

## MUSEUMS AND HERITAGE IN THE DIGITAL AGE. THE CHALLENGE OF CULTURAL CHANGE AND TECHNOLOGICAL INNOVATION

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### Abstract

Museums are reinventing themselves in response to the COVID-19 emergency. The pandemic has increased inequalities and widened disparities in accessing heritage and in participation to cultural life. On the basis of the results of ICOM's 2020 global surveys, this paper shows how museums benefited of the opportunities of digital innovation during the lockdown. The pandemic is accelerating the digital change and interactive technologies are enabling museums to interact with communities more efficiently and attract new public. The paper addresses the impact on museums of the crisis of global mobility and mass tourism and point out to the need of new business models and exhibition policies. It calls for public support to museums' cultural, technological and managerial innovation and it shows that the challenges of the digital world require new interdisciplinary competencies and more professional interaction.

### Keywords

Museums, heritage, pandemic, innovation, digital challenge, digital divide, participation, exhibition

### 1. Introduction

Museums are information providers, creators of knowledge and communicators of content. The Internet and digital technology have created a golden age of opportunities for museums and have increased their relevancy, as well as offered them a great possibility to improve cultural democracy, participation and access to heritage.

ICOM, the global association of museums and museum professionals<sup>1</sup>, has been widely discussing the impact of the technological revolution on museums. The pandemic has accelerated innovations that were already under way. The new challenges have been drivers of change and the new difficulties have brought forth new approaches.

In recent years, the cultural aspects of the technological transformation have emerged all over the world. In December 2017 I was invited to attend the Fourth World Internet Conference in Wuzhen, China, to discuss *Developing Digital Economy for Openness and Shared Benefits — Building a Community of Common Future in*

*Cyberspace*. The Opening ceremony of the Wuzhen Summit was addressed by the Chinese Government's high representatives, and also by Apple CEO Tim Cook, Google CEO Sundar Pichai, and Bob Kahn, one of the fathers of Internet. An opening speech was given by Jack Ma, Alibaba founder, now in political dire straits, but at that time a recognized Chinese tycoon in ecommerce. For the first time, the Summit was not only focused on technological issues. The Chinese State Administration of Cultural Heritage (SACH) organized a specific session dedicated to the cultural aspects of the Internet age so that the voice of heritage and museums could be heard. In my opening speech on behalf of ICOM and in an interview to Beijing News I pointed out that the Internet and technological revolution are part of a complex global change that is economic, social, political, but also deeply cultural. I also highlighted that digital technologies are having a great impact on the life of museums and on the management of heritage.

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<sup>1</sup> ICOM is an ONG founded in November 1946 during the first UNESCO Conference. It is made up of 49,000 professionals and museums from 140 countries and comprises 174 National and International Committees, Regional Alliances and Affiliated

Organizations. ICOM sets ethical and professional standards, develops capacity building and training programs, fights illicit trafficking of cultural property, protects heritage in danger. For more information, see <https://icom.museum/en/> [Accessed on 11 March 2021]

In 2018, *Museum international*<sup>2</sup>, ICOM's academic journal, dedicated Volume No. 70 to *Museums in a digital world* (*Museum International*, 2018). The volume tackles with the opportunities offered to museums by digital technologies and offers insightful contributions, case studies and field reports from all over the world. The publication was issued in connection with the discussion promoted for ICOM's 2018 International Museum Day: *Hyperconnected Museums: New approaches, New Public*<sup>3</sup>.

In times of pandemic, demands and opportunities of the digital age have become the recurrent theme in ICOM's webinars and video conferences. Just to give a couple of examples, on 21<sup>st</sup> October 2020 ICOM organized a webinar on *Keeping in touch: Digital transformation for museums in times of COVID-19* and on 24-27 November 2020 ICOM Regional Alliance Asia-Pacific Countries (ASPAC) organized the online 1<sup>st</sup> World Museum Forum on *Museums and Artificial Intelligence*, in Seoul, Korea.

My paper addresses the digital challenges that museums are facing and deals with the critical issues arisen in the museum community. In the first section of my paper, I present some data on the global situation of museums in COVID-19 emergency and on the increase of their digital activities. In the second section I discuss the need for technological innovation and more scientific research in museums. In the third section I highlight that the current crisis has widened inequalities in accessing heritage and in participation to cultural life. I focus on the social role of museums in the fight against digital divide and digital illiteracy. In the fourth section I deal with the new exhibition policies needed in times of

mass tourism crisis, and I point out to the necessary interaction between in person and digital initiatives. In conclusion I highlight that in the digital age new competencies and a new culture are needed in museums. The reader will find a great number of digital best practices in ICOM's publications such as *Museum International*, *ICOM Voices*<sup>4</sup> and *International journal of Intangible Heritage*<sup>5</sup>, as well as in ICOM's national and international web sites.

## 2. Museums and the COVID-19 emergency: the digital challenge

During the pandemic, the forced lockdown of museums has brought digital communication with the public to the fore. Facing the impossibility of communicating and interacting with the public through the traditional face-to-faces channels, museums have had to reinvent their communication tools and policy. Many digital projects have been created or strengthened and new audiences have been reached by museums' contents.

In 2020 ICOM promoted two global surveys on the impact of pandemic on museums. The first one was published in May 2020<sup>6</sup> and the second in November 2020<sup>7</sup>; a third ICOM global survey will be accomplished in April 2021.

ICOM surveys have shown that museums are going through the most serious crisis in their modern history. At the beginning of May 2020, the 95% of museums were closed and the 13% of directors feared permanent closure. The November 2020 survey confirmed the widespread climate of uncertainty about the future. While some museums reopened with major limitations, a great number was still closed because of the

<sup>2</sup> *Museum International* is the ICOM's academic, peer-reviewed journal in English. This publication is committed to fostering knowledge sharing within the international museum community. It publishes multidisciplinary, international research articles, case studies, reports and reviews. ICOM members can read online and download in PDF format all issues of *Museum International* for free.

<sup>3</sup> ICOM established the International Museum Day (IMD) in 1977 to increase public awareness of the role of museums. Each year, on the 18th of May, museums plan creative events and activities related to the IMD theme. Participation in the International Museum Day has grown year by year: in 2020 it was held on a digital-only format and on 18th May it reached more than 83 million users on social media. See: <https://icom.museum/en/our-actions/events/international-museum-day/> [Accessed on 11 March 2021]

<sup>4</sup> *ICOM Voices* is a new editorial space on ICOM's website created to encourage the exchange of experience and

expertise among museum professionals; it publishes articles from ICOM members in English, French or Spanish. The articles can be case studies, field reports, book reviews, exhibition or conference reviews; opinion pieces, etc. See: <https://icom.museum/en/get-involved/icom-voices/> [Accessed on 11 March 2021]

<sup>5</sup> The *International Journal of Intangible Heritage* is a refereed academic and professional English language journal dedicated to the promotion of the understanding of all aspects of the intangible heritage, and the communication of research and examples of good professional practice. See: <https://www.ijih.org/about> [Accessed on 11 March 2021]

<sup>6</sup> See <https://icom.museum/en/covid-19/surveys-and-data/survey-museums-and-museum-professionals/> [Accessed on 11 March 2021]

<sup>7</sup> See <https://icom.museum/en/news/follow-up-report-museums-covid-19/> [Accessed on 11 March 2021]

second pandemic wave. 6% of directors still thought that their museum might not survive the lockdown and close permanently. More than 50% of directors thought that their institution would have to operate with reduced opening hours at the end of lockdown. In November 2020, the directors seemed less worried than in April about the consequences of pandemic. However, three quarters of them expect that they will have to reduce temporary exhibitions and public programmes.

As regards museum professionals, 16% of directors stated that at least a quarter of their staff was furloughed or laid off between February and September 2020, a figure that rises to more than half of the personnel for 10,6% of the museums. Freelance and temporary staff, often young and motivated professionals working in the education, communication and visitors' services, are facing a disastrous situation and many of them are now with no job or salary. The freelance sector is very fragile: in the November 2020 survey 41% of the independent professionals stated that they had to suspend the payment of their own salary as a result of the crisis, 29% said their firms had to reduce the number of staff, 28% were considering changing their career entirely.

The loss of income due to the lockdown has been traumatic: half of the directors think that their museum will lose at least a quarter of the annual revenues, and 32% half of them. Museums with a great number of visitors from foreign countries are facing reductions up to 80/90% of their revenues. More than 50% of museums complain that so far they have received neither direct nor indirect financial support from governments.

What about the digital challenge? Despite the difficult situation, ICOM's surveys confirm that the online activities of museums and their channels of digital communication increased in 2020. The surveys show that digital outreach activities expanded in 15% of the museums, and almost 50% of them started new communication channels and improved their experiences in social media, livestreaming events, online educational programmes. The success of the digital communication of museums in time of lockdown has confirmed that museums have credibility and

reputation. They may be a driving social reference for citizens in time of uncertainty, fake news, and information overload.

In spite of those positive results, a majority of museums are still poorly equipped to engage with the public remotely. Only 22% of museums have full time staff for digital activities, and a bare 57% have part time personnel. Only 22% dedicate more than 10% of the budget to communication and digital activities. Looking to the future after lockdown, 29% of museums are considering increasing staff for digital activities, 43% would like to increase the dedicated budget, 54% want to train the staff, 75% intend to improve the digital offer and 77% are planning to reorganize their digital strategy.

If we look at the situation in Italy, the last data of the Italian National Institute of Statistics (ISTAT)<sup>8</sup> show that in 2019 the digital activities of the 5,000 Italian museums were unsatisfactory. Only 10% of them had a digital catalogue of at least part of their collections. Nevertheless, online communication has improved in the last few years: in 2019 more than 50% of the museums had a web site and an account on social media such as Facebook, Twitter, Instagram. At the end of December 2020, ICOM Italy presented the results of a survey on the digital communication of Italian museums during the first and the second COVID-19 lockdown<sup>9</sup>. ICOM Italy's data showed that also Italian museums have increased their digital activities: 89% of the participants in the survey produced ad hoc digital content during lockdown and 36% started new social media channels. However, only 16% of museums had the chance of using specific financial resources to develop digital activities.

### 3. *Museums and technological innovation for crisis recovery*

Few observers realize that museums are research centres and interdisciplinary laboratories that experiment technological, scientific, managerial, and cultural innovation. I would like to give an example: when COVID-19 emergency started, museums faced an unforeseen threat. However, in a few weeks the global network of professionals produced, published, and

<sup>8</sup> See <https://www.istat.it/it/archivio/167566> [Accessed on 11 March 2021]

<sup>9</sup> See <http://www.icom-italia.org/la-comunicazione-digitale-dei-musei-sfide-e-opportunita-ai-tempi-del-covid-19-17-dicembre-2020-in-collaborazione-con-regione-lombardia/> [Accessed on 11 March 2021]

implemented new scientific standards of risk management against the pandemic. Despite lockdown, professionals managed to take care of museum collections and buildings and to control security, environmental conditions, technical facilities, anti-crime protections.

Museum professionals have been working miracles. However, the pandemic has highlighted the need for modernization and research. The sanitary standards that museums must guarantee to the public and to their personnel require profound technological innovations, both now in the pandemic and when we go back to “normality”.

Museum professionals are implementing digital technologies in every field of their activities: not only in communication and promotion, but also in conservation, in the control of the environment conditions, in displays and storages, in access to heritage of persons with disabilities, in interaction with educational institutions, in enhancing in-person and online visitor experiences. Museums have to revolutionize their organization, explore innovative displays and interactive activities, update their monitoring systems, implement sophisticated booking platforms in order to redistribute visitors in time and space, possibly in networks with neighbouring museums.

As it was pointed out at the ICOM ASPAC event in Seoul, artificial intelligence applications are part of these necessary innovations. Artificial intelligence can help personalize the experience of visitors and make collections more accessible. It can also increase museum research by cross-analysing data through machine learning.

#### 4. *Museums and new inequalities: digital divide and digital illiteracy versus cultural participation*

Inequalities have dramatically increased in times of pandemic. The current crisis has widened disparities in accessing heritage and in participation to cultural life.

What does participation mean? Firstly, it means providing access to culture, heritage and museums' activities to all citizens, with no discrimination of socio-economic background. Free access to culture and cultural life is one of the human rights recognized by the United Nations' 1948 Universal Declaration (United Nations, 1948) and by UNESCO's Declaration on Cultural Diversity (UNESCO, 2001). The UNs' 2006 Convention on the Rights of Persons with Disabilities (United Nations, 2006) recognizes the

right of persons with disabilities to take part in cultural life on an equal basis with others. It is now an established opinion that access to culture is a key indicator of social equity and well-being. Secondly, participation also means active involvement of citizens in cultural activities and in the management of cultural institutions. Communities not only ask to be consulted or “listened to”. Communities also demand to be involved in decision making, content development and definition of priorities.

During the COVID-19 crisis the conservation of collections and historical sites has been guaranteed. On the contrary, the intangible cultural heritage of communities, cultural participation and social cohesion have been badly hit. Lockdown, distancing, and other sanitary measures have deeply affected social life, interpersonal relations, traditional customs, and have hindered lay and religious events, such as folk festivals, that are an essential part of the identity and diversity of communities.

Before and during pandemic, digital technology has allowed museums to communicate with millions of people who could neither visit museums in person nor access the information and knowledge museums produce. The Internet and social media may greatly improve museums' outreach activities and citizens' face-to-face and online participation to the life of museums.

The importance of information and communication technologies in promoting the social role of museums is highlighted by UNESCO's 2015 *Recommendation concerning the Protection and Promotion of Museums and Collections, their Diversity and their Role* (UNESCO, 2015). ICOM contributed largely to draft the Recommendation, which highlights the primary functions of museums – preservation, research, communication and education –, their extended mission and their new role in today's societies. Section III ISSUES FOR MUSEUMS IN SOCIETY of the Recommendation focuses on the changes brought about by the rise of information and communication technologies in the preservation, study, creation and transmission of heritage and related knowledge. The Recommendation ask Member States to support museums to share and disseminate knowledge and ensure that museums have the means to access digital technologies.

The pandemic has augmented the impact of the digital divide on millions of families. Many citizens have no access to the digital world. The digital

divide is due to the technological lack of broadband or high-speed communications as well as to people's lack of technological and cultural competences. The lack of digital infrastructures and digital illiteracy have exacerbated the social, cultural, and economic exclusion of a growing number of citizens of any age.

During the lockdown millions of students and teachers have experimented distance learning for the first time. Those experiences have increased the competences and knowledge of many students, but many others have been marginalized because of lack of cultural and technological resources.

Unequal access to digital resources must be addressed to avoid widening disparities across people and places, from metropolitan areas to remote regions. In 2020 41% of the world's population were not active internet users. In Italy, according to ISTAT data, there are 3.5 million Italian families with no functional internet connections.

Strengthening digital literacy programs as well as promoting access to information and communication are part of museums' educational activities. Museums have an important role to play in removing barriers to disadvantaged groups and to persons with specific needs and capacities.

With persistent sanitary restrictions what will happen to projects where physical interaction plays a key role in the learning process and in the emotional experience? Besides science museums and children museums, many other institutions have developed innovative hands-on displays where kids, adults and people with disabilities are invited to interact with heritage. These displays are now closed or strongly limited. New technological applications may help museums to overcome these new barriers to cultural access.

### 5. *New exhibition policies*

The pandemic has stopped global mobility and it will take years before international travels recover their previous magnitude. The crisis of mass tourism has greatly affected museums in tourist places and is having a strong impact on their exhibition policy.

In Italy, 46% of the 130 million annual visitors to museums are foreigners. The museums in Rome, Florence, Venice, and Milan, the four major Italian tourist cities, attract half of the total museum visitors. The Italian museum system is polarised between a few crowded museums and many other excellent institutions that are little

known to the general public. Suggestions to control the access to overcrowded art cities such as Venice and Florence have never been finalized yet. However, they point to the urgency of measures to favour sustainable tourism. The COVID-19 crisis may offer an opportunity to reduce overtourism, which has already damaged historical centres, heritage, and environment. The restrictions imposed by the pandemic may at least have one positive consequence for museums: they prevent queues and overcrowded galleries.

The budgets of museums in tourist areas were mainly based on revenues coming from the tickets and services purchased by foreign tourists and agencies. These museums now have to reconsider their business model and focus on local audience and proximity tourism. Proximity visitors may be less numerous, but they are often cultural consumers who visit museums frequently and in all seasons.

The so-called blockbuster exhibitions that attracted millions of visitors in the past years are no longer feasible. The dramatic decrease of public financing and the tourism crisis will greatly hinder the organization of such exhibitions. Some form of selection may be positive. Some of those mega exhibitions have successfully promoted heritage and culture, but many others have had no original content and have simply been commercial and repetitive initiatives more than cultural experiences. The expensive international loans of collections and masterpieces have often been a shortcut for attracting visitors and avoiding investments in scientific research. By contrast, interdisciplinary and intercultural studies may draw lasting attention in that they offer innovative displays and attractive interpretations of heritage.

The museum professionals are as committed to international cooperation and to coproduction of exhibitions now as they were in pre-pandemic times. But new exhibition policies are required. The scarce resources should be used primarily for the promotion of museums' collections, both in display and in storage. Such approach will also limit the movement of works of art among continents and reduce exhibition costs.

New exhibition policies will give greater attention to the interaction between in-person and digital initiatives. Virtual reality applications may offer understandings of collections and their social and cultural context, preparing and enriching the in-situ visits. Digital technologies allow to reconstruct monuments and heritage as they were

originally. They may help reach heritage no longer accessible temporarily, because of lack of spaces, conservation problems, opening difficulties, or permanently, because of destructions due to calamities or conflicts.

Virtual and in-person visits are complementary: the more visitors on Internet, the more in real life. And it should not be forgotten that virtual events and digital applications are the best way of promoting heritage to foreigners unable to travel.

In many countries around the world, the public mission of museums is supported by public funds, so they can offer full or partial gratuity for most of their activities. However, the impact of the economic crisis and the continuous reduction of public funding will force all museums to diversify their income. More and more museums rely on private funds and on earned income, as Kenson Kwok and Alberto Garlandini presented in their paper dealing with new trends in museums' governance (Kwok and Garlandini, 2019).

How best to increase autonomous revenues is still to be explored and experimented. Some new business models require revenues generated by digital activities. Solutions could range from paywalls for special online exhibitions and content, to paid apps or subscriptions, to freemium<sup>10</sup> pricing strategies for online resources. However, at least three main issues should be considered. Firstly, museums are cultural institutions at the service of society and shall not limit public access to heritage and knowledge. Secondly, it is difficult to define break-even prices for generating income from museum digital services. Lastly, a great number of museums do not have the means to develop large-scale digitization projects and high-quality content that could attract vast new audiences.

## 6. Conclusions

When the COVID emergency is over, museums will have to adapt to a new scenario, innovate and

explore new solutions for a new reality. A smart use of the Internet and digital technologies will offer museums tools for sharing and coproducing knowledge, as well as promoting citizens' involvement.

In 2021 the theme of ICOM International Museum Day is *The Future of Museums: Recover and Reimagine*. ICOM invites museums to create, imagine and share new practices and ideas and to focus on digitisation and creation of hybrid forms of cultural experience and dissemination.

The International Museum Day is one of the ICOM initiatives meant to improve competences and share knowledge. A good example is ICOM Italy's recent research on the rules of online communication and on the legal implications of the online re-use of cultural content. In March 2021, ICOM Italy presented theoretical and practical contributions aimed at overcoming the insufficient know-how on those issues. They were collected in the publication *100 Questions & Answers for Museums, Archives, Libraries. Author's Right, Copyright and Free License for Culture on the Web*<sup>11</sup>.

In the digital age, inter-, trans-, and multidisciplinary competences and hybridization of cultures and knowledge are more needed than ever. Museum professional shall manage digital technologies at the service of their social mission, not let technology decide for them. ICOM's global surveys confirm that the COVID-19 crisis has modified the perception of the digital world for museums, accelerating ongoing changes. The economic crisis will be a major obstacle in terms of the economic and human resources that the museums will be able to invest. Nevertheless, more and more institutions are now aware of the importance of digital transformation. It is imperative that authorities support museums in this process and the European recovery plan Next Generation EU is a unique opportunity. It is significant that the investments for the cultural sector are included in the Mission "Digitisation, Innovation, Competitiveness" of the Italian Recovery and Resilience National Plan (PNRR).

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<sup>10</sup> Freemium is a business model that promotes services at no cost to the consumer as a way to establish the foundation for future transactions.

<sup>11</sup> The volume will be published on line in the next months.



**Fig. 1:** Icom International Council of Museums Logo

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