far beyond their traditional boundaries.

3.2 POST COVID: CHANGES TOWARDS DIGITALISATION

The global outbreak of COVID-19 compelled nations worldwide to implement containment measures, effectively curbing movement and access to various cultural sites and heritage locations. UNESCO took an active role in documenting the extent of these restrictions, offering a comprehensive visual representation of the impact. As of April 13, 2020, their data revealed that 119 countries had taken the drastic step of completely closing access to their World Heritage sites, with an additional 31 nations imposing partial closures. The situation remained dynamic, and UNESCO continued its diligent efforts to monitor the evolving landscape of these restrictive measures in the ensuing months. A snapshot of this continuous monitoring, illustrates the state of affairs ten months after the initial assessment. UNESCOs ongo ing updates not only shed light on the immediate impact of the pandemic on cultural heritage but also provide invaluable insights into how these measures have evolved over time, reflecting the global communitys responses to the ever -changing challenges posed by the pandemic.

The data from UNESCO, underscores the profound influence of the pandemic on the accessibility and preservation of cultural and heritage sites, while also highlighting the adaptability and resilience of the international community in addressing these unprecedented challenges[38].

Partially open (19%)
World Heritage sites closed (71%)
World Heritage sites open (10%)
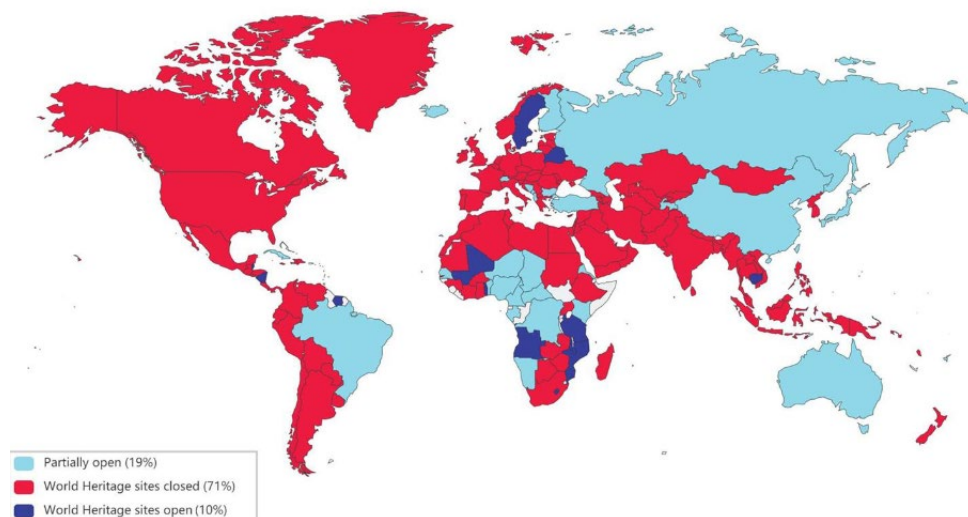
Global map on the closure of World Heritage sites due to Covid-19, UNESCO. Fonte: whc.unesco.org/en/news/2103

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[38] Vilardo, G. & Mazali, T. (2022). Mediascapes Journal. "La virtualizzazione dei Musei alla prova del Covid-19. Un caso studio.

In the wake of the initial lockdowns in 2020, UNESCO remained vigilant in tracking the evolution of restrictive measures and their impact on cultural heritage sites. Their efforts included the regular updating of the map to offer a real-time portrayal of the global situation. Ten months into this unprecedented journey, a sobering reality emerged—less than half of the World Heritage sites had reopened by that point.

During the spring of 2020, UNESCO took proactive steps by launching initiatives aimed at supporting and preserving cultural heritage. The heart of these initiatives lay in a multi-faceted utilization of digital platforms. On one front, this digital approach served to maintain the visibility and accessibility of UNESCO heritage sites in a time when physical visits were severely restricted. On another front, it was instrumental in engaging a diverse range of users and audiences, thereby fostering a sense of connection and continuity. Access and engagement served as the guiding principles behind many of these digital projects, undertaken by cultural institutions around the globe, spanning various scales. Among these endeavors, those that received support from UNESCO exhibited a remarkable breadth of approaches. These initiatives encompassed expansive global social media campaigns, such as #ShareOurHeritage and #YouthofUNESCO, aimed at disseminating cultural riches to an online audience[39].

Moreover, the collaboration with platforms like Google Arts & Culture facilitated the development of captivating online exhibitions, ensuring that the treasures of cultural heritage remained accessible and engaging. In addition, the pandemic prompted the convening of online meetings between Ministers of Culture from across the world. These gatherings were crucial in addressing the profound impact of the pandemic on culture and laying the groundwork for coordinated global actions[40].

A critical outcome of these collaborative efforts was the establishment of a network for dialogue and discussion among countries. This network provided a valuable platform for tracking the diverse actions taken in response to the closure of cultural activities due to the pandemic, offering a space for sharing resilience strategies and innovative solutions. In doing so, these initiatives demonstrated the immense capacity of culture to unite, even in times of adversity, forging connections that transcend borders and circumstances.

UNESCO seized the opportunity to revitalize the World Heritage Journeys in Europe project[41], a pioneering UNESCO initiative that fuses European heritage and travel. This platform empowers users to access curated travel experiences recommended by local experts and brought to life through the

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[39] < https://whc.unesco.org/en/news/2103 >
[40] Carpentieri, P. (2020). Aedon, "Digitalizzazione, banche dati digitali e valorizzazione dei beni culturali."
[41] https://visitworldheritage.com/en/eu

lens of National Geographic. The platform offers a window into the splendor of 34 UNESCO heritage sites organized into four thematic routes, providing a fresh perspective on cultural exploration and adventure.

Going beyond individual initiatives, it is imperative to comprehend the impact of the health crisis on the cultural sectors. Its equally vital to appreciate how the pandemic has catalyzed a significant shift in the digital realm across many cultural institutions. The Network of European Museum Organisations (NEMO) has conducted two research studies[42], shedding light on the repercussions of COVID-19 on museums, with a primary focus on European institutions. These studies also illuminate the strategies employed in response to the crisis in terms of organizational adjustments, budget allocations, and services extended to the public.

The first of these studies, conducted between March and April 2020, encompassed 48 countries, involving a total of 961 museums, out of which 787 were situated in Europe. The findings reveal that, faced with the abrupt closure of their physical spaces, over 60% of museums expanded their digital footprint. This involved repurposing internal human resources, directing them toward bolstering the museums online presence, which encompassed tasks related to websites, social media engagement, and newsletters.

A significant majority, exceeding 70%, embarked on a notable upswing in their social media activity. Notably, Facebook emerged as the platform of choice, utilized to maintain and enhance connections with the public. This transition toward heightened online engagement underscored the agility and adaptability of cultural institutions as they responded to the challenges posed by the pandemic. It signified a profound shift in the way museums and cultural entities relate to their audiences, emphasizing the growing significance of the digital realm in the cultural landscape.
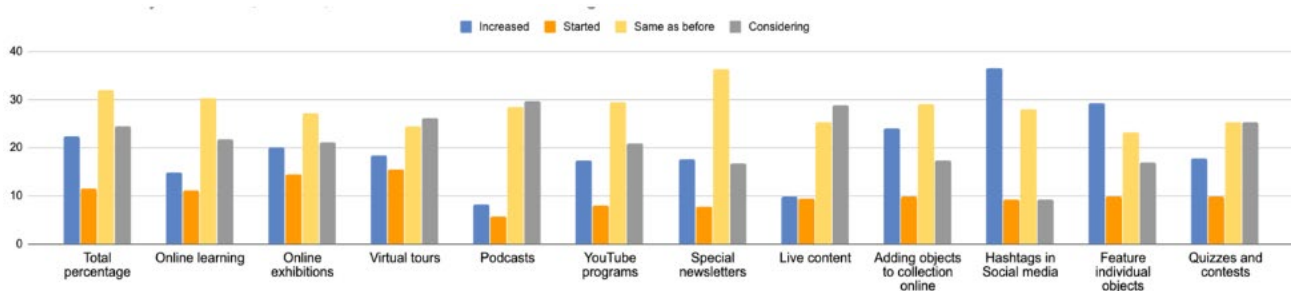
Online services offered, increased, activated or being considered by Museums (Survey on the impact of the COVID-19 situation on museums in Europe, NEMO 05/2020)

The data presented in the figure underscores a significant shift in the way museums engage with their audience. With a combination of increased and newly initiated digital activities, it is evident that

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[42] NEMO (2021). Survey on the impact of the COVID-19 situation on museums in Europe Final Report.

museums have embraced social media to a greater extent than ever before. Furthermore, there has been a notable uptick in the use of virtual tours and the creation of online exhibitions. Consequently, social media platforms have risen to prominence as the primary mode of communication between museums and the public. The immediacy they offer in reaching and engaging their audience is a key factor driving this shift: In this context, the expanded use of hashtags has played a pivotal role in broadening the reach of museum content. This strategic utilization of hashtags signifies a more mature and sophisticated approach to social media engagement. It not only amplifies the visibility of museum offerings but also strategically extends their catchment area.

The second survey conducted by NEMO[43], six months following the initial research, reflects a consistent trend. Out of the 600 museums that participated in this subsequent survey between October 30 and November 29, 2020, spanning 48 countries, more than 70% were still grappling with extended closures as of the years end in 2020. Furthermore, many of these institutions had yet to establish a definite date for reopening.

During the summer period, when partial openings were feasible, museums encountered a substantial decline in visitor numbers. This drop can be attributed to a combination of factors, primarily the dramatic reduction in global tourism, estimated at around 73%, and the disruption of school programs, resulting in a 64% reduction in student visits. This dual impact underscores the profound challenges faced by museums, which are not only contending with reduced accessibility but also grappling with a significant transformation in the composition and behavior of their visitor base.

The findings from the second NEMO research are notably consistent with those of the initial study, underscoring a profound shift in the dynamics between museums and digital engagement, a shift that appears poised to persist in the post-pandemic era. In response to the challenges brought about by the pandemic, a striking 93% of the museums surveyed took proactive measures to enhance, establish, or divert pre-existing resources toward one or more online services. This reflects a comprehensive embrace of the digital realm, indicative of a transformative moment in the museum sector.

Notably, two categories of digital services emerged as the most significantly enhanced: posting content on social media platforms and the creation of video content. These strategies have proven to be dynamic tools for engagement, allowing museums to reach a broad and diverse audience. Moreover, nearly 30% of museums made a strategic decision to invest in the development of virtual tours, while 22% ventured into the creation of online exhibitions. This substantial increase, equivalent

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[43] NEMO (2021). Follow-up survey on the impact of the COVID-19 pandemic on museums in Europe.

to nearly 50% of services and content offerings, represents a substantial shift toward the virtualization of the museum experience, revolutionizing the way audiences visit and explore these institutions.

However, its essential to underscore a critical finding from the research: nearly 40% of museums admitted to either not tracking or being unaware of the number of their online visitors. This points to a significant deficiency in methods for measuring digital presence within museums.

It suggests a somewhat antiquated approach to digitalization. Instead, the evolving digital landscape calls for an active strategy centered on constructing, monitoring, and leveraging online digital communication. This more dynamic approach, which includes the potential for monetization, fosters lasting relationships between museums and their audiences, aligning with the changing expectations and behaviors of the digital era. Hence, its unsurprising that over 80% of the surveyed museums expressed a clear need for support in their digital transition efforts. This recognition stems from a collective acknowledgment that the primary hurdle they face is overcoming resource constraints, along with a lack of in-house expertise and the requisite skills necessary to execute a comprehensive digital transformation of cultural heritage and the institutions that safeguard it. This requirement for support is a testament to the complex and multifaceted nature of the digital evolution within the cultural sector, reinforcing the imperative of bridging the knowledge and resource gap to ensure the continued relevance and resilience of these invaluable institutions.

In conclusion, the outcomes of NEMOs research provide compelling evidence of the critical role played by digital cultural heritage, particularly during times of crisis. It has unequivocally emerged as a linchpin, offering a powerful means to attain and sustain high levels of digital audience engagement, a necessity in light of the absence of in-person audiences. In this context, the significance of targeted interventions becomes more apparent than ever. These interventions should encompass not only financial support but also the development of essential skills that museums require.

These concerted efforts are instrumental in fostering the structural evolution of digital services within museums. This transformation positions these cultural institutions as resilient entities, capable of navigating the evolving landscape of the digital era. It underlines the need for a proactive stance in ensuring that museums remain dynamic and adaptable, with digitalization serving as a cornerstone in their mission to preserve and share cultural heritage with diverse and global audiences.

In summary

This chapter has offered a nuanced exploration of the transformative impact of digitalization on cultural heritage, particularly in the post-Covid setting. We have reflected on the dynamic role of museums in contemporary society, emphasizing their resilience and adaptability in leveraging digital tools to navigate challenges and opportunities. The discussion has highlighted the profound shifts in audience engagement, the acceleration of digital initiatives, and the imperative for museums to actively embrace a digital-first approach. As the chapter unfolds, it becomes evident that the digital evolution within cultural institutions is not just a necessity but a strategic imperative for ensuring their continued relevance and societal impact.

This exploration seamlessly transitions into the next chapter, which delves into a specific case study: the Cultural Heritage 2.0 project. This European initiative takes center stage, directing its focus on the innovative potential of museums and cultural institutions in the face of digital evolution trends. The project, with its ambitious goals and diverse partnership network, exemplifies a proactive response to the challenges posed by the Covid-19 pandemic.

CASE STUDY: CULTURAL HERITAGE 2.0

In this chapter, we embark on a compelling exploration of the Cultural Heritage 2.0 Project, a visionary European initiative designed to reevaluate the innovative potential of museums and cultural institutions within the evolving landscape of our digital society. Against the backdrop of the profound disruptions ushered in by the Covid-19 pandemic, the cultural heritage sector finds itself at a critical juncture, necessitating a strategic response to the challenges and opportunities presented by the digital evolution of our times.

The global pandemic has disproportionately impacted cultural and creative sectors, compelling a swift transition to new digital engagement models. The ensuing disparities between larger cultural heritage organizations and smaller entities underscore the urgency of innovative strategies for navigating the complexities of the digital realm. It is in this context that Higher Education Institutes (HEIs) emerge as crucial catalysts for change, positioned to support and empower the cultural heritage sector.

The Cultural Heritage 2.0 Project takes center stage in this narrative, striving to empower HEIs by equipping academic staff and educators with the knowledge, skills, and resources essential for collaborative endeavors with cultural heritage sector representatives. This collaborative approach is not merely a response to immediate challenges but a forward-looking initiative that envisions a digitally transformed post-Covid world.

Crucially, the outcomes of the Cultural Heritage 2.0 Project are poised to serve as a catalyst for collaboration, rejuvenating the cultural heritage sector and amplifying its impact on society. The project unfolds as a beacon of innovation, aiming to generate valuable outputs such as a collection of Good Practice Cases, a comprehensive report on Cultural Heritage Challenges and Needs, and The Future of Cultural Heritage Sector Scenarios book.

4.1 PROJECT DESCRIPTION

The Cultural Heritage project is co-founded by the Erasmus+ Programme of the European Union, and comprises five member States: Italy, Denmark, Vienna, Ireland and Netherlands. Each member state has an Higher Education Institute (HEI) that took part in the project, and they are respectively: Ca' Foscari University, Bespoke, University of Vienna, Momentum (educate+innovate), UIIN (University Industry Innovation Network), and University of Copenhagen[44].

The Covid-19 pandemic has disproportionately affected the cultural and creative sectors, with the cultural heritage sector facing significant challenges in rapidly transitioning to new digital

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[44] https://culture2point0.eu/about/

engagement models. This transition has revealed existing disparities between larger cultural heritage organizations and smaller entities, as the latter often lack the resources, human capital, and entrepreneurial capabilities needed for a swift shift to digital platforms. In response to these challenges, Higher Education Institutes (HEIs) can play a vital role in supporting the cultural heritage sector. The Cultural Heritage 2.0 project aimed to empower HEIs by providing academic staff and educators with the knowledge, skills, and resources necessary to collaborate with cultural heritage sector representatives. This collaboration focused on organizing problem-based learning interventions involving multidisciplinary student teams, fostering an entrepreneurial and innovative mindset to address the evolving business model challenges faced by the cultural heritage sector in a digitally transformed post-COVID-19 world. The outcomes of the project will serve as a catalyst for collaboration between universities and cultural heritage organizations. These results aim to play a pivotal role in the rejuvenation of the cultural heritage sector, enhancing its overall impact on society. The project team comprised a diverse mix of universities, consultancy agencies, and a network, collectively working towards strengthening the ties between academia and cultural heritage entities to foster positive societal contributions.

The partners involved in the project are: 1) Ca' Foscari University, that is the project leader; 2) Bespoke, which assists companies and brands in attributing significance to the current moment. By scrutinizing signals and trends, the aim is to envision and formulate innovative ideas that align with the future, ensuring they remain relevant and adaptive; 3) Universitat Wien; 4) UINN (University-Industry Innovation Network) which is a network spanning across Europe, dedicated to cultivating and enhancing connections between the realms of education and industry[45]; Momentum (educate+innovate), that specialise in problem-centered, technology-driven, competency-based training projects and programmes in tertiary education for the cultural and creative sectors[46]; and the University of Copenhagen.

The Cultural Heritage 2.0 project explores the Future of Cultural Heritage sector scenarios, which is a project set to conduct a comprehensive analysis of the post-COVID requirements within the cultural heritage sector.

Its primary objective was to envision and construct forward-looking scenarios that explore the potential for digital transformation within the sector. With a specific emphasis on redefining business models for cultural heritage organizations, the project aimed to generate valuable outputs. These outputs include a collection of Good Practice Cases, a report on the current status of Cultural Heritage

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[45] https://culture2point0.eu/team/university-industry-innovation-network/
[46] https://culture2point0.eu/team/momentum-educate-innovate/

Challenges and Needs, and, ultimately, the creation of "The Future of Cultural Heritage Sector Scenarios" book, which will be analysed in this chapter. Through this multifaceted approach, the project seeked to provide actionable insights and contribute to the evolution and resilience of the cultural heritage sector in the wake of the pandemic.

4.2 GOOD PRACTICE CASES COLLECTION

The Business Model Evolution Good Practice Cases serves as an illuminating exploration into the transformative journey of business models within Cultural Heritage Organizations (CHOs). These cases intricately showcase instances of successful evolution, encompassing physical, digital, and hybrid business and revenue models that have emerged within the Cultural Heritage sector in response to the challenges imposed by the pandemic. This collection is a nuanced reflection of the sectors adaptability and ingenuity, addressing needs and overcoming challenges on both regional and European-wide scales.

Designed with a purposeful intent, the compilation of Business Model Evolution Good Practice Cases is tailored for Cultural Heritage Organizations staff and leadership. It aims to provide valuable insights and practical examples to empower them in strategizing and navigating the complex terrain of digital transformation. The objective is to facilitate the redefinition of business models for CHOs, fostering resilience and innovation within the cultural heritage sector.

The model shows many important cases:

- BreraPLUS+: is the digital platform that enhances the Brera Art Gallery experience in Milan by providing multimedia content, documentaries, special programs, concerts, premieres, and a variety of other engaging features. The Brera Art Gallery, housed in the expansive Brera building, stands as a national repository of both ancient and modern art. This significant cultural institution is situated in Milan and boasts a vast space covering more than 24,000 square meters.

  BreraPLUS+ is a continually evolving platform that is regularly updated with enriching content and insights. It serves as a comprehensive collection of offerings from the Brera Art Gallery, aimed at enhancing the experience of its art collections. This encompasses a diverse range of features, including innovative dialogues and exhibitions that incorporate video and online exploration, as well as concerts, masterclasses, and streaming shows. The platform also provides opportunities for guided tours and online interactions with specialists, actors, and writers, along with access to archives and the online restoration laboratory. Every cardholder or member is entitled to a pre-booked physical visit to the Brera Art Gallery, and in addition

to their on-site experience, they gain access to a wealth of online content, special programs, concerts, and live streaming events.

This project was embraced in response to the challenges posed by the COVID-19 pandemic in 2020, creating a transformative business model that integrates the digital realm with the physical museum experience. Faced with the necessity of closures during lockdowns, the Brera staff seized the opportunity to reevaluate their engagement with visitors.

During those weeks, a profound shift emerged, with Brera standing out as one of the pioneering institutions that swiftly adapted by bringing their exhibitions online. This strategic move was driven by a commitment to maintaining a connection with their audience even in the absence of physical visits. Concurrently, a fundamental change in pricing strategy transpired, shifting from individual ticket sales to a membership-based approach.

The genesis of this new business model, born out of necessity, extends beyond mere crisis response. It reflects a profound rethinking of the relationship between the museum and its patrons. James Bradburne, a key advocate for this paradigm shift, emphasizes the need to discard the traditional notion of visitor in favor of the more dynamic and participatory concept of users. In this conceptual evolution, the physical visit to the museum is acknowledged as just one facet, with online engagement seen as a complementary and vital component.

The mechanics driving this transition are intricate and multifaceted. Essential elements include proactive fundraising efforts to fuel project development, strategic partnerships to facilitate seamless implementation, and the establishment of an educational pathway. This pathway serves to articulate the shift in approach to both seasoned patrons and those new to the museum experience.

Crucially, the success of this innovative model relies on the establishment of key infrastructures. An online booking platform becomes the linchpin for facilitating seamless interactions, while a concerted effort in online communication serves to amplify the museums digital presence. Moreover, the introduction of a subscription model is identified as a foundational step in ensuring the sustainability and longevity of this groundbreaking approach.

- DEN: Digital DNA & Focus Model: Established in 1996, DEN is a knowledge institute situated in the Netherlands, dedicated to spearheading digital transformation in the cultural sector. Its primary mission is the creation and preservation of digital heritage, positioning DEN at the forefront of guiding cultural institutions toward a digital future. The overarching goal is to empower these institutions to harness the opportunities presented by digital

transformation, thereby elevating their social relevance, sharpening their focus on both existing and new audiences, and fortifying the cultural sector for the challenges ahead.

In a partnership with Cultuur+Ondernemen and New Nodes Wielinq, DEN introduced the Digital DNA initiative in late 2019. This initiative sought to explore the existing landscape of digitalization within the cultural sector and to create tools that assist Cultural Heritage Organizations (CHOs) in identifying and cultivating innovative digital revenue models. The research findings revealed that, in the present, only a limited number of CHOs are actively engaged in developing digital revenue models in the cultural sector. As a result, there is a scarcity of knowledge and experience in this realm, underscoring the need for further exploration and development.

The initiation of this project responds to a crucial necessity within the sector: the imperative to formulate fresh revenue models that can expand the scope, reach, impact, and financial sustainability of cultural organizations. In addition to fostering financial resilience against future uncertainties, the project recognizes the potential of digital technologies to amplify these revenue models.

The findings from the research conducted by the Digital DNA initiative underscore the prevailing skepticism towards concepts like "digital transformation" and "revenue models" within the cultural industry. The research also highlights a current scarcity of organizations actively engaged in the development of digital revenue models in the cultural sector. This revelation underscores the limited adoption of digital strategies for revenue generation in the sector, emphasizing the urgent need for increased awareness and proactive measures in this regard.

The business model embraced by DEN Academy is distinctly hybrid, integrating the Focus model into their digital leadership and innovative working programs. This model serves a threefold purpose: firstly, it acts as a visual representation of the intricate web of digital transformation, fundamentally altering established practices across all facets of Cultural Heritage Organizations (CHO). Secondly, it provides a structured framework for organizing the learning themes and case studies within various DEN Academy programs. Thirdly, the Focus model tool becomes an interactive element for participants, complemented by a digital maturity test. This combination not only assesses an organizations digital maturity but also serves as a launching point for participants to conceptualize their digital strategy.

The advantages of this new model extend beyond its structural application. It leverages insights derived from the Digital DNA research and taps into the expertise of collaborating organizations, offering an integrated approach for cultural institutions. Moreover, it empowers individual artists to harness digitalization, amplifying the reach and social relevance of their work.

In the practical implementation of this business model, cultural organizations initiate their digital transformation journey by mapping their digital activities or projects on the Focus model graph. This serves as a foundational step in crafting their unique digital transformation roadmap. Recognizing that an effective digital strategy must encompass all facets of an organization, the approach also underscores the imperative to enhance social impact, ensuring a holistic and impactful digital transformation.

Results: By employing the self-assessment tool, any Cultural Heritage Organization (CHO) can chart its present digital activities and receive guidance on advancing towards a more cohesive digital strategy. As the model evolves, there are plans to enhance it by incorporating additional advice and benchmarks. This expansion will empower users to compare their organizations and glean valuable insights for further refinement of their digital strategies.

- Digitalt Museum: The vision of DigitaltMuseum is that museums' collections should be made available to anyone who is interested, regardless of time or place. It provides online access to more than 7.2 million objects from over 340 different Norwegian and Swedish museums and collections.
  DigitaltMuseum, funded by Arts Council Norway and developed by KulturIT, represents a collaborative effort with museums in Norway and Sweden. KulturIT specializes in crafting digital tools for the cultural sector, working closely with museums, particularly with their IT departments. Their unique position within Cultural Heritage Organizations (CHOs) allows them to tailor digital solutions to the specific needs of each organization. The creation of DigitaltMuseum aims to simplify the utilization of collections for image searching, in-depth research, studies, education, and the collaborative advancement of knowledge within the cultural sector.

The challenge of this project is based on the idea that museums, repositories of vast collections, often showcase only a fraction of their holdings through exhibitions or in printed materials. Consequently, substantial portions of these collections remain hidden from the public eye. The advent of DigitaltMuseum has transformed this landscape, providing online access to a staggering 7.2 million objects sourced from more than 340 Norwegian and Swedish museums and collections. This novel digital business model is not only about disseminating information; it holds the promise of facilitating public exploration and engagement. The benefits of this new model are multifaceted. It serves to democratize access to artwork by leveraging digital platforms, making it easier for the public to search for artifacts relevant to their studies or work. The transition towards this digital approach involves

allocating resources for the hiring of either internal or external experts specializing in the digital publication of artwork.

Implementing this business model requires a comprehensive digital archiving effort for all the artwork within a museums possession. Simultaneously, the creation of a user-friendly online platform becomes imperative to showcase the diverse array of collected artwork effectively.

Critical stakeholders in this transformation include digital experts from the Cultural Heritage sector, who play an important role in shaping the digital landscape, along with internal or external technicians specializing in the intricate task of digital archiving.

Together, these stakeholders contribute to the realization of a dynamic and accessible online space that brings the richness of museum collections to a wider audience[47].

This case serves as an example, showing an operational website resulting from the collaborative efforts of Swedish and Norwegian museums, including notable institutions like the Norwegian Museum of Cultural History and The Nordic Museum Foundation.

From this case, two significant learning outcomes emerge for the Cultural Heritage sector. Firstly, it emphasizes the importance of effectively categorizing the diverse art collections held by museums. This involves a nuanced understanding of the varied artifacts and artworks within their possession, contributing to a more organized and accessible cultural landscape. Secondly, the case underscores the value of creating dynamic digital platforms. Such platforms are instrumental in unveiling the rich tapestry of artworks dispersed across different organizations and museums. This not only enhances public access but also fosters a collaborative and interconnected exploration of cultural heritage on a broader scale[48].

- Dolom.it: Dolom.it emerges as a fresh perspective on the concept of a museum, breaking away from tradition to weave together narratives and stories in a digital eco-museum dedicated to the Dolomite region. This innovative platform invites exploration through new digital avenues, introducing rooms that serve as virtual gateways into the rich heritage of the Dolomites.
  Within this digital realm, Dolom.it unfolds an extensive tapestry of stories and more than 50 digital collections, chronicling the fascinating history of these mountains. Offering a truly immersive experience, visitors can embark on over 20 multimedia tours, delving into the voices, emotions, and sounds that define the essence of the Dolomites.

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[47] www.kulturit.org/
[48] www.digitaltmuseum.no & www.digitaltmuseum.se

Dolom.it isnt just a digital repository; its a catalyst for encouraging exploration of the Dolomite territory, fostering connections with the physical museums embedded within it. Serving as a bridge between tangible and intangible heritage, Dolom.it beckons visitors to embark on both digital and physical journeys through crafted itineraries.

The challenge Dolom.it addresses is rooted in the limitations of the traditional Cultural Heritage Model, particularly in narrating the expansive landscape of the Dolomites to a broader audience.

Beyond that, it recognizes the importance of co-creation, actively engaging with local residents to provide them with a platform to share their stories, enriching the collective narrative of the region.

In essence, Dolom.it isnt just reimagining the museum; its redefining how heritage is experienced, breaking down barriers, and inviting everyone, from locals to global enthusiasts, to become active participants in the ongoing narrative of the Dolomites.

This project wouldn't have been possible without the Faro Convention of 2005[49]. The Faro Convention, a treaty addressing the significance of cultural heritage in society, underscores the critical dimensions of heritage in connection to human rights and democracy. It advocates for a broader comprehension of heritage and its intricate ties to communities and society. Central to the Conventions message is the notion that the intrinsic value of cultural heritage does not reside solely in objects and places. Rather, their importance is derived from the meanings, uses, and values that people attribute to them. The Convention prompts us to acknowledge that cultural heritage is fundamentally a reflection of the cultural meanings and societal values attached to it.

Dolom.its approach represents a dynamic shift in the cultural heritage narrative, driven by a hybrid business model that transcends conventional storytelling. The project isnt just about introducing new content; its about fundamentally altering the way we perceive and engage with heritage. Two elements drive this change: the innovative platform model, reshaping the exploration of the Dolomites by actively involving users, and the influence of the Faro Convention.

The advantages of this new model extend beyond reaching a wider audience; it fosters a co-design approach that actively involves local communities in the storytelling process. However, sustainability requires a careful orchestration of both financial and physical resources.

Dolom.it currently serves as a digital ambassador, creating awareness about the Dolomites through its collection, virtual tours, and itinerant theatrical performances. It collaborates with visitors and

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[49] Faro Convention of 2005. Convention on the Value of Cultural Heritage for Society.
https://www.coe.int/en/web/culture-and-heritage/faro-convention

cultural operators to digitally promote co-created heritage initiatives. Looking forward, Dolom.it aspires to contribute to the UNESCO Dolomites Foundations ambitious project, Museums of the Dolomites, aiming to establish a network of museums interconne cted through the web.

Integral to this journey are stakeholders like the ISOIPSE association from Belluno, playing a crucial role in content creation alongside Dolom.it. Recognized and supported by institutions such as the m.a.c.lab and DiCultHer in 2018, Dolom.it stands as a trailblazer in promoting innovative formats for cultural heritage[50].

Citing Stefania Zardini Lacedelli, president and co-founder of Dolom.it, "the Dolom.it team is convinced that cultural heritage belongs to everyone and that everyone can contribute to it with their story, collections, and interpretations. Museums, operators, cultural associations, companies, citizens, schools and students constantly become curators to expand its digital heritage experience."

- Hack4DK: Hack is a project that differs from the others but nevertheless exemplary in the broad digitisation project that is being implemented. It is an annual hackathon on cultural heritage organised by major heritage institutions in Denmark.
  Hack4DK stands as a trailblazing organization, forging unconventional partnerships between museums and tech enthusiasts to redefine the boundaries of digitization of museums. Through annual hackathons, the organization seeks out individuals with a blend of creativity, curiosity, and a passion for digital development and cultural heritage. HACK4DK is more than an event; its a dynamic exploration of new possibilities, a showcase of the potential inherent in APIs, web services, and mashups.

Since its inaugural event in October 2012, Hack4DK has evolved into a dynamic platform, hosting increasingly larger gatherings from 2013 to 2019. The participants, a diverse mix of designers, software developers, art historians, storytellers, and open data enthusiasts, converge at unique venues like the National Museum of Denmark, National Gallery of Denmark, DR – Danish Broadcasting Corporation, and the Agency for Culture and Palaces.

Hack4DK emerged as a response to a challenge within the traditional museum business model. It recognized a need for radical innovation, and the solution lay in fostering external collaborations. By bringing in hackers and technological experts from outside the museum sphere, the initiative catalyzed workshops and feedback sessions. This approach not only engaged the community in novel ways but also ensured the projects maintained a high level of innovation.

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[50] https://museodolom.it/

The impact of Hack4DK is evident in the visionary projects that have emerged victorious. These range from simplifying the online search for works of art and cultural artifacts across institutions to ingenious combinations of datasets, augmented reality, and QR codes. Hack4DK isnt just a hackathon; its a dynamic force driving innovation, brea king down silos, and propelling museums into the digital frontier.

At the heart of this initiative lies a digital business model that transcends conventional approaches. Its not just about digitizing museums or cultural heritage organizations; its a dynamic endeavor to engage the community in actively shaping the digital landscape.

The benefits of this new model extend beyond the digital realm; its about fostering a business model that invites the community to participate in the creation of a digitized museum or cultural heritage organization. Its a departure from traditional model s, emphasizing collaboration, community involvement, and the democratization of cultural digitization.

To bring this vision to life in other museums and regions, a set of transition mechanics come into play. A main organizer within the Cultural Heritage sector takes charge of event planning, ensuring a seamless and well-executed process. A digital expert comes on board to coordinate the event and determine the necessary technology, ensuring a harmonious fusion of creativity and technical prowess. Additionally, a coordinator liaises with universities and their students, fostering partnerships that drive the organization of the event.

The implementation journey involves reaching out to universities that share an interest in this transformative project. Coordinators and project managers collaborate to meticulously plan the event, ensuring it goes beyond mere awareness-raising to yield tangible results for the Cultural Heritage sector.

Stakeholders integral to this process include students pursuing technology majors, armed with the digital competencies required to navigate this terrain. An ICT expert plays a crucial role in ensuring the event unfolds ethically, upholding the highest standards in the digital realm. Finally, cultural heritage sites and their dedicated managers stand as vital contributors to this collaborative effort, ensuring the fusion of technology and cultural heritage unfolds seamlessly. Its more than just a digital transformation; its a collective journey towards shaping the future of cultural digitization.

4.3 THE FUTURE SCENARIO BOOK

The global landscape of the world and the European Cultural sector is poised to undergo significant transformations by the year 2035. The profound impact of the Covid-19 pandemic on creative and cultural industries, particularly cultural heritage organizations like museums, has spurred a necessity for innovation and adaptation to the evolving reality. One prominent avenue of response has been the accelerated adoption of digitalization by cultural heritage institutions, enabling them to connect with audiences in new and dynamic ways[51].

In recognizing that the future is likely to be characterized by increased uncertainty and volatility, organizations, including those in the cultural sector, are challenged to proactively anticipate and respond to emerging realities.

To address these concerns, a collaborative futures study has been conducted by the Cultural Heritage 2.0 Project, culminating in a comprehensive exploration of emerging forces, drivers of change, and potential impacts that could reshape the cultural sector over the next decade.

Guided by a Futures Design approach, the study employed a multi-faceted research methodology encompassing desktop research, horizon scanning, and interviews with leaders and experts from Cultural Heritage Organizations. Additionally, insights were gleaned from experts in technology, social trends, business innovation, and academia. The engagement and collaboration involved over 300 participants, including sector experts and their stakeholders, museum leaders, trend experts in business innovation and technology, and academic scholars.

The outcome of this intensive collaborative effort is the development and validation of four distinctive scenarios, each offering a unique perspective on the future of the European Cultural Heritage Sector.

These scenarios are not merely speculative narratives; rather, they serve as sources of inspiration for rethinking, rehearsing, and reimagining what may lie ahead. By envisioning alternative futures, cultural heritage organizations are better equipped to identify new opportunities and evolve their business models. In navigating complex and uncertain times, the ability of Cultural Heritage Organizations to imagine diverse futures becomes paramount. Embracing alternative possibilities and a willingness to do things differently are essential capacities for charting a resilient and innovative course forward.

The chosen preferable scenario, derived from this collaborative study, serves as a catalyst for inspiring cultural heritage organizations to not only adapt but thrive in the face of dynamic challenges.

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[51] < https://culture2point0.eu/result-1-future-of-cultural-heritage-sector-scenarios/ >

4.4 PROCESS AND METHODOLOGY

The research and overarching methodology undertaken in this study were intricately informed and directed by the Futures Design Framework developed by Bespoke. This innovative Futures Design methodology seamlessly integrates a spectrum of tools, methods, and mindsets derived from the design process, coupled with theoretical frameworks drawn from the strategic foresight practice. It represents a collaborative approach that delves into the comprehension of the current landscape, unraveling emerging changes and forces that mold a particular sector or environment.

Essential to the success of this methodology was the collective endeavor to navigate the intricate web of present and future developments. By orchestrating a synthesis of diverse perspectives and voices, a wide array of insights was cultivated, fostering a comprehensive understanding of the evolving dynamics within the cultural sector. The inclusivity of this process, from the initial research phase through sensemaking and culminating in the creation and validation of scenarios, has been instrumental in its effectiveness.

A pivotal starting point in this collaborative journey was the research phase, which served as the foundation for identifying and comprehending the shifts and forces influencing the cultural sector. Sensemaking, a crucial component of the methodology, facilitated the interpretation of gathered data, leading to a nuanced understanding of the complex interplay of factors at play.

Engaging with a diverse and extensive pool of over 300 participants, including sector experts and their stakeholders, leaders in museums, trend experts in business innovation and technology, as well as academia, enriched the process. This wide-ranging collaboration fostered the development and validation of four distinctive scenarios. These scenarios, meticulously crafted and tested, serve as invaluable tools for delving deeper into the potential impacts that may shape the trajectory of the European Cultural Heritage Sector.

In essence, this methodological approach transcends mere observation; it actively involves stakeholders and experts in the co-creation of possible futures. By intertwining the disciplines of design thinking and strategic foresight, the study endeavors to provide a holistic and nuanced understanding of the forces shaping the cultural sector. It is not merely an exploration of potential outcomes but a proactive and collaborative effort to anticipate and navigate the complexities that lie ahead for the European Cultural Heritage Sector.

1. <u>Researching and scanning the changes and forces emerging in the present</u>

To initiate this comprehensive exploration of the European Cultural Heritage landscape, a meticulous process commenced with a thorough desktop research and horizon scanning. This initial phase sought

to unearth an extensive array of signals of change, acknowledging that the world is replete with early indicators that can illuminate the evolving dynamics within the cultural heritage sphere. The act of scanning the horizon was not merely a passive exercise but a deliberate endeavor to discern pertinent future directions, unfolding developments, emergent behaviors, novel business models, technological shifts, evolving values, and shifting audience dynamics within the global arts and culture domain.

As the research unfolded, a collaborative sense-making workshop played a pivotal role in distilling 16 key insights or trends that encapsulated the essence of the identified signals of change. These trends were thoughtfully clustered around five distinct domains of emerging change, each shedding light on critical aspects integral to envisioning the Future of Cultural Heritage.

The first of these domains, labeled **"The Why: Institutional Values Innovation,"** delves into the belief and value systems inherent to the cultural heritage sector. It scrutinizes the very essence that the sector endeavors to preserve and protect, exploring how institutional values may evolve in response to changing societal paradigms.

Moving on to **"The How: Business Models & Finance,"** this domain navigates the suggested approaches and processes essential for the sectors transformative journey. It delves into the nuanced intricacies of business models and financial frameworks that can facilitate a sustainable and adaptive cultural heritage sector.

"The With Whom: Partnerships & Collabs" encapsulates the collaborative spirit of the cultural heritage sector, extending beyond its traditional boundaries. This domain explores the vast potential for partnerships and collaborations within the cultural heritage sphere and, significantly, beyond its confines.

Shifting focus to **"The Who: Social Behavior,"** this domain elucidates the proposed changes in individual and collective behaviors, habits, and routines that may pave the way for a seamless and effective transformation within the cultural heritage sector.

Finally, **"The What: Creation & Creativity"** ventures into the diverse forms and types of cultural heritage that hold the potential to catalyze the sectors transformation. It delves into the creative realms that can redefine and reshape the cultural heritage narrative.

This approach, merging desktop research, horizon scanning, and collaborative sense-making, not only identifies trends but actively engages with the dynamic interplay of factors shaping the Future of Cultural Heritage.

The distilled insights or trends generated from this process not only hold the potential to inspire the Cultural Heritage Sector but also serve as dynamic catalysts for actionable points of departure. Beyond immediate applicability, these insights play an important role in establishing a strategic foundation for the development of future scenarios within the Cultural Heritage Sector. By weaving these trends into the fabric of scenario work, a robust framework emerges, capable of guiding the sector through the intricacies of an ever-evolving landscape.

To further enrich this scenario framework, we have introduced key drivers, each defined as a "factor considered to have a determining influence over the direction the future will take." These key drivers are integral components that shape the very essence of the future state of the cultural sector. Within this paradigm, the interplay between various drivers and insights is complex, resulting in a composite future landscape. Each driver holds the potential to exert different influences on existing insights and trends, either accelerating certain aspects or giving rise to entirely novel developments. This nuanced understanding acknowledges the dynamic nature of the cultural sector, wherein the identified drivers serve as dynamic forces shaping the trajectory of future scenarios. Consequently, the strategic amalgamation of trends and key drivers lays the groundwork for an exploration of potential futures, fostering adaptability and resilience within the Cultural Heritage Sector.

2. Explore multiple possible distinctive future projections

Following the exploration of insights and key drivers, the next phase of the methodology involved a detailed scenario process. This approach entailed the systematic extrapolation of the impacts stemming from these drivers through multiple iterative steps. The objective was to articulate future situations, or scenarios, wherein the combined effects of various key impacts paint a vivid picture of potential future states. These scenarios are positioned at the extremities of the scenario funnel, encapsulating diverse and plausible outcomes.

In the scenario-building process, both the distilled insights and the twelve selected key drivers were utilized. These key drivers served as the focal points for projecting into the future, each playing a role in shaping the unfolding narrative. This interplay between insights and key drivers formed the foundation for the development of ten scenario skeletons, each representing distinct trajectories based on varied future projections.

From this array of scenario skeletons, a meticulous selection process ensued, evaluating each for consistency, plausibility, and distinctiveness. Ultimately, four scenario narratives were chosen to be explored and developed further. These narratives not only exhibited a high level of coherence and

credibility but also possessed unique attributes that rendered them effective in representing diverse facets of the future landscape.
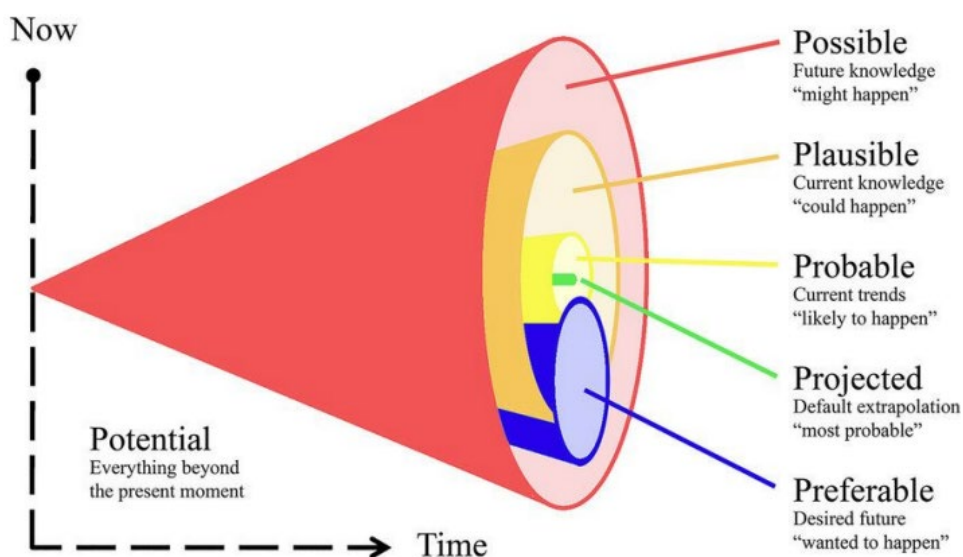
'Futures cone' model used to portray alternative futures by Hancock and Bezold (1994)

3. <u>Synthesise and strategize implications and future opportunities for Cultural Heritage Organisations</u>

In a concerted effort to embrace diverse perspectives, Future Dialogues Workshops were conducted in three European countries. These workshops served as dynamic platforms for engaging cultural heritage stakeholders, educators, and experts in technology and business. The participatory nature of these sessions facilitated the collection of opinions and reflections, providing a rich tapestry of insights. Through collaborative exploration, the scenarios developed earlier were not only enriched but also subjected to in-depth discussions on their potential impacts and the implications for future competencies.

In the spirit of inclusivity, Bespoke orchestrated a comprehensive analysis of the reflections and impacts gleaned from the responses. This analytical process involved mapping the relationships and outcomes articulated during the workshops. The culmination of this rigorous analysis gave rise to the formulation of four final scenarios. These scenarios stand as a testament to the collective opinion and prevailing perspectives of the entire group.

It is important to underscore that these scenarios are not mere hypothetical constructs but rather reflections of the diverse voices and insights brought forth during the Future Dialogues Workshops.

They encapsulate the dominant views of the participants, representing a collective vision of what lies ahead for the European Cultural Heritage Sector. In essence, these scenarios are crafted to inspire, prompting stakeholders to envision, rehearse, and reimagine potential futures, fostering a proactive and anticipatory approach to the evolving landscape of cultural heritage.

4.4.1 THE 17 TRENDS

In this section the seventeen trends identified through the research will be analyised, followed with key signals that support them. As indicated before, when looking at the future of Cultural Heritage Organisations, five domains of change emerged whilst researching, highlighting areas of interest when looking at the future of Cultural Heritage: the Why, the How, the With Whom, the Who, and the What.

- **THE WHY. Institutional values innvoation**

Amid shifting priorities, external dynamics, and the pervasive influence of an increasingly uncertain environment, institutions find themselves compelled to redefine their societal roles. This reevaluation prompts a reconsideration of the essential skills and competencies required. Fueled by the aspirations of the next generation, evolving values centered on climate justice, inclusivity, diversity, equity, privacy, and ownership are being vigorously examined. These collective challenges serve as catalysts for innovation within institutions, shaping their relevance within local contexts and refining their purpose and impact.

TREND 1 → MUSEUM AS MEDIATORS FOR LOCAL CHALLENGES

The global tourism industry has played a pivotal role in unveiling hidden cultural sites to a broader audience, fostering appreciation on a global scale. However, the recent pandemic has shed light on the vulnerability of sites sustained primarily through tourism, revealing the potential for economic crises when disruptions occur. This underscores the risks associated with excessive dependence on tourism for the economic well-being of a city or country.

In response to this realization prompted by the pandemic, local communities, exemplified by the actions taken in Venice, have taken proactive measures to reclaim control over their cultural sites. A growing awareness among locals of the intrinsic value these cultural sites hold for their own identity has spurred efforts to regain ownership and actively shape the narrative of their culture.

In essence, this shift from a global to a local audience signifies a transformative opportunity for Cultural Heritage Organizations. Embracing a more localized approach allows these organizations to play a more integral role within their communities, actively contributing to and advocating for local

identity. Museums and cultural leaders, in turn, assume the responsibility of representing the unique narratives of the communities they serve, becoming more deeply embedded in the fabric of local life and identity.

Key signal: Giving cultural heritage back to the locals

Venice glimpses a future with fewer tourists: Just before Italy lifted its COVID restrictions, a wave of local residents took to the streets in protest against a proposed new dock that threatened to inundate one of Venices last livable neighborhoods with hordes of tourists. Beyond their opposition to the dock, this protest also served as a unique opportunity to showcase an alternative, less tourist-dominated future for the city. The pandemic, in laying bare the vulnerabilities of societies it has affected, whether in terms of economic disparities, racial inequality, an overreliance on global production chains, or fragile healthcare systems, has particularly highlighted these issues in Italy.

In the case of Italy, the virus not only brought these societal challenges to the forefront but also exposed a deeper-rooted problem—the countrys dependence on tourism. Despite being blessed with a breathtaking artistic heritage, the addiction to tourism has led to the exclusion of many residents from historic centers, stifling creativity, entrepreneurialism, and the authentic Italian way of life. The pandemic has become a revealing force, unmasking the detrimental impact of this tourism-centric focus and prompting a reevaluation of priorities in pursuit of a more sustainable and community-centric future.

TREND 2 → DECENTRALIZE CULTURAL HERITAGE THROUGH TECH

The continuous advancement of new technologies has ushered in a diverse array of potential artwork typologies. Notably, contemporary artwork has the capacity to evolve and develop dynamically as viewers experience it. Simultaneously, the decentralization of the Arts has provided an expansive platform, reaching a broader audience than ever before and dismantling barriers to entry.

These transformative phenomena are compelling Cultural Heritage Organizations and society at large to reconsider their roles and positions in the evolving cultural landscape. The shifting dynamics between artists, viewers, and artwork raise intriguing questions about the future.

In particular, as artwork evolves in response to viewer behavior, a pertinent question arises: Does this engender a new paradigm of ownership? This contemplation leads us to ponder the implications of decentralization, especially concerning how larger and traditionally slower participants can discover and assert their value in this evolving scenario.

Key signal: Distributed Art

The decentralisation of Art through distribution among people on a smartphone application: Exploring the innovative concept of Distributed Art, teamLab introduces an engaging experience through its smartphone application, teamLab: FIRE. Upon launching the app and approaching the artwork, a virtual flame is ignited, allowing users to take the artwork home. What makes this experience unique is that by bringing the flame close to another persons smartphone, the flame spreads, creating an interconnected netwo rk. As users connect and share the flame with others, it propagates globally, and these shared flames are visualized on the Map of The Flame.
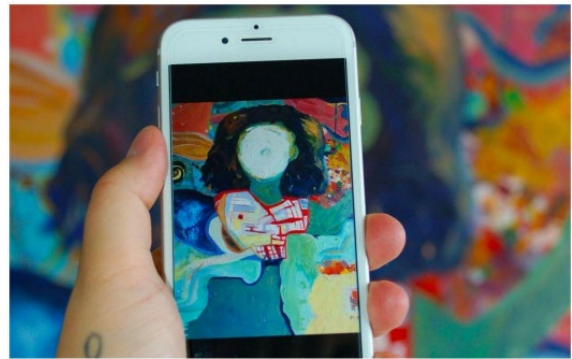
The essence of Distributed Art lies in the duplication of the artwork or its components, which are then distributed among individuals. Once in the hands of people, the artwork actively proliferates, creating copies of itself. These decentralized artworks continue to exist within peoples networks, persisting even if the original disappears. The concept not only transforms the way we interact with art but also establishes a dynamic and enduring presence within a distributed and interconnected digital landscape.

TREND 3 → GIVING BACK TO WHOM IT BELONGS

Amidst a transformative shift aimed at embracing fresh perspectives and diverse worldviews, museums find themselves in the midst of a profound ethical reassessment. This reevaluation extends to the very essence of what constitutes arts and cultural heritage and challenges the traditional notions of ownership. Unsurprisingly, such significant changes are met with intense discussions and opposition, reflecting the inherent resistance to transformation. Nevertheless, it is undeniable that a paradigm shift is underway, redirecting arts and cultural heritage away from a predominantly male and Western-centric focus, exploring new territories, and redefining both artworks and associated business models.

The recognition of this shift in awareness opens up exciting possibilities for arts and cultural heritage organizations. They become poised to attract support from new funders who are enthusiastic about championing works that resonate with broader audiences. This influx of support not only fuels experimentation but also facilitates the exploration of innovative business models, ushering in a new era of creativity and inclusivity in the realm of arts and cultural heritage.

Key signal: Investigating the future of museums

The Empty Museum to learn the colonial past of museums: Delving into the roots of museum history, one cannot escape the intertwined narratives of exploitation, racism, and colonialism. In envisioning the future, "The Empty British Museum" emerges as a speculative project set in the year 2033. Within this imaginative scenario, Western museums,

having internalized the criticisms directed at them, embark on a transformative journey to rectify their colonialist past. This pioneering initiative seeks to portray a museum that has undergone a profound decolonization process, serving as a pilot project to illuminate the pervasive colonization of museum artifacts.

While acknowledging that this endeavor is designed to raise awareness, it remains a crucial exercise to visualize and contemplate alternative approaches for transforming museums into more inclusive spaces. Beyond being an illustration, this project delves into profound questions surrounding identity, otherness, culture, and belonging. Its potential impact extends beyond awareness, possibly catalyzing ongoing compensation and restitution processes. The hope lies in museums engaging in self-criticism, steering toward a future that is not only better but also inherently more just and equitable.

TREND 4 → HEALING THROUGH HERITAGE

Globally, an unprecedented 80 million individuals find themselves displaced due to wars, natural calamities, and various upheavals. In this challenging landscape, digital tools emerge as valuable instruments for preserving cultures and narratives. Against the backdrop of heightened awareness surrounding social justice issues and the surge of activist movements, Cultural Heritage Organizations confront a dual challenge: not only to voice their concerns but also to take concrete actions. This involves extending support to refugees by providing a secure digital space for fostering a sense of belonging and offering tools to celebrate their art and creativity.

In taking a decisive stand, Cultural Heritage Organizations have the opportunity to provide a platform for communities, enabling them to take control of their narratives and how these stories are documented and portrayed. Through the utilization of digital tools, these organizations contribute to the preservation of stories, simultaneously bolstering mental health and well-being. Ultimately, the experience of engaging with the arts and the celebration and preservation of ones cultural identity and heritage can significantly contribute to providing people with a profound sense of belonging.

Key signal: Young Iraqis trained to document and preserve intangible heritage

Preserving Iraq's diverse Cultural Heritage: In the unique initiative titled "Our Oral History Under Threat," a project collaborates with young individuals to document and safeguard the intangible heritage of Iraq. In close collaboration with the faculties at the University of Duhok and the University of Mosul in northern Iraq, over 100 young participants from diverse ethnic and religious backgrounds have been trained over the past 18 months. Employing a blend of traditional research methodologies like oral histories and topic interviews alongside contemporary documentation techniques, including video, the project has yielded an impressive archive of over 14,000 heritage items. This diverse collection encompasses photos, blogs, personal testimonies, and videos.

The life histories and topic interviews cover a range of subjects, such as interviewing traditional craftspeople, documenting the veneration and symbolism of the black serpent by Yazidis, capturing unique celebrations of traditional religious festivals like Easter and Ramadan, and delving into the realm of traditional medicines and healing practices. Against the backdrop of decades of conflicts and political upheaval in Iraq, where historic buildings and cultural monuments lie in ruins, and communities face fragmentation and displacement, the project strives to fill the void. As historic buildings are reconstructed and cultural artifacts recovered, Cultural Heritage Organizations (CHOs) worldwide can play a pivotal role in raising awareness about such initiatives and facilitating their organization. Together, a contribution is made to the preservation of Iraqs rich heritage and the empowerment of its communities.

TREND 5 → UPSKILLING THE WORKFORCE

Initiating change in the world necessitates a personal commitment to self-improvement, and the same principle applies to Cultural Heritage Organizations. To inspire transformative exhibits, these organizations must first enhance the skills of their internal workforce.

Currently, Cultural Heritage Organizations face the challenge of addressing the prevalent pay gap, a disparity that sets them apart from other industries. In confronting this inequality and championing the ethos of initiating change from within, museum workers are openly sharing their wages to shed light on the inadequate resources at their disposal. Workforce development is further facilitated through initiatives that prioritize additional education and foster collaboration within the organization. This multifaceted approach underscores the commitment of Cultural Heritage Organizations to combat inequality and empower their workforce from the inside out.

Key Signal: Fair pay for Cultural Initiatives

Ensuring equitable compensation in the cultural sector, particularly outside major institutions, stands as a pivotal concern for the preservation of cultural heritage through smaller initiatives. Primarily, the struggle lies in preserving these new initiatives. Establishing minimum standards for fair remuneration, encompassing wages and freelance guidelines, becomes a crucial step in facilitating the sustainability of these smaller cultural endeavors.

Austrias interest group, "IG culture," has taken the lead in championing a campaign for fair pay within the cultural realm. The objectives encompass the formulation of a salary structure for employees and the creation of a fee index for freelancers. Additionally, the group is actively engaged in political lobbying efforts aimed at shaping the appropriate frameworks and enhancing the overall social situation to further support fair compensation in cultural work.

- **THE HOW. Business models & Finance**

Well before the onset of the Covid-19 crisis, cultural institutions and companies found themselves confronted with the challenge of cultivating versatility and proactivity in their financial sustainability. A shift towards innovative financing methods for both institutions and artists was already underway, dismantling traditional structures in favor of alternative, participatory, and crowdfunded platforms. This evolution has given rise to the exploration of hybrid business models. Looking ahead, the expectation is that institutions will be compelled to elevate their innovation efforts even further than in the present. This trajectory will necessitate Cultural Heritage Organizations to adopt

entrepreneurial approaches, emphasizing agility and self -reliance in order to thrive in the evolving landscape.

TREND 6 → ALTERNATIVE FINANCING MODELS TO INVOLVE VISITORS

Crowdfunding, defined as the mobilization of small amounts of capital from a large pool of individuals, is emerging as a viable funding option for certain Cultural Heritage Organizations. In essence, crowdfunding provides organizations with an avenue to narrate their own stories and shape the narrative according to their vision.

The growing success of crowdfunding practices appears intrinsically tied to the rise of participation culture, where the role of visitors undergoes a significant transformation across various domains. This evolution is notably exemplified by the popularity of initiatives that leverage immersive designs and experiences. Through crowdfunding, visitors gain valuable insights into the specific needs of Cultural Heritage Organizations, fostering a sense of knowledge that seamlessly translates into a feeling of ownership. This newfound appreciation stems from the satisfaction visitors derive from making a tangible impact by supporting their cherished Cultural Heritage Organizations.

Key Signal: Museum Crowdsourcing transform visitors in content creators

In the contemporary museum landscape, the advent of the Web and its social affordances has transformed the visitor into a strategic agent, a role that seemed improbable only a few years ago. Presently, visitors wield a growing negotiating power in shaping the development and aftermath of exhibits. This influence ranges from the subtle yet impactful soft power of their physical presence to assuming the role of informal consultants, especially in the curation of culturally sensitive materials. Moreover, visitors play a pivotal role in the museums PR and advertising through the vast reach of social media and review platforms.

The prevalent assumption underlying the process of crowdsourcing is that it mutually benefits both the museum and the users involved. For the museum, crowdsourcing provides potentially valuable insights into its collections, aligning with curatorial and public goals. Simultaneously, crowdsourcers gain a sense of added value to their museum experience, contributing information that enhances their understanding and appreciation through tailored, meaningful insights. A prominent illustration of this collaborative approach is evident in the Brooklyn Museums Click! A Crowd -Curated Exhibition,

where an open call for photograph submissions, online audience evaluation, and a subsequent exhibition in 2008 showcased the power of crowd curation in action.

TREND 7 → EXPERIMENTATION OF PRICING MODELS

The exploration of pricing models, previously overlooked by both researchers and cultural heritage organizations, emerges as a promising avenue to generate future value. The escalating uncertainties in Europe, coupled with commercial pressures, serve as catalysts for companies and Cultural Heritage organizations to embark on innovative ventures and experiment with novel pricing strategies.

In the face of unprecedented events like the pandemic and wars, there is a growing recognition of the necessity for strategies that can seamlessly adapt to such incidents. This recognition has fueled experimentation with diverse pricing models, including charging visitors for their visits. These endeavors not only present opportunities to attract new visitors but also introduce innovative models aimed at enhancing satisfaction and engagement.

Leveraging technology to reimagine pricing models, whether for personal visits, subscriptions, new membership structures, loyalty programs, or hybrid business models, signifies a comprehensive approach to adapting to the evolving landscape. The reconfiguration of the traditional pay-per-use pricing model holds the potential to unlock pathways to future resilience.

Looking ahead, the introduction of new pricing models and the evolution of existing ones for consuming art promise to enhance the overall experience, convenience, and empathy. This transformative approach positions Cultural Heritage organizations at the forefront of shaping a dynamic and resilient future for the consumption of artistic endeavors.

Key Factor: Subscription based Theater

Super Secret Arts has been crafted upon the theater industrys inaugural all-you-can-attend membership model – akin to a live performance counterpart of Netflix. This innovative approach serves the dual purpose of ensuring fair compensation for artists, enabling experimentation with avant-garde projects, all while delivering substantial value to audiences at twenty-five dollars per month.

The question arises: Could a subscription model not only benefit artists but also hosts in creating a more accessible avenue for cultural heritages? What avenues exist to democratize access to culture?

- **THE WITH WHOM. Partnerships and Collabs**

Facilitating collaboration, building relationships, and forming partnerships to drive innovation emerge as critical factors for survival. The embrace of collectivism stands out as a foundational principle for the future, motivating individuals to establish their systems and seek community. Considering this shift, the question arises: How can Cultural Heritage Organizations actively participate in these novel collaborations and partnerships?

TREND 8 → MUSEUM AS PART OF THE LOCAL SPACE

Beyond their primary function of showcasing artworks, Cultural Heritage Organizations often serve as venues for hosting events. Historically, these events tended to be exclusive in content, limiting general public participation. However, the role of museums is evolving into more than just a space for displaying art. They are transforming into hubs that facilitate connections among visitors and local communities, fostering dialogue between the two. This transformation demands flexibility in the environment to accommodate these shifting dynamics.

Consider the scenario where events organized at Cultural Heritage sites take precedence over the traditional art collections. In navigating this landscape, how should Cultural Heritage Organizations strike a balance between showcasing artwork and hosting events to ensure a harmonious coexistence?

Key Factor: Demonstrating graduates projects to the public

The Saachi Museum engages in fruitful collaborations with art schools, providing a platform to showcase student works. This collaborative effort extends to Londons burgeoning art scene, featuring a curated selection of new works that span a diverse range of mediums, including moving image, assemblage, installation, performance, painting, sculpture, photography, and drawing. The curation of these artworks is purposefully thematic, delving into topics such as environmentalism, gender identity, post-pandemic reflections, UK racial politics, and explorations of the human psyche.

Considering this context, the question arises: How can we actively support students in taking their initial steps into the workforce or launching their careers as artists by utilizing cultural heritage sites as dynamic and enriching locations for their creative endeavors?

TREND 9 → ONE PLUS ONE MAKES THREE

Innovation is all about thinking outside the traditional box. Instead of connecting with the ones you know, how about you connect with an unusual partner. Besides that addressing and facing future complex and interconnected challenges will only be done successfully when we can build radical partnerships, hooking up with unusual partners can shift one's perspective, its purpose, fuel inspiration and create a stronger value proposition for the future. For that, Cultural Heritage Organizations need to bridge the various gaps between their habits, perspectives, break silos and engage with people and communicate with a variety of disciplines to see what happens. It will need to rethink the structures - from cross-organisational sharing to collaboration outside the ecosystem of Cultural Heritage. That said, collaboration is a superpower for humans. How will Cultural Heritage Organisations use this?

Key Factor: Foodies invade the Museum

In response to evolving visitor preferences, museum professionals are adapting their food offerings to align with contemporary lifestyles. Maureen Sharaf, the Food Services Manager at Millstone Cafe at the Brandywine River Museum of Art in Chadds Ford, PA, highlights this shift, noting that guests are gravitating towards lighter and more conscientious eating habits. She emphasizes the importance of incorporating menu items that cater to dietary preferences such as vegetarian and gluten-free options. The consensus is clear: to ensure sustainability, restaurants and bars within museums must stay attuned to the changing eating behaviors of their visitors.

TREND 10 → BLENDING TECH WITH CHO's

As the connectivity between humans, non-humans, and objects intensifies, the collaborations between the entities and organizations orchestrating this interconnectedness are poised to grow. Technological advancements continue to proliferate, gradually transforming cultural experiences from mere reality enhancement to coexisting in parallel virtual realms. This transformation is made possible by cutting-edge technologies like AI, VR, and AR, resulting in the convergence of visual and physical worlds and giving rise to intricate digital experiences. This evolution creates a fertile ground for innovative collaborations to flourish.

As highlighted earlier, collaboration is fast becoming the norm as industries increasingly converge. To effectively navigate this interconnected landscape, there is a need to adopt a new language, foster trust, and embrace novel working methodologies. Mastering these elements becomes a crucial

endeavor for cultivating stronger collaborations in the future. The question then arises: How will Cultural Heritage Organizations harness this trend to leverage the collaborative superpowers ushered in by the fusion of technology and culture?

Key Factor: Experience Ancient Olympia

In the heart of ancient Olympia, 27 significant monuments, including the original Olympic Stadium, the temples of Zeus and Hera, and the workshop of the renowned sculptor Phidias, still proudly stand today. Despite enduring thousands of years of weather, war, earthquakes, and modernization, these monuments have been meticulously preserved and restored by the Hellenic Ministry of Culture and Sports. However, recognizing the imperative for digital preservation, the Ministry is embarking on a groundbreaking initiative in collaboration with Microsoft – Common Grounds.

Common Grounds is a visionary digital revival project dedicated to preserving and restoring the rich historical tapestry and common values that the site embodies. This collaborative effort aims to ensure that the evidence of Ancient Olympias storied histo ry is seamlessly passed down to future generations. Leveraging the power of AI technology, the project enables viewers to immerse themselves in the splendor of Ancient Olympia as it once stood.

The digital revival of Ancient Olympia stands as a remarkable achievement in cultural heritage, seamlessly intertwining humanitys shared history with cutting -edge technology. This initiative not only benefits the world by preserving our collective past but also empowers forthcoming generations with innovative ways to explore and appreciate our shared heritage.

- **THE WHO. Social Behavior**

A generation nurtured in the realms of a highly digital environment brings forth a fresh set of values, rooted in data-driven routines and a desire for equal treatment. The default mode becomes participatory, whether through crowdsourcing, co-producing in the digital realm, or taking ownership of content, transcending the traditional role of mere consumers. These ev olving social behaviors and novel preferences serve as pivotal milestones, paving the way for innovative approaches to engage and activate audiences in experiencing a collection.

Furthermore, with the advent of new channels and diverse audiences, digital heritage and culture assume a more populist and multifaceted character, seamlessly blending with media, entertainment,

and other cultural forms. This convergence transforms the consumption of digital heritage into something more inclusive, diverse, and even mundane, marking a dynamic fusion with various facets of contemporary culture.

TREND 11 → THE MUSEUM MEMEFIED

Equipped with their digital devices, the younger generation embarks on visits to Cultural Heritage sites, poised to capture, post, and share their experiences on their social media accounts. This vibrant engagement reflects a more playful interaction with art and culture, extending beyond traditional settings.

For the newer generations, Social Media serves as a second language of communication, validation, and appreciation. In response, Cultural Heritage Organizations are adapting their approach. This involves tailoring content to facilitate easier sharing, incorporating meme-based posts on their accounts, and crafting easily shareable content to attract new audiences through the followers of their existing audience.

This shift necessitates Cultural Heritage Organizations to not only curate exhibitions that resonate with the virtual worlds of their visitors and real-life experiences but also to develop content that sparks a desire among the audience to share with their friends and the wider world. Its a call for these organizations to stay attuned to evolving digital dynamics and actively participate in the social media conversation around art and culture.

Key Factor: Tik Tok Museum

Facing the impact of Covid-19, the Black Country Living Museum (BCLM) in the UK took decisive measures, including furloughing or releasing most of their staff to mitigate financial losses. Renowned for its live action actors portraying historical characters, this immersive engagement element was abruptly disrupted by the pandemic. However, the BCLM showcased resilience by transitioning its live action content to TikTok, allowing them to create compelling material even during the challenging times.
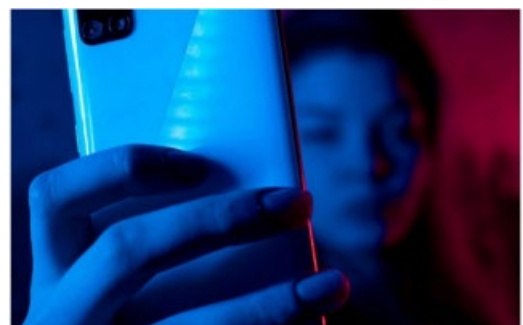
Surprisingly, this shift catapulted the BCLM to unprecedented heights, with one volunteer actor amassing over 22 million views worldwide. Remarkably, despite being physically closed to visitors, the BCLM emerged as the most followed museum on TikTok globally, surpassing even renowned galleries like the Uffizi in Florence.

This compelling example underscores how Cultural Heritage organizations can adapt to the dynamics of social media, not only to attract new audiences but also to captivate a younger generations interest in culture and heritage. As the pandemic subsides, this success story encourages CH organizations to draw inspiration from the BCLM and leverage social media creatively, particularly through platforms like TikTok, to sustain and enhance their outreach efforts.

TREND 12 → AUDIENCE BECOME ARTISTS

As a paradigm shift unfolds, more individuals are transitioning from content consumers to active content creators, giving rise to heightened expectations of people as stakeholders, creators, and proprietors of brands, companies, and organizations. This shift towards community-driven and crowdsourced production, facilitated by open software and accessible tools, emphasizes democratization and collaborative creation.

Concurrently, there is an observable uptrend in the sophistication and professionalization of individuals engaged in artistic pursuits. The audiences role extends beyond mere participation in building or interacting with collections to active co-production and even assuming the role of the artist themselves. Significantly, the emerging generations exhibit a natural inclination towards entrepreneurship, aligned with their commitment to purpose and fairness. This begs the question: How will these evolving dynamics impact future collections and creations? How will the perceived value transform when the audience seamlessly transitions into the role of the artist?

Key Factor: Corona Collection

Amidst the initial lockdown in Austria, the Wien Museum embarked on an initiative to amass digital representations, primarily in the form of digital photos, capturing objects emblematic of the transformations in personal and professional spheres during the Covid-19 pandemic. This concerted effort resulted in the collection of several thousand entries, from which a curated selection of 235 photos was presented online.

The project entered its second phase promptly after the conclusion of the initial lockdown in June 2020. Objects chosen for their direct relevance to Vienna and the challenges posed by the Corona crisis were not only showcased digitally but also physically integrated into the City of Viennas collection. Each object, accompanied by a meticulously documented narrative and its owners

connection, found a home in the museums repository, poised for future exhibitions, publications, and scholarly research.

TREND 13 → LADDER OF PARTICIPATION

Over the past few years, there has been a noticeable shift from perceiving museums merely as galleries to embracing them as dynamic public spaces. These are not static realms but places where individuals actively engage, partake, explore, and converse. The evolution of this participation extends across various levels on what can be termed the "participation ladder." This progression ranges from extending invitations for contributions to empowering visitors to take the lead, encouraging involvement in collections, and ultimately placing the audience in control.

The advent of new digital technologies, coupled with the abundance of data and heightened connectivity, continues to reshape our interactions with the world and how the world reciprocates. This digital landscape unfolds countless possibilities for collaborative creation, fostering collective intelligence. A growing number of individuals now anticipate that their museum visits will be characterized by experiences that not only invite but also facilitate active participation.

As participation becomes more ingrained, the societal role of museums will undergo amplification, and the process of knowledge access and transfer will transform into a collective endeavor. In light of this, what implications will this have for the competencies required by Cultural Heritage Organizations in the future?

Key Factor: Museum Chatbots

Numerous instances highlight the effective and imaginative deployment of chatbots within museum settings, with one of the pioneering examples originating from the Cooper Hewitt Museum in New York. As early as 2013, the museum introduced the Object Phone, earning recognition for its innovative use of chatbot technology in cultural spaces. Powered by Twilio, a communication service specializing in SMS, video, and voice AI technologies, the Object Phone allowed museum visitors to engage by texting or calling to inquire about additional information regarding specific museum objects.
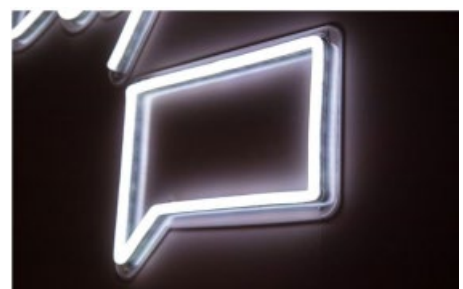
In certain instances, chatbots are seamlessly integrated with other cutting-edge technologies to craft a distinctive visitor experience. A notable illustration is found in the House Museums of Milan, a collection encompassing four historical homes in Milan. The team, aiming to entice a younger

audience, introduced gamification alongside an itinerary designed to encourage visits to all four homes.

TREND 14 → LEARNING THROUGH GAMING

Fueled by connectivity, contemporary visitors are accustomed to navigating a world where access to desired information is instantaneous, aligning with the expectations of todays youth. Shaped by a digital-centric upbringing, this new generation possesses distinct values, skills, and motivations when it comes to experiencing art or visiting museums compared to its predecessors. Their high digital literacy, familiarity with gaming, and an open attitude toward technology have endowed them with unique competencies, challenging Cultural Heritage Organizations to reconsider their approaches in attracting, engaging, and entertaining this generation. This prompts a crucial question: will skills like gaming become essential competencies for the future?

Key Factor: The keeper of paintings and the palette of perceptions

The National Gallery has introduced its inaugural immersive augmented reality (AR) app, collaboratively developed with the input of over 80 children, just in time for the Easter holidays. Named "The Keeper of Paintings and the Palette of Perception," this mobile-based experience employs AR technology to encourage children to explore the Gallery while gaining insights into its paintings. Young visitors are invited to assist a fictional Keeper of Paintings in locating a misplaced Palette of Perception, a magical object with special gems conferring powers that enable them to digitally interact with the artworks. As participants progress through the Gallery in response to the apps narrative, a new dig ital realm unfolds, presenting opportunities to solve puzzles, uncover hidden secrets, and collect gems associated with the paintings. This child-driven adventure unfolds not only within the physical confines of the National Gallery in London but also, through AR, extends into an imaginative world of Keepers, where a group of magical beings contributes to the care of some of the worlds most precious objects.

- **THE WHAT. Creation and Creativity**

A fresh generation of artists and creators, driven by a blend of passion and purpose and equipped with digital platforms, is poised to introduce innovative expressions of arts and cultures. Their unique worldviews and skill sets are likely to give rise to alternative forms that challenge the established norms. This creative surge may redefine the boundaries of art and culture, ushering in novel genres, formats of "performance," and modes of interaction with creative works. These endeavors are anticipated to align with the evolving interests and expectations of a new audience.

TREND 15 → INCLUSIVITY AND ACCESSIBILITY WITHIN CREATIONS

Creating an inclusive and accessible environment involves addressing both sides of the challenge: fostering a more welcoming atmosphere for minority communities, including people with disabilities or those with lower incomes. Cultural Heritage Organizations are currently tasked with reevaluating not only their business models but also their infrastructure to identify their audiences and those who may be excluded. Bridging this gap and fostering inclusivity requires adapting organizational structures to facilitate accessibility. How can Cultural Heritage Organizations transform to become more welcoming, specifically targeting groups that were previously excluded? Additionally, what strategies can be employed to reengage audiences, such as the elderly, who were once strong participants?

Key Factor: House of memories by the National Museum of Liverpool

Museums excel in preserving and cherishing peoples memories. Leveraging our expertise in reminiscence work and access to a diverse array of museum objects, the House of Memories initiative, developed by National Museums Liverpool, offers unique and innovative training and resources to empower caregivers in creatively sharing memories with individuals living with dementia. Recognized with awards, this dementia awareness program extends to the My House of Memories app. The app features images of objects spanning decades, enriched with sound, music, and descriptions, providing an accessible means for individuals with dementia to explore resonant memories. Users can curate their favorite objects on a digital memory tree, memory box, or timeline.

Underlining the commitment to social inclusion, the National Museum of Liverpool contends that museums possess transformative potential. The House of Memories program represents an innovative approach, encompassing training, activities, and resources, facilitating National Museums in their journey toward greater inclusivity within their communities.

TREND 16 → NFT DEMOCRATISES ARTIST WORK

The artworks exhibited in museums often carry an elitist tag, limiting the exposure of certain artists and their ability to showcase their creations. NFTs (Non-Fungible Tokens) have emerged as a transformative force, democratizing art by enabling smaller artists to share their work, gain recognition, and have it valued and acquired by their audience. This trend is witnessing institutions recognizing the value of NFT artworks and incorporating them into their Cultural Heritage Organizations.

Furthermore, NFTs are serving as a novel avenue for funding Cultural Heritage Organizations independently, bypassing traditional sources like governmental institutions. This indicates a growing public interest in directly supporting these organizations. Can the physical space of Cultural Heritage Organizations accommodate both NFT or other blockchain currencies and traditional artworks?

Key Factor: Gustav Klimts "The Kiss" is joining the Metaverse-space

The Belvedere Museum has recently ventured into the realm of Non-Fungible Tokens (NFTs) by transforming Gustav Klimts iconic masterpiece, "The Kiss." This Vienna -based museum is the proud owner of the renowned painting from 1908/09, and various memorabilia featuring "the Kiss" are traditionally sold in the museums shop, including items like umbrellas, bags, posters, and napkins. Now, the museum has explored a new avenue to monetize the celebrated artwork within the Metaverse through NFTs.

The NFT Tiles, representing a digitalized version of the famous painting, were released on Valentines Day 2022. The artwork has been divided into 10,000 NFT Tiles, each revealing intricate details typically imperceptible to the human eye. Each NFT is uniquely numbered and associated with specific coordinates. Notably, this trend extends beyond Vienna, as the Uffizi Gallery in Florence also engages in selling NFTs featuring artworks by Michelangelo. NFTs have become a significant phenomenon in the art market.

TREND 17 → REDEFINING CULTURAL HERITAGE

Anticipate a wave of emerging artists and creators poised to introduce arts and culture infused with fresh references and cutting-edge technologies, originating from diverse backgrounds. This evolution may steer away from perceiving art merely as entertainment, transforming it into a medium for

impactful expression. Such a paradigm shift could redefine the boundaries of arts and culture, introducing novel forms, genres, and innovative ways of engaging with creative works.

The increasing diversity among artists and creators, coupled with leadership that embraces diverse perspectives within the arts, has the potential to acknowledge new realms of expertise and appreciate diverse disciplines and cultures. This infusion of varied viewpoints not only fosters experimentation but also revitalizes arts and culture at the grassroots level.

Key Factor: The Tech is the exhibition

Venturing beyond the role of tools for enhancing cultural heritage exhibitions, digital experiments have evolved into a preservation initiative at the V&A Museum in London. Commencing in 2015, the museum initiated a project aimed at collecting and conserving the Chinese social media app WeChat, positioning it as a representative artifact of 21st-century design. Through collaboration with WeChats founders in Guangzhou, the museum acquired an offline demo version of the application, ensuring the perpetuation of an interactive representation of the platform independently of a specific online server.

This digital undertaking serves a dual purpose: not only does it highlight how modern technology becomes an integral part of our culture, but it also emphasizes the need to conserve and comprehend these technological facets for the benefit of future generations. The rapid technological advancements of the past generation have led us to adopt, adapt, and discard various aspects of technology, each playing a significant role in shaping our 21st-century culture.

4.5   THE FOUR SCENARIOS

The scenarios presented herein are an endeavor to address the query of how the world and the cultural heritage sector might unfold in the prospective landscape of 2035. Rather than serving as precise prognostications, they aim to propose a spectrum of potential futures, each distinctive enough to stimulate imaginative contemplation on possible responses.

These scenarios amalgamate the driving forces, insights, and collective opinions garnered from the diverse participants engaged in the project. The co-creation sessions with external stakeholders proved influential, instigating dialogues among novel contributors and, ultimately, providing fresh perspectives and ideas about the future. This collaborative effort has allowed educators and academia to interact with stakeholders from the cultural sector, fostering experiences that cultivate capacities and effectively prepare them for multiple potential futures.

It is essential to note that these scenarios do not delineate mutually exclusive futures. A Cultural Heritage Organisation, irrespective of its size, global or local reach, may identify aspects from each scenario on varying scales.

- **SCENARIO A: A Global Network of Grassroots Entrepreneurs**

Following a decade marked by inflation, the relentless battle against climate change, and fervent pursuits of sustainability, governmental budget cuts have been pronounced in areas perceived as non-essential to economic growth. In this landscape where the value of cultural heritage remains unacknowledged, the allocated funding has dwindled, compelling the adoption of more entrepreneurial and self-sufficient business models within the sector to avoid collapse.

Consequently, as larger institutions have evolved into individually branded entities characterized by hyper-commercialization, smaller organizations have opted for a different path, transforming themselves into a grassroots global network of nimble participants. Survival in this scenario hinges on fostering collaboration and forming (un)conventional partnerships.

What happens?

- <u>Decentralisation of Cultural Heritage through Technology</u>

The transition towards a globalized network of localized, small-scale sites has cultivated an atmosphere of open collaboration and a start-up mentality within the cultural heritage sector. Utilizing cutting-edge digital tools, platforms, and methodologies, along with harnessing (digital) channels to engage communities regardless of location, envisions a future teeming with innovative ideas that introduce fresh and relevant skill sets and creative profiles.

In this decentralized landscape, grassroots communities, curators, artists, start-ups, digital natives, entrepreneurs, and beyond actively participate in revolutionizing the cultural heritage sector. Artworks and productions become a bridge between digital and analog techniques, fostering a more inclusive and evolved digital environment. Consequently, new cultural hubs emerge in unexpected places, extending beyond traditional urban centers to include rural communities.

Within this transformed landscape, cultural heritage organizations serve as hubs that connect individuals from diverse economic, social, and cultural backgrounds, including (climate) refugees. These spaces facilitate collaboration and co-creation, nurturing the emergence of novel perspectives, such as the sharing of untold stories about indigenous cultures.

- <u>Alternative finance models to involve visitors</u>

Amidst the multitude of crises faced by Europe in the past decade, the continent has swiftly embraced innovative solutions, channeling investments into cutting-edge technologies and fostering a thriving startup ecosystem. This startup mentality emerges as a catalyst for societal change and the development of new economic models propelled by technology. The essence lies in the transparent sharing of knowledge, data, and resources, forming the foundation for sustainable and responsible scaling.

Against this backdrop, local cultural heritage organizations leverage their extensive global networks to mobilize online communities for economic support and explore innovative business models. The evolution is particularly notable in grassroots fundraising, which has undergone significant transformations since the crowdfunding platforms of the 2020s. It now emerges as a product of advancements in DAOs (distributed autonomous organizations) within the crypto art realm, alternative shareholder structures, cooperatives, and new platforms that foster increased community participation.

In this era, artificial intelligence plays a central role, contributing to informed, data-driven decision-making and services. European Digital Rights ensures the safeguarding and management of data, preventing piracy and aligning with European values.

- <u>Healing through Heritage</u>

Living in times of uncertainty and geopolitical unrest has significantly impacted trust, leading people to prioritize the building of robust multicultural communities, meaningful relationships, and collective care. The focus on creating strong support systems between generations has gained importance, fostering new ways for people to come together. In this environment, culture is not just appreciated but celebrated as a means to address and alleviate mental health challenges associated with anxiety and stress arising from extreme weather events.

The conflicts surrounding the decolonization of art have largely been resolved, with cultural heritage playing a healing role by embracing fresh perspectives, recognizing origins, and curating exhibitions that authentically represent the diversity of audiences. Today, the integration of various cultural perspectives and values is considered the norm, with cultural hybridization and multiculturalism seen as valuable assets. This has resulted in a diverse array of artists shaping the cultural landscape, telling new stories, and engaging in bolder experimentation and creation.

Reflections:

- The scenario envisions a divergent future for large and small organizations, with large entities becoming highly commercialized and potentially prioritizing profit over content.

- Smaller organizations, if entrepreneurial and adept at collaboration, have an opportunity to contribute new perspectives.

- The scenario reflects aspects of the current reality, indicating significant potential for building networks and democratizing the cultural heritage sector.

Impact on CHOs and its stakeholders:

- This scenario presents an excellent opportunity for smaller organizations, offering the chance to learn from peers and collectively impact their communities, fostering a proliferation of cultural activities.

- It prompts Cultural Heritage Organizations (CHOs) to pivot toward emphasizing participation and ownership, necessitating the integration of new resources and active engagement with visitors.

- In the absence of allocated funding, commercial partners may increasingly invest in startups with a cultural focus. CHOs could evolve into hubs for knowledge exchange between cultural creators across various scales, from grassroots initiatives to large institutions.

- Implementation of new skills and processes, including co-creation and change management, becomes imperative. This involves balancing perspectives, incorporating critical viewpoints, and developing enhanced marketing skills to facilitate crowdfunding.

What should be done to move towards this scenario?

- Cultivate competencies in critical thinking and commercialization, including a nuanced understanding of the impacts and threats associated with the commercialization and privatization of Cultural Heritage.

- Prioritize participation by actively involving the user base in co-creation and engagement, fostering the establishment of communities of affection that leverage technologies of emotion.

- Promote tech-creative literacy and historical literacy for all, encompassing skills related to artificial intelligence, extended reality, and a global historical perspective.

- Enhance awareness of the broader social, political, and economic context within which the Cultural Heritage (CH) sector operates, establishing connections between the CH sectors overarching mission and other social challenges.

- Encourage cultural leadership to collaborate with other Cultural Heritage Organizations, moving away from project gatekeeping and protective stances that hinder openness within the sector.

- Reevaluate the CH sectors understanding of the ill -defined needs of its audience and stakeholders, emphasizing the anticipation and recognition of their needs as the initial step toward meaningful change.

- **SCENARIO B: Community Localhood**

In the year 2035, we witness a surge in activist movements advocating for global change. Amid ongoing crises and the uncertainties of the post-pandemic world, civil action has become imperative to address political, economic, and social challenges. The emerging generation, weary of delays, not only sees activism as a necessity but embraces it as an integral part of their identity.

In response to this atmosphere, the cultural heritage sector is compelled to reconsider its role and significance in society. The sector undergoes a transformation, becoming community-centric hubs for action, actively contributing to the creation of a better future.

What happens?

- <u>Museum as part of the local space</u>

While cultural heritage continues to receive modest government contributions, theres a growing need for additional financial support from the community to ensure stable funding. This shift has prompted a transformation in the business models of cultural heritage organizations, redirecting resources towards the communitys well -being and environmental conservation. Consequently, spaces have been repurposed to facilitate intimate gatherings and dialogues, fostering in-person connections as a counter-trend to virtual events.

A profound connection with communities has emerged, addressing local challenges and offering participatory experiences and events to strengthen the frayed social fabric of society. This approach aligns with the overarching principle that the cultural heritage sector must contribute to the well-being of all, including nature. The current trajectory is characterized by a holistic consideration of the impact of science and technology, bridging the gap between STEM and SSH through educational STEAM approaches.

Cultural heritage institutions now play a central role in developing and communicating innovative solutions to societal challenges. This participatory process emphasizes the inclusion of knowledge generation from diverse social, cultural, and demographic backgrounds, recognizing the audience as essential stakeholders.

- <u>Ladder of participation</u>

In society, there is a growing recognition of the social value inherent in cultural heritage. Emphasis is placed on collective well-being and participatory events, sparking the emergence of novel initiatives and community structures. This includes fostering knowledge exchange through collaborative partnerships with research institutions, employing participative citizen science approaches. Interestingly, organizations are now being led by local individuals chosen through a citizens council, allowing everyon e to have a say in selecting those who oversee their space.

The integration of democratic decision-making processes within the sector, as illustrated by the aforementioned example, has led to a gradual organizational transformation of Cultural Heritage. However, this evolution has been slower than ideal, and there s a perceived need for acceleration. The data generated from these organizational processes holds the potential to drive innovation and enhance services that better serve their communities. Nevertheless, challenges arise as regulations and understanding of data sovereignty are lacking, leading to breaches and the misuse of participant data by untrusted parties.

- <u>Museums as mediators for local challenges</u>

Over the course of time, community-driven cultural heritage initiatives have successfully cultivated trust and implemented strategies to address the growing divisions in society. This is evident in their commitment to engaging and involving diverse communities while bridging gaps between various cultural groups and demographics. For instance, cultural heritage organizations now actively tackle social issues like loneliness by fostering conversations and organizing workshops that bring together older and younger generations, placing value on authentic human connections despite the pervasive influence of technology.

These initiatives also provide inclusive forums for groups from different economic, cultural, and demographic backgrounds to share their life stories. The potential to transform these narratives into archives, available on both analogue and digital platforms, underscores the commitment to inclusivity. Additionally, by incorporating educational STEAM (Science, Technology, Engineering, Arts, and Mathematics) approaches through ongoing collaborations with research institutions, cultural heritage plays a pivotal role in developing and disseminating solutions for societal challenges, including

climate change. Notably, these efforts involve reaching out to local communities to gauge their receptiveness to innovative solutions and technologies, creating a two-way exchange where communities not only contribute knowledge but also see their stories reflected in museums and cultural heritage sites.

Reflections:

- In the overall assessment by external stakeholders during the Future Dialogue sessions, this scenario emerged as the preferred choice for many. It was perceived as an advantageous opportunity, particularly benefiting small and medium-sized institutions, allowing them to shift away from economic pressures and emphasizing the social dimension.

- This scenario prompts a critical consideration of Cultural Heritage from a social standpoint, necessitating a reevaluation of museums responsibilities and the value they bring to society.

- During the COVID lockdown, the significance of their role within local communities became evident to Cultural Heritage Organizations. Community engagement stands as a crucial pillar for many CHOs, enabling museums to contribute to various societal challenges within their communities.

- A growing trend is observed in local initiatives, emphasizing uniqueness and authenticity. This presents an intriguing avenue for expanding Cultural Heritage Organizations and fostering a culture where everyone can actively contribute as creators.

- Finally, the assumption that reduced funding would lead to more resources dedicated solely to the betterment of society and nature was viewed by some as a potentially risky proposition in this scenario.

Impact on CHOs and its stakeholders:

- Concerns have been expressed about the potential compromise of artistic quality and the challenging of professional knowledge. In response, CHOs may necessitate a revolutionary approach, focusing on hosting and designing platforms that facilitate co-creation.

- This shift is poised to democratize the relationship between people and cultural institutions. As a result, Cultural Heritage Organizations and their stakeholders can engage in conversations on equal footing, fostering more mutually beneficial relationships.

- Emphasizing the community and local dimension, this scenario brings participatory models for digital collections into the spotlight, demanding their reinforcement.

- Current structures will undergo significant impacts, prompting questions about decision-making processes and ensuring the curation of stories from diverse viewpoints.

What should be done to move towards this scenario?

- Prioritize co-creation as a fundamental approach. Embrace openness to change roles, shifting from being experts to becoming facilitators and transforming curators into advocates for outreach and community engagement.

- Cultural Heritage Organizations should invest in understanding local communities, emphasizing knowledge of the local context. This requires a focus on facilitating communities, demanding competencies in relational skills and network building through active engagement with local projects and social/non-profit organizations.

- Seize the opportunity to embed knowledge systems deeper into society. This involves creating safe spaces for debates that may not occur elsewhere.

- Embrace the concept of culture as public property. Foster the courage to invite people in and make global issues relevant at the local level. Prioritize "Localhood" as a central element of the business model.

- Develop effective risk-reward digitalization strategies for CHO, treating digitalization as a long-term investment. Establish structures to identify, test, and introduce innovative models complementary to governmental funding.

- Acquire skills to transparently implement technology without sacrificing the human aspect.

- Cultivate blockchain literacy and instill democratic and communal awareness among CHO professionals.

- **SCENARIO C: Digital Everything**

In the year 2035, digital tools and platforms have become the predominant influencers in peoples lifestyles, professions, connections, and navigation. The younger generation, characterized by digital prowess, has propelled significant technological progress, transitioning from merely enhancing reality to coexisting in parallel virtual realms.

As a response to the substantial impact of climate catastrophe on Cultural Heritage sites and the full maturation of digital connectivity, all physical operations are now closed and safeguarded. Consequently, Cultural Heritage has made a shift to the online sphere, existing on virtual platforms accessible for virtual visits.

What happens?

- <u>Blending Tech with Cultural Heritage</u>

The pervasive reach of digital connectivity has permeated every facet of society, generating a surge in demand from novel audiences and pushing the boundaries of cultural heritages definition. As parallel realities flourish within the metaverse, fresh expressions of arts and culture emerge, capable of swiftly attaining mainstream status through rapid cycles of viral dissemination.

Historical artifacts from the colonial era, once housed in European museums, now have digital replicas, enabling their repatriation to their countries of origin. Empowered by new digital tools, creators now wield increased control and ownership over their work, facilitated by novel support platforms and diverse means of connection.

This transformative landscape has redefined how collections are conceived and financed, embracing methods like micro-funding and active participation in decentralized economic models.

- <u>Museum Memefied</u>

Under the pressure to address global crises, Cultural Heritage is eligible for meager government funding solely by adhering to the Code of Climate Culture. This necessitates a focus on measuring and mitigating climate impact to qualify for subsidies. Meanwhile, private investments in parallel virtual worlds, fueled by the metaverses expansion, outpace governmental support.

In response, Cultural Heritage has shifted toward commercialization and privatization, prioritizing entertainment and marketability over in-depth exploration of knowledge and creativity. Navigating resource scarcity, efforts are concentrated on profitable and easily consumable online productions and templates that guarantee a stable income. The sectors focus shifts from challenging and innovative content to experiences, media, and entertainment designed for digital shareability on social platforms.

Embracing the potential of artificial intelligence, Cultural Heritage actively engages in extensive data collection to meet the demands for fully realized computer-generated content circulation. Data emerges as the lifeblood of cultural heritage, necessitating the acquisition of skills and competencies to handle data conscientiously—ensuring data sovereignty, quality, and ethical considerations. Cultural Heritage Organizations take a proactive stance, regularly leading hackathons to experiment with innovative ways of integrating ethical and human aspects into transformative processes.

- <u>NFT democratises creative work</u>

As digital connectivity permeates every facet of society, generating newfound interest from diverse audiences, the boundaries of cultural heritage undergo extensive redefinition. In the unfolding landscape of parallel realities within the metaverse, novel expressions of arts and culture swiftly materialize, possessing the potential to achieve instant mainstream recognition through rapid cycles of virality.

Empowered by cutting-edge digital tools, creators find themselves equipped with enhanced control and ownership over their artistic endeavors. This newfound agency is complemented by access to innovative support platforms and novel modes of connectivity. Consequently, these shifts exert a profound influence on the creation and financing of collections, with approaches like micro-funding and participation in decentralized economic models reshaping the landscape.

Reflections:

- While the likelihood of a scenario where cultural objects are exclusively accessible online is deemed improbable and generally not favored by stakeholders, hybrid forms of Cultural Heritage Organizations (CHOs) are seen as more plausible. These hybrid models aim to seamlessly integrate the best aspects of both online and offline experiences.

- Stakeholders from Denmark highlight the ongoing digitalization, citing examples like the Google Art Project. However, a full immersion, as depicted in the scenario, raises concerns about potential loss and disconnection.

- Reflections on the scenario underscore its potential to broaden cultural communication, offering experiences in multiple languages and providing platforms for minority voices. Yet, theres a cautionary note about the risk of digital exclusion for non-digital individuals, potentially resulting in a form of anti-democratization.

- Regardless of the digital landscape, stakeholders emphasize that CHO's will continue to showcase challenging and innovative content. While leveraging digital interfaces for enhanced audience proximity and engagement, the consensus remains firm: CHO's should never prioritize entertainment over education.

Impact on CHOs and its stakeholders:

- A comprehensive redesign of the visitor experience, heavily reliant on technology, would necessitate an increased demand for technical roles. However, its crucial to balance this approach by maintaining a strong emphasis on the human aspect of the visitor-CHO relationship. The concern here is that an

overemphasis on digital experiences might come at the expense of physical spaces and tangible museum objects, potentially leading to the disappearance of in-real-life museums.

- A modified version of the scenario suggests using digitalization to enhance and complement real-life visits to physical cultural heritage sites.

- With the surge in data and digital presence, CHO's must prioritize understanding cybersecurity and ensuring the protection of personal data. Harnessing data as a resource demands a higher level of digital literacy, coupled with knowledge about monetizing digital products and navigating data rights.

- The concept of "Digital Everything" could be explored as a means of democratizing cultural heritage. It has the potential to inspire people to explore physical spaces by introducing them to these places through compelling digital experiences.

What should be done to move towards this scenario?

- While the scenario, as currently described, is not preferred, taking decisive actions to accompany technologys presence for creating more immersive experiences and preventing monopoly scenarios can render it more acceptable. This transformation aims to position it as an open-access public service.

- In a digital cultural heritage world, the development of new norms and architectural frameworks for virtual museum visits is imperative. This involves a dedicated focus on curating and moderating the online presence and interactions between CHOs and visitors, necessitating creators to work across modalities like AR & VR.

- Cultural Heritage Organizations must enhance their research efforts on data ethics and technology ethics. Particularly for Europe, it becomes crucial to ensure that technology is not solely developed by companies but is tailored to meet the specific needs of CHO institutions. This includes adopting open access data, open science, and fair use data principles to democratize cultural heritage across the sector.

- Establishing uniform standards in metadata usage for descriptions, creating visualization possibilities, and utilizing artificial intelligence for archiving purposes are pivotal components in adapting to the digital revolution.

- Successfully navigating the digital revolution requires the transparent implementation of technology without sacrificing the human aspect. This approach aims to reshape the sectors value system around its social responsibility to its employees.

- **SCENARIO D: Climate Catastrophe**

The current temperature has surged to 2.5 degrees Celsius, marking a rise of approximately 1 degree since 2022, primarily attributed to the failure to implement decisive measures to curb global warming. In this scenario, the Cultural Heritage sector grapples to endure, inducing anxiety among the remaining sites as they strive to safeguard their cultural assets.

What happens?

- Culture vs. Crisis

In an era of uncertainty and turmoil, financial markets display volatility, placing cultural heritage in a precarious position. Governments slash all funding, and philanthropic donations dry up, deeming arts and culture nonessential amidst escalating crises. Frequent extreme weather events and natural disasters wreak havoc on crops, food supplies, infrastructure, and cultural sites. Memorials and places of worship bear disproportionate damage and destruction. Cultural Heritage organizations persist but operate under a political agenda, dominated by short-term thinking.

The prevalence of artificial intelligence is notable, yet datasets and algorithms exhibit increasing biases. Innovations, driven by technology giants, prioritize short-term profit, reflecting an uncritical mindset.

- 'Make our culture great again'

Influenced by apprehension and the ascent of populism, local communities turn inward, becoming active participants in Cultural Heritage with a firm resolve to preserve national traditions. A climate of anxiety aligns with diminished societal solidarity, fostering a surge in nationalism and the exclusion of certain groups. The slogan "Make Our Culture Great Again" encapsulates the rise of conservative values, contributing to societal divisions. Xenophobic sentiments emerge, fueled by concerns that an influx of migrants and refugees may erode national rituals and cultural traditions. Consequently, Cultural Heritage shifts its focus exclusively to a countrys own cultural heritage.

Despite this, a glimmer of hope emerges in the resistance against political agendas and nationalism. Parts of the arts and culture scene move underground, giving rise to a flourishing movement rooted in protest, hope, and the anticipation of better times ahead.

Reflections:

- Titled as the scenario suggests, this is unanimously regarded as a frightening, dystopian vision, unfortunately not entirely implausible.

- While the likelihood of this scenario unfolding is minimal, in the event of its occurrence, it could potentially be beneficial for Cultural Heritage Organizations (CHOs), transforming them into gathering places where people seek meaning and community.

- Another perspective emerging from the Future Dialogues emphasizes that culture shapes our understanding of our position in the world. In the face of this crisis scenario, cultural priorities might shift from a focus on inspiration to a focus on survival.

Impact on CHOs and its stakeholders:

- The consequences would involve the exclusion and alienation of the masses, fostering fear and a breakdown in common understanding. However, it might serve as an opportunity for grassroots movements to shape a new artistic landscape, potentially prompting increased involvement and creative opportunism from local initiatives.

- For Cultural Heritage Organizations (CHO's), the repercussions would be significant, demanding a comprehensive redesign of the entire sector, encompassing both financial and social dimensions.

What should be done to NOT move towards this scenario?

- Encouraging art to shoulder a greater responsibility in spearheading change and advocating for climate action, such as organizing inspirational activities rooted in historical catastrophes.

- Fostering alternative creative thinking within Cultural Heritage Organizations (CHOs), emphasizing the development of entrepreneurial skills, critical thinking, and the promotion of complexity, self-organization, and community building.

- Raising awareness about the potential weaponization of culture and placing a greater focus on cultural education and critical thinking to comprehend local culture within a broader international context, fostering historical awareness.

- Incorporating lessons on compassion and aesthetic awareness into early education, emphasizing the value of culture. Actively seeking and showcasing regenerative practices within our heritage for new exhibitions, cultivating regenerative common rituals.

- Creating immersive experiences that grant citizens access to our "catastrophe heritage" as a form of exposure therapy.

- Reinforcing the mission and values of CHOs, while exploring large-scale technical solutions for climate change and delivering public service-quality content.

In summary

The Cultural Heritage 2.0 Projects exploration into the future of cultural heritage organizations propels us into a realm of dynamic possibilities and challenges. As we conclude our journey through the scenarios envisioned in the Future Scenario Book, several overarching themes emerge.

Foremost is the recognition that the cultural heritage sector stands at a crossroads, necessitating a strategic blend of tradition and innovation. The impacts of external forces, from the digital revolution to climate crises, underscore the imperative for agility, adaptability, and a proactive stance. The scenarios presented, while speculative, function as strategic tools, prompting cultural heritage organizations to envision and prepare for a spectrum of potential futures.

Moreover, the collaborative nature of this endeavor signifies a departure from traditional, insular decision-making. The co-creation sessions and dialogues with diverse stakeholders illuminate the significance of community engagement, inclusivity, and the democratization of cultural heritage. The scenarios underscore that the role of cultural heritage organizations extends beyond preservation; they are dynamic contributors to societal well-being, resilience, and progress.

In essence, the Cultural Heritage 2.0 Project serves as a compass, guiding cultural heritage organizations toward futures shaped by innovation, community involvement, and a keen understanding of the evolving global landscape. As custodians of our shared past, these organizations are not merely preservers of artifacts; they are catalysts for change, forging a path that harmonizes tradition with the demands of an ever-evolving world. The scenarios challenge us to envision not only the challenges but also the boundless opportunities that lie ahead, encouraging a collective commitment to shaping a vibrant and resilient cultural heritage sector for the benefit of present and future generations.

SCULPTING THE DIGITAL LANDSCAPE: THE "DIGITAL EVERYTHING" SCENARIO BECOMES (ALMOST) REAL

In the preceding chapter, the Cultural Heritage 2.0 project laid bare four prospective scenarios, each projecting a potential future based on existing realities. These scenarios, varying in the degree of plausibility, serve as glimpses into the potential trajectories that the evolution of cultural heritage may take. Among these scenarios, Scenario C, labeled Digital Everything, stands out as particularly conspicuous. It envisions a future that, while seemingly utopian for the year 2035, exhibits embryonic manifestations in our contemporary landscape. In this speculative future, technology assumes a dominant role, transcending its conventional function as a facilitator in daily life to coexist within a parallel virtual reality.

The genesis of this hypothetical future lies in the aftermath of a climatic catastrophe that renders physical engagement with cultural heritage sites impractical and unfeasible. Consequently, cultural heritage transitions into the digital realm, affording individuals the ability to explore and appreciate it from the confines of their living spaces. While the prognostication for 2035 may appear excessively catastrophic, current trends already attest to the burgeoning virtualization of cultural heritage and artistic works. Notably, the emergence of virtual museums, once perceived as the distant fruits of futuristic endeavors, has materialized into tangible projects, with several already in operation.

This chapter aims to elucidate the trajectory toward a technological paradigm evident as of 2023. It explores the unfolding landscape of museum experiences facilitated by novel information and communication technologies. Commencing with an examination of the virtual museum, the narrative will subsequently delve into the array of technologies integral to the fruition of museum encounters. The overarching objective is to delineate the contemporary shift towards a technologically mediated scenario, where cultural heritage engagement is characterized by unprecedented dynamism and visitor involvement, transcending the traditional confines of one-way communication and academic exposition.

5.1 ICTs FOR CULTURAL FRUITION AND THE VIRTUAL MUSEUM

Since the 1960s, the trajectory of information and communication technologies (ICT) has undergone a transformative evolution, progressively permeating diverse sectors of society and instigating innovation. Initially serving as mere tools, the 1990s witnessed a paradigm shift where multimedia technologies evolved into immersive environments, elevating user engagement to unprecedented levels.

The ever-increasing drive for interaction, shared creation, participation, which part of our growth as individuals, has found answers in technologies and industry, which has adapted by finding new solutions to meet these needs, i.e. needs, i.e. looking for new ways to enjoy content, more suited to what is our contemporaneity[52].

Consequently, individuals assumed an increasingly active role in content enjoyment. Within the realm of museums, these technological advancements ushered in substantial innovations encompassing protection systems, management processes, and the creation, production, and dissemination of cultural content. The resultant paradigm shift has led critics to coin terms such as "museums 2.0" or even "museums 3.0[53]."

This chapter endeavors to explore both the merits and challenges inherent in the integration of new technologies, particularly in the context of on-site museum experiences and communication. Despite the widespread adoption of such technologies in various sectors, museums have only recently begun to harness their potential, albeit not without encountering obstacles. Skepticism persists among museum professionals regarding the seamless integration of these technologies into museum itineraries. Some view these tools as potentially "polluting" and distracting elements, disrupting the contemplative nature of museum visits and the appreciation of artistic and cultural heritage. Notably, certain cultural purists reject the infusion of ICT into museums, positioning themselves as guardians of the aura of artworks, a concept eloquently articulated by philosopher Walter Benjamin in his seminal work "The Work of Art in the Age of its Technical Reproducibility" (1936). According to them, technology and digitization may lead to an overproduction of digital reproductions, potentially diluting the intrinsic cultural value of the original artifact and introducing extraneous meanings.

Contrary to such apprehensions, empirical studies conducted by the ICOM Multimedia Working Group in 1997 demonstrated that visitors utilizing ICT in museums exhibited heightened engagement, spending extended durations in exhibit rooms and participating more frequently in discussions about their visit experiences[54].

Elisa Bonacini, in her exploration of new technologies for artistic heritage appreciation, highlights the numerous advantages of employing communication tools. These include increased addressability, allowing museums to receive data tailored to user demands, and enhanced interactivity, enabling users to actively contribute to the construction and transmission of culture by personalizing their museum

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[52] Dalpozzo, C., Negri F., Novaga, A. (2018). Mimesis. La realtà virtuale. Dispositivi, estetiche, immagini.
[53] Bonacini E. (2011). Nuove tecnologie per la fruizione e valorizzazione del patrimonio culturale, Roma, Aracne Editore, p.33.
[54] Manzone C., Roberto A. (2004). La macchina museo. Dimensioni didattiche e multimediali, Edizioni dell'Orso, p.39-40.

tours[55]. The dynamic shift from passive spectatorship to active user participation facilitated by ICT, both online and on-site, has rendered museums more accessible. Cultural heritage has become more directly comprehensible, revolutionizing the processes of distribution, communication, and enjoyment. The once static and contemplative nature of museum visits has transformed into a dynamic and personalized experience. Technologies, whether in the form of mobile devices or touch-screen installations, now offer multi-level information and cultural offerings, catering to diverse audiences through audio, graphic, and video materials. This evolution not only accommodates different age groups and cultural backgrounds but also introduces interactive and playful activities, fostering a more engaging museum experience.

In the realm of museum management, emerging technologies are proving instrumental in the innovative reconfiguration of museum routes, particularly for smaller and medium-sized institutions grappling with visitor attraction. These technologies play a crucial role in augmenting and diversifying visitor (and tourist) flows, particularly in less frequented cultural venues. It is paramount to underscore that the adoption of these tools should not be an end in itself, serving as a mere impetus for the sensationalization of collections. Instead, their integration must be perceived as a means—a pivotal element capable of imparting knowledge and narratives about cultural heritage in alternative and more captivating ways.

The task that is therefore entrusted to the modern museum is to utilise in a potential offered by new technologies in order to develop a new museology, remaining true to its cultural project and realising the necessary museology", remaining faithful to its cultural project and making the necessary effort to update the skills of the professionals.[56]

Undoubtedly, this perspective is pivotal, particularly in substantiating the argument that new information and communication media can genuinely contribute significantly to the advancement of the museum and cultural sector.

The integration of technologies should not follow an obligatory and standardized path but must be tailored in accordance with the unique needs and characteristics inherent in each museum structure. This tailored approach is contingent upon a thorough analysis of the target audiences composition, needs, and preferences. It is imperative to underscore that technological tools should not assume the role of distracting elements during various phases of a museum visit. Instead, they should function as conduits for delivering high-quality cultural content—being the sole entities capable of ensuring a

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[55] Bonacini E. (2011). Nuove tecnologie per la fruizione e valorizzazione del patrimonio culturale. Aracne Editore, pp.34-35.
[56] Bonacasa, N. (2011). Il Museo online. Nuove prospettive per la museologia. Osservatorio per le Arti Decorative in Italia "Maria Accascina".

truly enriching visitor experience. This insistence on technologys role as a facilitator rather than a distraction remains paramount throughout the different stages of a visitors engagement, serving as the key to guaranteeing an invaluable and meaningful experience for museum-goers.

When delving into discussions surrounding ICT, it becomes imperative to acknowledge the barriers that frequently hinder museums from fully harnessing these innovative technological tools. A significant impediment in this context is the widely recognized concept of the digital divide. This term delineates a division between individuals who possess effective access to information technologies, particularly the internet, and those who do not[57]. This division engenders a stark inequality in the utilization and accessibility of technologies, thereby excluding specific segments of the population from the services that have burgeoned with the advent of digital technology. Consequently, a novel form of social inequality emerges, demanding the attention and response of institutions. The notion of the digital divide transcends mere access to technologies, extending to encompass disparities in the acquisition of specific skills necessary for interacting with the new tools of communication and information. The groups most profoundly impacted by this digital divide encompass the elderly, leading to an intergenerational digital divide, women facing unemployment or unique circumstances contributing to a gender digital divide, immigrants grappling with a linguistic-cultural digital divide, individuals with disabilities, and, more broadly, those who, due to cultural reasons and lower educational levels, find themselves incapable of utilizing IT tools[58]. This multifaceted issue necessitates a comprehensive understanding, as it extends beyond mere technological access to include the acquisition of essential skills. In acknowledging and addressing these digital divides, institutions must recognize their role in mitigating social inequalities that arise in the wake of technological advancements.

Within the museum realm, this disparity predominantly manifests in the mediated usage processes facilitated by digital technologies, consequently constraining accessibility for segments of the population lacking proficiency in interacting with such technologies.

Evidently, the integration of digital technologies becomes imperative not only to redefine utilization processes but also to spearhead innovation within museum institutions. This undertaking, however, proves intricate, demanding the amalgamation of diverse competencies across sectors. The collaborative efforts of these multidisciplinary skills are indispensable for constructing digital environments that effectively showcase cultural heritage. This strategic leveraging of the

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[57] Divario digitale - Wikipedia
[58] Alù A., Longo A. (2020) Cos'è il digital divide, nuova discriminazione sociale (e culturale) in "Agenda Digitale".
https://www.agendadigitale.eu/cultura-digitale/il-digital-divide-culturale-e-una-nuova-discriminazione-sociale/

communicative potential inherent in new tools is pivotal, ensuring the accessibility of cultural content to the broader populace. The necessity for digital inclusion is underscored by its role in democratizing access to cultural resources, making them available to a more extensive and diverse audience.

5.2 THE MAIN TECHNOLOGIES IN THE DIGITAL MUSEUM LANDSCAPE

Having outlined the main debated issues within the cultural sector regarding the utilization of new technologies for consumption and communication, lets briefly explore the primary tools available in the market and how they can be employed within museums and cultural sites.

In the realm of cultural discourse, there exists a significant debate surrounding the incorporation of modern technological advancements for both engaging audiences and facilitating communication. It is imperative to delve into the diverse perspectives within the cultural sector regarding the adoption and implementation of these innovations. Turning our attention to the market, a myriad of tools has emerged, catering specifically to the unique needs of museums and cultural sites. These tools span a spectrum of applications, ranging from interactive exhibits to virtual reality experiences. Embracing these technologies has the potential to revolutionize the way cultural institutions connect with their audiences. One notable example is the integration of augmented reality (AR) applications, which can enhance visitors experiences by overlaying digital information onto physical exhibits. This not only provides a deeper level of engagement but also opens up new avenues for storytelling and educational content delivery. Furthermore, the use of mobile applications tailored for specific museums enables visitors to access curated information, audio guides, and interactive maps, thereby personalizing their journey through the cultural space. The accessibility and convenience offered by these applications contribute significantly to enhancing the overall visitor experience.

The cultural sector is at the intersection of tradition and technological innovation, grappling with questions of how best to leverage these tools for enriching the visitor experience. The array of available instruments, from augmented reality to mobile applications and online platforms, presents exciting opportunities for museums and cultural sites to embrace the digital age while preserving and promoting their invaluable heritage.

5.2.1 VIRTUAL REALITY AND AUGMENTED REALITY

Virtual reality entails the creation of a three-dimensional representation of either a real or imaginary environment, effectively replacing the physical reality. The implementation of this technology relies on specific tools, such as head-mounted displays, including helmets and visors. When these devices are worn, users are seamlessly transported into a fully digital environment. Notably, a majority of these tools leverage virtual reality applications designed for smartphones. By utilizing smartphones

equipped with augmented reality software, these devices become conduits for experiencing virtual reality. In instances where the instruments also integrate motion detectors and interactive buttons, users gain the capability to engage with the virtual environment in a manner akin to their interactions in the physical world. This convergence of technology not only immerses users in a digital realm but also allows for interactive and dynamic experiences through the incorporation of motion-sensitive and interactive features.

The inception of the concept of Virtual Reality (VR) can be traced back to the mid-1960s, notably when Ivan Sutherland presented a groundbreaking manuscript. In this pivotal work, Sutherland attempted to articulate VR as a metaphorical window, enabling users to perceive a virtual world that looked, felt, and sounded as real as the physical one, allowing for realistic interactions[59].

Since that foundational moment, various definitions of VR have emerged, shaped by the specific application areas and technological advancements. For instance, Fuchs and Bishop (1992) characterized VR as "real-time interactive graphics with 3D models, coupled with a display technology that immerses the user in the model world, facilitating direct manipulation"[60].

Gigante (1993) contributed to the discourse by describing VR as "The illusion of participation in a synthetic environment rather than external observation of such an environment. VR relies on 3D, stereoscopic head-tracker displays, hand/body tracking, and binaural sound, offering an immersive, multi-sensory experience"[61]. Cruz-Neira (1993) provided another perspective, defining VR as "immersive, interactive, multi-sensory, viewer-centered, 3D computer-generated environments and the combination of technologies required to build such environments."[62] Despite the nuanced differences in these definitions, they converge on three fundamental features characterizing VR systems: immersion, the perception of presence in an environment, and interaction within that environment. Immersion, in particular, encompasses the stimulation of senses, interactions, and the fidelity of stimuli replicating real-world environments. The degree of immersion is contingent on the technological systems properties designed to effectively isolate the user from reality [63].

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[59] Cipresso P., Chicchi Giglioli I., Alcaniz Raya, M., Riva, G. (2018) The Past, Present, and Future of Virtual and Augmented Reality Research: A Network and Cluster Analysis of the Literature. Front. Psychol. 9:2086.

[60] Fuchs, H., and Bishop, G. (1992). Research Directions in Virtual Environments. Chapel Hill, NC: University of North Carolina at Chapel Hill.

[61] Gigante, M. A. (1993). Virtual reality: definitions, history and applications. Virtual Real. Syst. 3–14. doi: 10.1016/B978-0-12-227748-1.50009-3

[62] Cruz-Neira, C. (1993). "Virtual reality overview," in SIGGRAPH 93 Course Notes 21st International Conference on Computer Graphics and Interactive Techniques, Orange County Convention Center, Orlando, FL.

[63] Slater, M. (2009). Place illusion and plausibility can lead to realistic behaviour in immersive virtual environments. Philos. Trans. R. Soc. Lond. B Biol. Sci. 364, 3549–3557.

The degree of immersion experienced by users in VR systems can be categorized into three types, each offering a unique level of engagement:

1. **Non-immersive systems**: These represent the most basic and cost-effective form of VR applications. They utilize desktops to replicate images of the virtual world.

2. **Immersive systems**: This category provides a comprehensive simulated experience by incorporating various sensory output devices. Head mounted displays (HMDs) play a crucial role in enhancing the stereoscopic view through user head movements, complemented by audio and haptic devices.

3. **Semi-immersive systems**: Positioned between the non-immersive and fully immersive systems, examples like Fish Tank VR offer a stereo image of a three-dimensional (3D) scene viewed on a monitor. The perspective projection is synchronized with the observers head position [64].

Higher technological immersive systems have demonstrated a closer approximation to reality, creating the illusion of technological non-mediation and a profound sense of presence in the virtual environment[65]. Moreover, these advanced immersive systems can incorporate multiple sensory outputs, providing users with a perception of real interactions and actions.

In assessing the users VR experience, key metrics include measuring presence, realism, and the level of reality:

- **Presence**: This is a complex psychological sensation of "being there" in VR, encompassing the perception of physical presence and the ability to interact and react as if present in the real world[66].

- **Realisms Level** : It corresponds to the degree of expectation users have regarding stimuli and experiences. When presented stimuli closely mirror reality, user expectations align, enhancing the overall VR experience. Moreover, a higher degree of reality in interacting with virtual stimuli correlates with a heightened level of realism in user behaviors[67].

In the early 1980s, discussions surrounding Artificial Reality and Virtual Reality gained prominence. The emergence of Virtual Reality was influenced by stereophotographic experiments in previous

[64] Ware, C., Arthur, K., and Booth, K. S. (1993). "Fish tank virtual reality," in Proceedings of the INTERACT'93 and CHI'93 Conference on Human Factors in Computing Systems.

[65] Lombard, M., and Ditton, T. (1997). At the heart of it all: the concept of presence. J. Comput. Mediat. Commun. 3.

[66] Heeter, C. (2000). Interactivity in the context of designed experiences. J. Interact. Adv. 1, 3–14.

[67] Baños, R. M., Botella, C., Garcia-Palacios, A., Villa, H., Perpiñá, C., and Alcaniz, M. (2000). Presence and reality judgment in virtual environments: a unitary construct? Cyberpsychol. Behav. 3, 327–335.

years, sparking interest in the development of digital environments[68]. The groundwork for virtual culture, including concepts like immersivity and co-participation, was laid in the 1960s. In 1962, Morton Heiling designed the Sensorama, a cinematic machine providing an immersive experience. Subsequently, in 1969, Ivan Sutherland produced the first 3D viewer, marking a significant step in the evolution of virtual experiences[69].

Building upon these foundations, fifteen years later, Myron Krueger coined the term Artificial Reality to describe a digital experience so compelling that it feels indistinguishable from reality [70]. The actual term "Virtual Reality," however, was introduced in the 1980s by Jaron Lanier. This period marked a crucial juncture in the ongoing studies and experiments aimed at refining three-dimensional and virtual vision, with the focus on creating immersive digital experiences that replicate reality. The progression from early stereophotographic experiments to the coining of terms like Artificial Reality and, ultimately, Virtual Reality reflects the continuous evolution of technology and human understanding in this dynamic field.

In 1996, the Hypermedia Open Centre (HOC) laboratory pioneered one of the earliest virtual museum visits, collaborating with the Civic Museums of Pavia. This groundbreaking experience focused on the precious artifacts of Longobard goldsmiths art. Delive red through a multimedia application on CD-ROM, the project had a dual purpose: providing the public with a virtual tour of a museum room that wouldnt be physically accessible for several months and offering information about the art objects[71]. These immersive environments are referred to as interactive digital ecologies, characterized by ubiquity, allowing users to engage with distant objects and situations, transparency in the devices perceived, and intelligence in interpreting user actions. Gaggioli and Riva highlight several factors contributing to an optimal interactive experience: cognitive absorption, signifying the level of concentration on the environment; analytical involvement, both rational and conscious; and non-analytical involvement, centered on the transparency of technology. Additionally, enchantment, defined as the sensation of emotional involvement expressed through amazement, curiosity, discovery, aesthetic pleasure, and joy, plays a pivotal role[72].

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[68] Novaga A., Dal Pozzo, C., Negri, F. (2018) "The mind feels its way into the very depths of the picture" Solidità, sdoppiamento e superficie, dalla stereofotografia al virtuale, La realtà virtuale. Dispositivi, estetiche, immagini, Mimesis, pp. 140-141

[69] Mattei M.G., Dal Pozzo, C., Negri, F., Novaga, A. (2018) Realtà virtuale. Le radici del nuovo, La realtà virtuale. Dispositivi, estetiche, immagini, Mimesis.

[70] Luigini A., Panciroli C. (2018) Ambienti digitali per l'educazione all'arte e al patrimonio. Franco Angeli, p. 19.

[71] Alonzo F. Di Blas N., Paolini P. (2005) ICT per i beni culturali. esempi di applicazione, in «Mondo Digitale», n.3.

[72] Casale, A., Ippoliti, E. (2018) Rappresentare, comunicare, narrare. Spazi e musei virtuali tra riflessioni e ricerche, p. 129.

All these elements, as articulated by the scholars, are integral components of virtual reality technologies. Beyond presenting users with an immersive image, these technologies construct narratives designed to evoke and activate human sensations. This convergence of visual immersion and carefully crafted storytelling in virtual reality aligns with the factors identified by Gaggioli and Riva, providing users with a rich and engaging experience.

The essence of virtual reality lies in its capacity to enable visitors to revisit places or scenarios from the past, thereby contextualizing the exhibited collections within museum itineraries. This capability serves to trigger processes of memory and preservation of historical and cultural identity. Furthermore, virtual reality contributes to enriching and dynamically enhancing the learning experience.

Milgram and Kishino[73] (1994) introduced the Virtual-Reality Continuum, which encompasses four systems: the real environment, augmented reality (AR), augmented virtuality, and virtual environment. In the realm of technology, augmented reality (AR) emerges as a more recent system wherein virtual objects are seamlessly incorporated into the real world in real-time, enhancing the users experience. According to Azuma et al. [74] (2001), a comprehensive AR system should meet specific criteria: (1) integrate real and virtual objects within an actual environment; (2) operate interactively and in real-time; and (3) ensure the accurate alignment of real and virtual objects. Despite the apparent differences between AR and virtual reality (VR) experiences, the quality of AR encounters can be evaluated similarly. Much like VR, key indicators of AR experience quality include the sense of presence, the level of realism, and the degree of reality. When the AR experience is perceived as highly realistic, and there is alignment between user expectations and interactions within AR environments, the perception of physically "being there" is heightened at cognitive and emotional levels. This feeling of presence, shared between AR and VR environments, significantly influences behavioral responses, mirroring real-world actions[75].

Ludovico Solima[76] delineates four distinct forms of augmented reality: outdoor guides and explorers, utilized in outdoor settings and beyond museum confines; interpretative mediation, employed within museum tours to furnish additional information framed by the mobile device or viewer; new media

[73] Milgram, P., and Kishino, F. (1994). A taxonomy of mixed reality visual displays. IEICE Trans. Inform. Syst. 77, 1321–1329.
[74] Azuma, R., Baillot, Y., Behringer, R., Feiner, S., Julier, S., and MacIntyre, B. (2001). Recent advances in augmented reality. IEEE Comp. Graph. Appl. 21, 34–47.
[75] Cipresso P., Chicchi Giglioli I., Alcaniz Raya, M., Riva, G. (2018) The Past, Present, and Future of Virtual and Augmented Reality Research: A Network and Cluster Analysis of the Literature. Front. Psychol.
[76] SOLIMA L. (2011) Social network: verso un nuovo paradigma per la valorizzazione della domanda museale, in «Sinergie» pp. 51-52.

art and sculpture and virtual exhibition, contributing to the creation of novel art forms, environments, or virtual exhibitions.

The efficacy of virtual and augmented reality technologies in engaging users is particularly pronounced when they allow for the modification of the virtual environment through interactive technologies. Furthermore, their impact is heightened when haptic tools, capable of stimulating multisensorial experiences, are integrated. The term haptic denotes the ability to come into contact with something, and haptic technologies empower users to touch the digital environment, perceiving its volumes and shapes as if interacting with a real environment. These tools, still in the phases of development and experimentation, hold significant potential, especially within the realm of cultural and archaeological heritage. The ongoing exploration of haptic technologies is a promising avenue, offering opportunities for enriched user experiences in the preservation and exploration of cultural and archaeological heritage.

The Louvre showcases a notable application of virtual reality within the museum context through the project "Mona Lisa: Beyond the Glass." This virtual reality experience blends moving images, sound, and interactive design, creating an immersive environment that invites visitors to delve into the captivating world of Leonardos iconic painting. Offering a journey through time, the experience unveils the intricate process of the original creation and illuminates how the masterpiece has evolved over five centuries, impacted by light and moisture. The narrative aspect of "Mona Lisa: Beyond the Glass" serves to dispel prevalent myths surrounding the renowned painting, shedding light on her identity and providing nuanced insights into how her appearance reflects social status. This innovative virtual reality endeavor stands as a collaborative effort with the Louvres curatorial team, aligning with the museums commitment to discovering novel ways to engage audiences both within and beyond its physical walls. Within the museum setting, the virtual reality experience aims not only to complement but also to elevate visitor engagement through creative storytelling that goes beyond the surface, unraveling layers of information that transcend what the naked eye can perceive. "Mona Lisa: Beyond the Glass" represents a pioneering approach to enriching the museum experience and fostering a deeper understanding of artistic masterpieces.

Powered by HTC VIVE devices, this cutting-edge technology enables users to perceive the virtual world through an optical visor, seamlessly immersing them in an augmented reality experience. Notably, the technology goes beyond mere visual representation by effectively transforming the

users surrounding environment into a three -dimensional space, granting them the freedom to move and explore within this digital realm[77].

Augmented reality systems are commonly accessed through downloadable applications, allowing visitors to use their smartphones or tablets. Alternatively, in certain instances, museums may opt to furnish the public with dedicated devices already equipped with the installed visit application.

Prominent museums have recently collaborated with external technology companies to develop their own augmented reality applications, as exemplified by the Italian Trento Science Museum. Since 2018, the MuSe has introduced a unique initiative, providing visitors with smartphones available for rent. These smartphones are preloaded with the "Go!Muse" augmented reality application, offering the public an engaging experience where they can capture the skeletons of various animals on display, many of which are extinct, and witness them in dynamic, lifelike motion. This augmented reality application goes beyond the conventional observation of animal skeletons, offering visitors additional information and a more immersive understanding of how these creatures appeared in their living state. Consequently, the incorporation of such augmented reality multimedia content not only enhances the dynamism and entertainment value of the museum visit but also contributes to making the experience more memorable for visitors[78].

An illustrative case is AppTripper, a mobile software designed for museum and art city visitors, empowering them to craft personalized itineraries based on their individual emotional experiences. Unlike traditional guidebooks, this application recommends visits and routes tailored to the users desired emotional journey, offering a selection of eight possible emotional itineraries—ranging from surprise and joy to love, melancholy, fear, anger, ecstasy, and wonder. Rather than a conventional guide, these emotional itineraries guide visitors through museum collections, providing additional content, artist anecdotes, museum information, interactive games, and various multimedia elements. The objective is to actively involve the visitor in co-participation and sharing processes during their museum visit. Notably, the Uffizi Gallery, renowned as one of the worlds most visited museums, has harnessed the technology of AppTripper to create its own application centered around emotional tours.

A recently introduced application, KeyArt, is now available across various international museums, offering users access to multimedia services and the immersive experience of augmented reality content. KeyArt goes beyond by featuring a dedicated History section, presenting a comprehensive

[77] Maida, D. (2019) Mona Lisa: Beyond the Glass. Mostra in realtà virtuale sulla Gioconda di Leonardo al Louvre, ArTribune.
[78] Servizi MUSE | Muse

list of scanned works. Additionally, the app incorporates a Favorites section, allowing users to save their preferred artworks and revisit their content at their convenience.

Applications have evolved to offer a more engaging experience through the integration of diverse multimedia content that facilitates user interaction. A notable trend gaining traction in the past year involves the development of genuine educational video games designed to actively engage audiences in the process of using and learning cultural content. This trend is commonly referred to as **gamification**, encompassing initiatives that aim to infuse playfulness and interactivity into cultural consumption, promoting a learning by doing approach. Embracing gamification for cultural engagement entails crafting interactive initiatives that respect the museum context in which they are applied. Such endeavors necessitate the collaboration of a multidisciplinary team capable of harmonizing gaming elements with cultural and educational objectives[79]. Museum video games, in particular, are predominantly tailored to involve children and younger generations. Current data suggests a decline in their participation in traditional museum activities, as they increasingly gravitate towards alternative forms of entertainment[80].

Video games manifest in various forms, such as treasure hunt applications prompting players to discover clues for progressing on their journey. Additionally, there are role-playing games where users assume the identity of a character. Another genre encompasses alternate reality games, engaging players across diverse locations and timeframes. Furthermore, there are serious games, a category not solely designed for entertainment but also serving educational purposes. Among alternate reality games, some are set in the real world, known as blended reality games. Another variant is augmented reality games, enabling interaction with reality through digital elements.

An intriguing illustration is the Ingeborg Tott VR Game designed for the National Museum of Finland, seamlessly blending history with contemporary technology. The development team opted to create a virtual reality game utilizing Varjo headsets, immersing players in the narrative of Ingeborg Åkesdotter Tott, a forgotten warlord from the 16th century situated in Häme Castle. The game unfolds as a gamified experience, skillfully combining interactive elements with the virtual representation of space and objects. The concept of featuring Ingeborg as the central character captivated the entire team, given her compelling profile as a formidable military commander, a wealthy, independent woman, and an enthusiast of science and religion.

[79] Izzo F. (2017) Musei e tecnologie: valorizzare il passato per costruire il futuro, Wolters Kluwer, edizione Kindle, Milanofiori, Assago.
[80] Pacetti. E. (2018) Ambienti digitali nella prima infanzia per giocare con l'arte.

The virtual journey commences in the Guards Room, where the storyline is introduced by a guard. Here, players not only grasp the plot of the game but also familiarize themselves with navigating within the virtual space[81].

Talking about 'Blended Reality Games,' the inaugural museum video game, "Father & Son," emerged in 2017 under the guidance of Director Paolo Giulierini and Professor Ludovico Solima at the Archaeological Museum of Naples (MANN). This groundbreaking initiative was brought to fruition with the collaboration of TuoMuseo, a company dedicated to innovative solutions in the cultural sector, along with a team of developers. Released as a free application for both Android and Apple platforms, "Father & Son" presents a captivating narrative that commences with an archaeologist fathers letter to his son, leading to an immersive journey through Neapolitan cultural sites and the Archaeological Museum itself. The quest revolves around exploring the splendid artifacts of Pompeii and Herculaneum, all while seeking the elusive father figure. The games interface, rendered in 2D, empowers users to guide the protagonist through diverse locations and temporal dimensions. Its success is attributed to its user-friendly design, straightforward graphics, compelling narrative, and the profound engagement it offers players. Notably, "Father & Son" stands out as a remarkable instance of a museum video game that enjoys international accessibility, transcending the need for a physical museum visit.

The intersection of the gaming realm with the museum domain is a relatively recent development, yet it has yielded generally favorable outcomes in achieving objectives related to audience engagement. The examination of diverse case studies employing multimedia technologies reveals that virtual and augmented reality technologies effectively stimulate three educational dimensions that hold particular significance in the context of heritage: knowledge acquisition, re-elaboration, and active participation[82].

5.2.2   3D MODELS

Beyond conventional 2D digitization, which has been a longstanding practice primarily used for cataloging museum artifacts, the recent years have seen the emergence of 3D models generated through tools capable of three-dimensional digitization. While the 3D digitization process remains time-consuming and labor-intensive, the growing affordability of 3D scanners has made them increasingly accessible for museums. Additionally, the market introduction of technologies allowing

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[81] https://varjo.com/vr-lab/virtual-reality-for-museums-how-we-made-the-ingeborg-tott-vr-game-for-the-national-museum-of-finland-with-varjo/

[82] Macauda A., Panciroli C. (2018) Ambienti virtuali e aumentati per valorizzare l'arte e il patrimonio. Franco Angeli, pp. 213-216.

the creation of authentic three-dimensional models from digital images has further expanded the possibilities. This technological advancement has significantly aided museums, particularly in enhancing the accessibility of their collections. It enables the display of replacement models for delicate or lost works, extending accessibility to scholars and experts who require remote examination. Moreover, it proves invaluable in the conservation and restoration processes, allowing experimentation on three-dimensional replicas before undertaking actual restoration work. Archaeological museums, facing the challenge of exhibiting partial, destroyed, or highly delicate works, have been among the primary beneficiaries of such 3D tools. This technology facilitates the preservation of heritage over time, safeguarding it from atmospheric events or potential damage. It also allows for the accessibility and visibility of works that may not be suitable for traditional museum display or transportation.

An exemplary case highlighting the transformative impact of 3D technology is the Digital Giza Project, a collaborative effort involving the Harvard Semitic Museum, EPFL Institute in Switzerland, and Cairo University. Leveraging advanced laser scanning technology, the project aimed to create highly precise 3D models of ancient Egyptian monuments, including the Sphinx and the Great Pyramid, situated on the Giza plateau. The resulting Digital Giza Library, with over 200 terabytes of data, stands as a detailed digital repository offering up to 1mm precision. This project not only provides an interactive and engaging experience for researchers and the public but also serves as a valuable resource for the conservation and preservation of these iconic monuments[83].

In a similar vein, the Michelangelo Digital Project, conducted from 1998 to 2003, stands as a groundbreaking initiative in the realm of 3D digital reconstruction. This project marked a collaborative effort uniting expertise from the fields of art, engineering, and digital technology, with the ambitious goal of digitally recreating renowned sculptural masterpieces crafted by the artist Michelangelo during the 15th and 16th centuries.

This project marked a collaborative effort uniting expertise from the fields of art, engineering, and digital technology, with the ambitious goal of digitally recreating renowned sculptural masterpieces crafted by the artist Michelangelo during the 15th and 16th centuries. Iconic works such as the David, the Pieta, and the Madonna and the Child were the focus of this endeavor.

Harnessing state-of-the-art 3D laser scanners, the project employed the acquisition of multiple digital photographs from various angles. These images were then meticulously utilized to construct high-

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[83] http://giza.fas.harvard.edu/

fidelity 3D models, faithfully reproducing some of Michelangelos most celebrated creations with remarkable precision and accuracy[84].

5.2.3 HOLOGRAMS

Holograms, generated through the intricate optical technique of holography, represent three-dimensional replicas of objects. These images possess a unique communicative potential, allowing comprehensive observation from various perspectives, thereby bridging the gap between the virtual and the real. Despite its potential, the widespread integration of holographic technology in museums has been limited due to its considerable expense. Nevertheless, its utility shines in crafting three-dimensional reproductions and animations of objects that may no longer exist or archaeological artifacts that are too fragile for display. The high cost notwithstanding, holograms find particular relevance in science museums, enhancing the understanding of scientific experiments and presenting intricate details of objects or natural elements. Furthermore, archaeological museums stand to benefit significantly, using holography for the reconstruction of lost artifacts or those deemed too delicate for public exhibition. In museum routes, holograms serve an additional purpose by crafting animations that skillfully lead visitors through their journey, providing an engaging and entertaining experience.

In recent times, there have been significant advancements in holographic techniques, enabling the replication of reality and the creation of non-existent characters, objects, or scenes. Holography, as an optical technology, records and stores visual information by intricately weaving interference fringes through the use of coherent laser light, appropriately projected. The resulting image is distinguished by a compelling illusion of three-dimensionality, primarily achieved through a parallax effect in perception. This parallax effect, where the image is perceived differently based on the viewing angle, is crucial for three-dimensional visual perception, particularly when observed with two eyes.

Each eye perceives the image from a slightly different position, creating the desired three-dimensional effect. The term holography finds its roots in ancient Greek, with "holos" meaning everything and "grafè" meaning writing, literally translating t o I describe everything.

The inception of holography can be attributed to the theoretical work of Hungarian scientist Dennis Gabor (1900–1979), who was awarded the Nobel Prize for Physics in 1971 for his groundbreaking

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[84] https://graphics.stanford.edu/papers/digmich_falletti/

invention. Meaningful applications of holography began to emerge in the 1960s with the introduction of highly coherent laser light sources[85].

An exemplary instance of harnessing hologram technology for museum experiences unfolds in a project spearheaded by the National Research Council. Under the umbrella of the CEMEC (Connecting European Early Medieval Collections) initiative, the CNRs Institute for Applied Technologies for Cultural Heritage collaborated with conservation-focused entrepreneurs and various museum curators. This collaboration resulted in the conceptualization, execution, and inauguration of a groundbreaking holographic showcase in recent months. Dubbed ITABACs holographic showcase, this installation represents a pioneering amalgamation of virtual concepts and tools. Notably, it is slated to embark on a tour across European museums, serving as an experimental venture in museum exhibition techniques. At its core, the showcase is essentially an exhibition box enriched with digital content seamlessly integrated with the surrounding art objects. Unlike conventional approaches, where information is relegated to separate spaces, this innovation employs projections to animate the space surrounding the object, creating a captivating narrative flow.

Referred to as the Box of Stories, this inventive display was crafted by CNR researchers around a significant artifact – the Kunágota sword. This sword, once wielded by an Avar warrior in the mid-7th century AD, originates from the museum in Budapest. Notably, it forms part of a funerary trousseau discovered in a tomb located in the southeastern region of Hungary.

Within the confines of the box, the holograms deliver a multi-faceted sensory encounter, unfolding in three cohesive phases. The initial stage, aptly named The Story, presents a neutral perspective of the showcased object. This phase incorporates multimedia captions and virtual enlargements of the intricate decorative details, creating an interactive synergy with the tangible artifact.

Moving on to the second phase, titled The Life, a more analytical exploration ensues. Here, the virtual component intricately complements the physical display by dramatizing the objects history and its genesis. This analytical approach enriches the viewers understanding by providing a dynamic narrative backdrop.

The culmination of the experience unfolds in the third and final phase, Farewell and the Kingdom of Tengri. This segment contextualizes the object within the tomb of its origin, seamlessly transporting it into a symbolic vision of the afterlife. Through this immersive journey, the viewer gains a

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[85] Pietroni, E., Ferdani, D., Forlani, M., Pagano, A. and Rufa, C. (2019) Bringing the illusion of reality inside Museums – a methodological proposal for an advanced museology using holographic showcases. Informatics.

comprehensive and emotionally resonant understanding of the artifacts historical context and significance[86].

5.2.4 INTERACTIVE SYSTEMS

In the initial emergence of technologies within the museum domain, the market witnessed the advent of hands -on stations – originally mechanized in the 1970s, later evolving into digital and interactive installations during the 1980s. These stations aimed to foster user interaction with the museum and cultural heritage. Remarkably, this type of technology endures in contemporary museum itineraries, primarily manifested through touch-screen interfaces, allowing engagement on an individual basis.

Traditionally, informative cards situated beside artworks are progressively yielding to digital tools that empower users to interact and select the information they wish to explore. Elisa Bonacini elucidates that such installations harmoniously blend sensorimotor learning inherent in interactive technologies with symbolic-deductive learning typical of visually-oriented tools[87]. Consequently, these interactive systems have become entrenched in numerous museums, evolving into a communicative language that appears to offer heightened enjoyment and learning experiences compared to conventional communication methods.

In recent years, a burgeoning interest has emerged in cultivating novel forms of participation within museums and galleries. Substantial investments have been directed toward the design and development of innovative exhibitions and galleries, aiming to enrich visitor engagement and enhance their learning opportunities.

Notably, tools and technologies have played a pivotal role in this transformation, enabling designers, curators, and museum managers to create exhibits that facilitate interactivity and encourage visitors to participate in more intricate forms of engagement within the museum and gallery space. These technologies not only provide flexible and comprehensive information about established objects and collections but also, in certain instances, integrate seamlessly into the exhibits themselves. This trend reflects a broader paradigm shift in the museum landscape, where technology becomes an integral part of the visitor experience, fostering a more dynamic and immersive engagement with cultural heritage.'

The Museum of Natural Sciences in Brussels emerges as an extraordinary example of how interactive technology can radically transform the museum experience, making it engaging and accessible to all

[86] Milano, M. (2018) Vetrine Olografiche, la nuova narrazione che serve ai musei europei. Oggiscienza.
[87] Bonacini E. (2013) La valorizzazione digitale del patrimonio culturale in Europa e in Italia. Forme di fruizione e di valorizzazione museale attraverso le nuove tecnologie e i social media. Università degli Studi di Catania.

visitors. This institution, located in the heart of Brussels, is more than just a conservatory of natural exhibits; it is a place where the history of life on Earth comes to life through the creative integration of innovative technologies.

One of the main attractions is the Gallery of Evolution, where touch-screens act as portals to the fascinating world of biological diversity. Visitors can explore the history of evolution by virtually touching the species on display, accessing detailed information and generating a deeper understanding of the connections between living organisms.

The Hall of Dinosaurs offers an equally immersive experience. Here, interactive models and projections transform visitors into explorers of the past, allowing them to virtually examine dinosaur bones through touch screens. This immersion in prehistoric life is designed to stimulate curiosity and scientific interest, offering a unique perspective on the ancient world.

Moreover, the museum actively promotes a participatory learning experience by incorporating quizzes, games, and simulations within its interactive exhibits. This educational approach not only injects an element of enjoyment into the learning process but also ensures that science education becomes a dynamic, challenging, and easily accessible adventure. In essence, the Museum of Natural Sciences in Brussels serves as a compelling testament to the transformative power of technological innovation in reshaping our understanding of natural history. The deliberate integration of interactive technologies not only elevates the museum visit to a stimulating and educational experience but also democratizes access to scientific knowledge, turning the museum into an inclusive and captivating space for learning that appeals to a diverse audience[88].

5.3 VIRTUAL MUSEUMS

An early definition of a virtual museum, still widely quoted in the literature, is the one provided by Geoffrey Lewis (1996) for an article in the online version of the Encyclopaedia Britannica: "A collection of digitally recorded images, audio files, text documents and other data of historical, scientific or cultural interest accessed by electronic means. A virtual museum does not house real objects and therefore does not possess the permanence and unique qualities unique qualities of a museum according to the institutional definition of the term"[89].

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[88] https://www.naturalsciences.be/nl
[89] Kaplan F.E.S. (1996). Museums and the making of "ourselves": the role of objects in national identity. London: Leicester University Press.

In 1988, Werner Schweibenz[90] recognized the evolving concept of the virtual museum. In his proposal, he suggested an alternative definition that shifted the focus away from the mere presence of objects and emphasized the experiential aspect of enjoyment. Schweibenzs perspective cons idered various factors, including the three contextual dimensions of the museum experience outlined by Falk and Dierking in 1992: personal, social, and physical contexts: "The virtual museum is a logically related collection of digital objects composed in a variety of media, and, due to its ability to provide connectivity and various access points, lends itself to transcending traditional methods of communication and interaction with visitors, being flexible with respect to their purposes and interests; it has no real place or space, its objects and related information can be disseminated throughout the world."[91]

Its clear that not all online museum representations can be considered museums. The Virtual Museum Transnational Network (V MUST) a network of excellence, in museums managed by the CNR has provided a more recent definition to clarify this concept. According to their definition: "A digital entity that builds on the characteristics of a museum with the aim of complementing, enhancing or enhance the museum experience through personalisation, interactivity and richness of content. Virtual museums can act as the virtual imprint of a physical museum, or they can act independently while maintaining the authoritative status conferred by ICOM in its definition of a museum.

In tandem with ICOMs mission of a physical museum, the virtual museum is also committed to public access to both the knowledge systems embedded in the collections and in the systematic and coherent organisation of their exhibition, as well as in their long-term preservation"[92].

"V-MusT.net" stands as a transnational network dedicated to the establishment of Virtual Museums. This initiative receives funding from the European Community through the 7th Framework Programme. Coordinated by the National Research Centre (CNR), the network boasts collaboration with 18 partners hailing from 12 European countries, including Italy, France, Germany, Spain, Belgium, Holland, England, Ireland, Sweden, Greece, Cyprus, and Bosnia. Additionally, it extends its reach beyond Europe with the inclusion of one non-European partner, Egypt. The network has set ambitious objectives, focusing on the creation, research, and dissemination of digital content. Its overarching aim is to foster the adoption of common practices among all partners, thereby stimulating the advancement of digital issues in the realm of virtual museums.

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[90] Schweibenz W. (1988). The "Virtual Museum": New Perspectives For Museums to Present Objects and Information Using the Internet as a Knowledge Base and Communication System.
[91] Falk J.H. and Dierking L.D. (1992). The Museum Experience. Washington: Whalesback Books.
[92] v-must | Virtual Museum Transnational Network

The virtual museum provides an online encounter centered around the exploration of multimedia content, narrative engagement, and interaction with a novel category of visitors. This experience involves the immersive consumption of multimedia elements, engaging storytelling, and interactive features tailored to captivate a distinctive audience.

Upon reviewing various definitions, it is apparent that the fundamental traits of a museum encompass multimedia elements, interactivity, multisensorial engagement, connectivity, multidisciplinarity, dynamism (interpreted as evolutionary over time), narrativity, and deterritorialization. Notably, the V-MusT extends the concept of a "virtual museum" to encompass virtual and multimedia projects that can be encountered within the physical confines of actual museums. Consequently, the virtual museum transcends the online realm, manifesting itself in reality by leveraging characteristics such as multimedia, interactivity, and multisensoriality facilitated through digital technologies. In this context, the virtual museum seamlessly integrates with the cultural content of real museums to craft its unique experiential narrative. This dynamic is akin to museum websites, often serving as virtual reflections of the authentic museum experience. It is crucial to emphasize that, no matter how well-crafted and enriched with activities an online museum may be, it can never serve as a substitute for an authentic museum experience.

In a real museum, visitors have the invaluable opportunity to establish tangible connections and interactions with both the artworks and the individuals in their immediate surroundings. The virtual museum should not be misconstrued as a platform trivializing or diminishing the significance of the genuine institution it represents. Instead, it should be regarded as an additional avenue to reach audiences that may be challenging to engage, offering an extended means to enhance cultural outreach and dissemination, thereby enriching the overall cultural landscape.

Antinucci articulates this concept effectively, underscoring that the virtual museum serves as a comprehensive communicative extension of the real museum. In this projection, visual-based digital technologies are employed to narrate and give voice to the artworks. Communication, according to Antinucci, stands out as the most pivotal aspect of a virtual museum and can manifest in various forms, be it dramatization, exhibition, or narration. Antinuccis perspective on the definition of a virtual museum poses challenges. Before defining what a virtual museum should represent in connection with a real museum, the scholar outlines several scenarios that, in his view, should not fall under the label of a "virtual museum." For instance, a mere online transposition of the real museum or its electronic archive-database-complementary element, and the creation of what is absent in the real museum should not be considered a virtual museum. Antinucci argues that a museums essence

lies in its limitations, specifically its role as the custodian of a particular collection[93]. Thus far, we have discussed a digital museum that establishes its foundation based on an existing museum, serving as an online or on-site communicative complement. However, its crucial to note, following the V-MusTs definition, that a virtual museum can also emerge independently, detached from any connection with reality. It presents itself as a distinct museum reality structured through digitally produced content or sourced from different museum institutions. Antinucci terms these digital environments "impossible museums" as they lack a corresponding institutional existence in the physical realm.

Antinucci classifies virtual museums into three categories: 1) the virtual reconstruction of an archaeological monument, 2) the virtual museum website, and 3) the "impossible museum." Having covered virtual reconstructions and museum websites in the previous chapters, we will now proceed to analyze the concept of the impossible museum.

- THE IMPOSSIBLE MUSEUM

'Impossible museums' is a concept coined by the scholar Antinucci to describe a particular category of virtual museums. These virtual museums do not have an institutional correspondence in physical reality, unlike traditional museums that are physical institutions with collections of works of art or historical objects.

Impossible museums, on the other hand, are created in the digital world and structured through newly produced digital content or content from different museum institutions. These museum tours take shape directly in the digital environment and do not attempt to replicate an existing museum. Antinucci uses the term "impossible" to emphasise that these museums would have no institutional counterpart in the physical reality, as their existence is solely linked to the digital world.

An interesting example of impossible museum is the **Google Arts and Culture project**. The Google Art Project stands as a cultural initiative implemented by Google, integrated into the broader framework of the Google Cultural Institute. Its primary objective is to amass high-resolution images of artworks showcased in various museums globally and subsequently make them accessible to the public. Beyond this, the program facilitates virtual tours of the galleries where these artworks are on display. In collaboration with a dedicated team of Googlers, tools have been developed to empower the cultural sector in progressively bringing its abundant heritage content online, ensuring accessibility for all. The platform offers a diverse range of content, including artworks, monuments, world heritage sites, and digital exhibitions narrating stories preserved in the archives of cultural

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[93] Antinucci F. (2007) Musei virtuali. Come non fare innovazione tecnologica, Laterza.

institutions worldwide. Google initiated the project on February 1, 2011, and it has since evolved, now operating under the name Google Arts & Culture. The collection features works from some of the most prominent and renowned museums globally, such as the Uffizi in Florence, Tate Gallery in London, Metropolitan Museum of Art in New York, Capitoline Museums in Rome, and Museo Diocesano in Milan[94].

Museums of various sizes, encompassing both classical and modern institutions, renowned globally or deeply rooted in local communities across over 40 countries, have generously contributed upwards of 40,000 high-resolution images. These images span a wide array of artworks, including paintings on canvas, sculptures, and furniture objects. Notably, certain paintings are available in gigapixel format, enabling viewers to zoom in at the level of individual brushstrokes, revealing intricate details previously unseen.

Partner museums worldwide have collectively shared over 57,000 works of art, comprising paintings, drawings, sculptures, religious artifacts, monuments, historical photographs, and significant manuscripts. The online platform provides a rich array of resources, including cleverly narrated videos, audio guides, reference notes, detailed information, maps, and more. Through the Google Cultural Institute and its Google Arts & Culture initiative, the treasures of the world are now accessible to each of us. This allows us to embark on a virtual journey among unique masterpieces, all from the comfort of our home desks. Users have the flexibility to scrutinize artworks in intricate detail, embark on virtual tours through the halls of renowned institutions like the Tate Gallery, and even curate personal galleries to share with friends. At its core, the mission of the Google Cultural Institute, facilitated by the Google Art Project, is to globally organize information, making it universally accessible and useful.

Essentially, the Cultural Institute represents a tangible initiative dedicated to democratizing access to art and culture, ensuring their availability to a global audience. Its primary objectives include the preservation of significant cultural materials in digital formats and the cultivation of inspiration and education for future generations. Serving as an innovative tool for students worldwide, the Institute strives to be a beacon for cultural exploration.

Adding a touch of beauty, Google extended its reach beyond the works of art housed in the worlds foremost collections and renowned museums. The Street Art project emerged as a testament to this endeavor, constituting a digital archive housing over 5,000 works painted on walls, buildings, and surfaces across the globe. This ambitious project aims to capture diverse forms of street art through

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[94] https://artsandculture.google.com/

the lenses of Street View. Googles service provides a three -dimensional view of street images, harnessing the considerable potential for sharing, a crucial aspect in the realm of street art. Importantly, the project invites active participation, allowing anyone to contribute by submitting material, be it their own or that of others, ensuring the documentation of these transient works before they vanish.

In summary

In the exploration undertaken in this chapter, we have delved into the comprehensive integration of technology for cultural appreciation. The transformation of activities as fundamental as observing a painting or visiting a museum underscores the profound changes ushered in by modern technological advancements. While such shifts may initially evoke a sense of novelty, it is incumbent upon us to confront this reality with an open mindset, embracing technological innovations as valuable resources that offer unprecedented avenues for exploring the realm of art.

The advent of 3D models, holographic representations, and virtual museums exemplifies the futuristic landscape we now inhabit. These developments, often heralded as visionary, are not mere conjectures but constitute our present reality. The Cultural Heritage 2.0 project, envisioning an entirely technology-centric future by 2035, though arguably ambitious, aligns closely with the contemporary landscape.

It is imperative, however, to maintain a conscientious balance between the virtual and the tangible. While digital technologies provide extraordinary tools, offering a panoramic view of our cultural heritage, we must not lose sight of the profound and irreplaceable emotions stirred by physical encounters with cultural artifacts. The ineffable experience of standing before an archaeological site or being moved by a painting or sculpture remains unparalleled. In this context, technological means should be regarded as augmentations, affording a comprehensive and panoramic insight into our cultural heritage, surmounting the constraints imposed by nature and society. The integration of technology, therefore, serves as a supplementary and enriching component, expanding our understanding of cultural legacy without diminishing the intrinsic value of direct, physical engagement.

CONCLUSION

In conclusion, this comprehensive exploration of European cultural policies, digitalizations impact on cultural heritage, and the dynamic role of museums in the post-Covid era reveals a nuanced landscape filled with both challenges and unprecedented opportunities. The thesis uncovered a landscape marked by fragmented initiatives rather than a cohesive framework, emphasizing the urgent need for standardization while preserving the rich cultural diversity inherent in each European nation.

The post-pandemic chapter offered a deep dive into the transformative influence of digital tools on museums, showcasing their resilience and adaptability. The emphasis on a digital-first approach highlighted not just the necessity but the strategic imperative for institutions to remain relevant in contemporary society. The spotlight then shifted to the Cultural Heritage 2.0 Project, illustrating a proactive response to the challenges posed by the Covid-19 pandemic. This initiative stands as a beacon, pointing toward a future where cultural heritage organizations are not merely preservers but dynamic contributors to societal well-being and progress.

As the thesis unfolds, it becomes evident that the interplay between cultural fruition and the digital landscape shapes the European narrative in profound ways. The exploration of the Cultural Heritage 2.0 Project and its future scenarios underscores a critical juncture for the cultural heritage sector. It demands a strategic blend of tradition and innovation, with external forces such as the digital revolution and climate crises highlighting the imperative for agility, adaptability, and a proactive stance.

The scenarios presented in the Future Scenario Book serve as invaluable strategic tools, propelling cultural heritage organizations into a forward-thinking realm where they must not only envision but actively prepare for a diverse spectrum of potential futures. This collaborative endeavor signifies a departure from conventional decision-making approaches, placing emphasis on community engagement, inclusivity, and the democratization of cultural heritage. In essence, this marks a paradigm shift where the boundaries of the art world must be expanded, making it more open and accessible to a broader audience. Technology, as a powerful enabler, plays a pivotal role in achieving this transformation. By leveraging technological advancements, cultural heritage organizations can break down barriers, making the world of art more comprehensible and accessible to a wider demographic, moving beyond the confines of an exclusive circle.

Furthermore, the conclusion drawn from this shift is profound – cultural heritage organizations are no longer confined to the role of mere preservers. In a world marked by continual change, activism, and climate crises, these institutions must evolve to stay relevant. They are called upon to actively engage with their communities, opening avenues for dialogue with visitors and members. These organizations must become champions of societal movements, embracing a more active and responsive role in the face of the dynamic challenges of the contemporary world. The imperative is not just to preserve artifacts but to become integral components of social well-being, resilience, and progress. This means being attuned to the ongoing shifts in societal consciousness, activism, and environmental concerns. In a world where cultural heritage intersects with broader global issues, these institutions must become dynamic actors, aligning their missions with the values and aspirations of the communities they serve. In this context, the continuous evolution of cultural heritage organizations involves not only adapting to change but actively participating in shaping it. By fostering open dialogue and embracing technological innovations, these institutions can bridge the gap between the traditional and the contemporary, ensuring that the world of art is a living, breathing entity accessible to all. In an era where accessibility, understanding, and relevance are paramount, cultural heritage organizations must transcend their traditional roles, becoming advocates for inclusivity, openness, and active participation in the broader societal discourse. This evolution is not just a necessity; it is a transformative journey toward a more vibrant and accessible cultural heritage sector for the benefit of present and future generations.

In this context, the comprehensive integration of technology for cultural appreciation emerges as a central theme. The transformation of fundamental activities, such as observing art, underscores the profound changes ushered in by modern technological advancements. The Cultural Heritage 2.0 project envisions a technology-centric future, and while ambitious, it aligns closely with the contemporary landscape. Yet, amidst the excitement of technological advancements, the thesis emphasizes the importance of maintaining a conscientious balance between the virtual and the tangible. While digital technologies provide extraordinary tools, direct, physical engagement with cultural artifacts remains irreplaceable. The integration of technology should be seen as an augmentation, enriching our understanding of cultural legacy without diminishing the intrinsic value of physical encounters.

Addressing the questions posed in the conclusion, the thesis highlights that a technological future is not just a possibility; it is already here. The challenge lies in shifting from a more traditional view of cultural consumption to embracing the interactive and engaging forms facilitated by technology. Some institutions are already at the forefront of this change, and European programs are contributing

to this shift. However, there is a call for greater coherence and alignment among these programs. In essence, the thesis calls for active participation in the cultural evolution facilitated by technology. It invites stakeholders to recognize the profound opportunities within the digital landscape, urging a collective commitment to shaping a vibrant and resilient cultural heritage sector. As the heritage sector navigates the convergence of technology, community, and climate, it has the potential not just to adapt but to thrive and lead in shaping the narrative of our shared cultural heritage.

In this era of transformative possibilities, let us not merely witness the evolution but actively engage in shaping a future where technology enriches, community inclusivity prevails, and cultural institutions stand as dynamic contributors to the ever-evolving narrative of our shared heritage. The digital age is not a distant prospect; it is here, and it is time for us all to be architects of this new cultural era, forging a path that harmonizes tradition with the demands of an ever-evolving world.

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