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LOVE (FOR ART) IN THE TIME OF CORONAVIRUS

THE CONSUMPTION OF DIGITAL MUSEUMS SERVICES

ABSTRACT

Since 8 March 2020, the Italian government closed museums to prevent further spread of COVID-19 outbreak. Therefore, in order to keep active and present in the market, museums developed or prominently showcased a series of digital services. However, it is crucial to understand if the investments made are in the right direction and able to satisfy customers' needs. In fact, many museums are short of resources and digital services can require large investments. Consequently, a guide of what people want may be useful to museums in future allocation of resources. For these reasons, my thesis aims at understanding what defines the consumer utility of digital museum services. In order to do that, I investigate why people visit museums, what services museums are providing online, what museum services are being consumed online and what services have market potential for growth in the online leisure market. In particular, the research focuses on free services delivered by museums as leisure activities, both in an entertainment and educative sense. The study follows a quantitative strategy with a comparative cross-sectional design and it is developed looking at consumers in Italy, delivering self-completion questionnaires to potential visitors of art museums. Results show that online services as virtual tours, videos and social media provide the greatest utility to consumers, particularly those that present interactive characteristics and give the possibility to be directly involved, enjoying the experience with other people, and have an educational goal, presenting the content within a context to enable the consumer to learn something new.

Keywords: Digitalization, Innovation, Museum, Audience, Consumption.

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1. INTRODUCTION

1.1. Thesis Aim and Research Question

For many years, museums have been developing online services as virtual tours, they have made collection databases available on their websites, and they have started to publish digital content on social media. However, these online services have recently become of greater significance as governments closed institutions at the beginning of March as part of the health measures to prevent further spread of the COVID-19 outbreak (Grant, 2020; Nemo, 2020). The current situation prevents individuals to physically visit museums all over the world as everybody is practicing social distance and is quarantined at home. In this context, technology is an extremely valuable tool that enables museums to continue to deliver arts and culture to their audience.

Some museums around the world have implemented new online points of access to their existing collection databases and have further created new services, allowing online visitors to view exhibitions or to read blog posts written by curators about current exhibitions and about pieces of the permanent collection (Cardone, 2020; Grant, 2020; NEMO, 2020). The idea is to use the online world and virtual reality technology to temporary replace and reproduce the feeling of viewing art and other objects in real life (Grant, 2020). The websites of the most famous museum institutions in the world, from the Louvre to the Vatican Museums, offer virtual visits with 3D reconstructions of paintings and installations, interactive photographs or huge digital archives (Porro, 2020). However, the number of immersive tours, where the visitor has the impression of being inside the museum, are still limited, especially those where the visitor has access to the museum remotely. In most of the cases, museums make available very high definition photographs of the works of art displayed on their websites, an example is the Pinacoteca di Brera in Milan (Porro, 2020).

The museums' websites are not the only digital tools used. In fact, social media as Twitter, Facebook or Instagram, were already of great importance but are now indispensable communication channels to stay in touch with consumers. For example, on 26 February 2020, the Uffizi Gallery started the social campaign #UffiziDecameron, an initiative that aims at keeping company to all those who stay at home to help the Coronavirus infection prevention. Every day, on the Instagram and Twitter profiles of the Uffizi, photos, videos and stories dedicated to the masterpieces kept in the Gallery of Statues and Paintings, in the Pitti Palace and in the Boboli Gardens are published. The name of the campaign was inspired by the famous work of Giovanni Boccaccio written in the mid-fourteenth century, in which 10 young people escape the contagion of the black plague by taking refuge in a villa on the hills above Florence:

to combat the boredom of forced withdrawal each of them tells a story a day, each time inspired by a different theme. Therefore, the Uffizi in the days of the coronavirus become a virtual refuge: their program on Instagram, Twitter, YouTube, and on the museums' website has been expanded and now enhanced with the opening of another social channel, Facebook, on the Uffizi Galleries page (Uffizi Gallery, n.d.).

Art museums are quickly developing innovative strategies, often using digital technologies, to continue delivering arts and culture to their audience and thus to pursue their mission of exhibiting cultural heritage "for the purposes of education, study and enjoyment" (ICOM, 2007). Investing in the creation of new products and services requires the allocation of resources particularly limited at this time, as museums miss the income generated from ticket sales. The unprecedented nature of the current situation provides little comparison for museums to understand what consumers want, need, or prefer as digital remote services have remained rather marginal in many museums. Therefore, the aim of my research is to understand the perspective of the audience, to comprehend visitors' values toward the services art museums are implementing, if visitors find those services interesting and how they would better them. In order to investigate these topics, it is necessary to focus on the demand side, considering its expectations and the possible barriers that prevent consumers to use the digital services offered by museums. Therefore, the aim of this research is to answer the following research question*: What defines consumer utility of digital museum services?* In order to answer this question and to contextualize it, I developed the following sub-questions: *Why do people visit museums? What services are museums providing online? What museum services are being consumed online? What services have market potential for growth?*

As explained above, museums are currently closed and are losing income (Di Liscia, 2020; Stephens, 2020; NEMO, 2020). Consequently, in order to keep active and present in the market, they have developed or prominently showcased digital services. However, it is crucial to understand if the investments made are in the right direction, being able to satisfy customers' needs. In fact, many museums are short of resources and complex projects require larger investments. Therefore, a guide of what people want may be useful to museums in future allocation of resources. The research question and the sub-questions enhance me to comprehend what online services are provided by museums, how costumers are consuming them and what is missing from the current supply that is needed by the current demand. Understanding what people miss from current museums enables me to identify which products, or digital services, will consumers want in the future and then will continue to be developed by museums also post

COVID-19. In this sense, it is possible to comprehend which services can be expected to grow in the online leisure market.

In order to answer my research questions, it is important to define which are the services that a museum carries out. A museum is a "permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment" (ICOM, 2007). All these activities of acquisition, preservation, research, communication, collection and education are identifiable in the online services that museums are currently providing according to the Network of European Museum Organizations (NEMO, 2020). The mentioned services are: online learning programmes, online exhibitions, virtual tours through the museum, podcasts, YouTube programs, special newsletter, live content (such as live museum tour), adding of objects to the museum collection online, hashtags on social media, featuring individual objects to the online audience and quizzes and contests (NEMO, 2020). In this research, I focus on free services delivered by museums as leisure activities, both in an entertainment and educative sense. Therefore, my focus is on the following online offers: online collection, online exhibitions, virtual tours through the museum, live content (such as live museum tour, Instagram stories), museum podcast, YouTube programs, or interactive activities such as online learning programmes, use of hashtags on social media and quizzes and contests.

1.2. Research Design

This research follows a quantitative strategy with a comparative cross-sectional design. In fact, the investigation regards the very curious snap shot of time that characterizes the current moment, in which the world context is under a pandemic. The study is developed looking at consumers in Italy, delivering self-completion questionnaires to potential visitors of art museums. For what concerns cultural participation to cultural sites as museums, historical monuments, art galleries and archaeological sites, Italy ranks below the European average (Eurostat, 2019). In fact, the percentage of cultural participation to cultural sites in Italy during the year of 2015 has been of the 28% in comparison with the EU average of 43,4% (Eurostat, 2019). Also in regards to the use of the Internet for cultural purposes, Italy ranks slightly below the EU average: in 2018, the percentage of the adult population (aged 16 to 74 years old) in the EU-28 who used the internet during the three months prior to the survey to listen to music over the internet was 56%, while 54% for Italy; then, the EU share registered for playing or downloading games over the internet was 33% and 27% for Italy; and the EU average for reading online news sites, newspapers and news magazines was 72% for EU and 56% for Italy.

Finally, Italy shows the same percentage as Europe of 72% for what concerns watching streamed television or videos.

1.3. Scientific and Societal Relevance

From a scientific point of view, the topic of museums and the use of digitalization have already been explored in the past. However, this subject has never been addressed in a situation so extraordinary, as the one we are currently living. In fact, for the first time, people are forced, if interested in arts and culture, to consume digital services instead of physical exposure to the art, since there is no other alternative. Therefore, this study allows to understand if there actually is a market for the innovative digital products and services delivered by museums and what is the perception of customers on those online services offered. This research could contribute to answer the question asked by Navarrete (2013): "But what exactly is the perception of the consumer?". In doing this, this thesis can be a useful starting point for future research in this field, allowing to investigate in more detail the opportunities and the challenges that museums front in developing innovative digital products.

The research presented is relevant also from a societal point of view. In fact, the topic chosen, which is very current, enhances understanding of how museums can deliver culture to their audience in the best way possible, meliorating the digital products and services they implement. As Russo and Watkins (2007) state, "[c]ultural institutions should consider the desires of the audience before committing significant public funds to ICT investment" (p.150). It is important that, after the implementation of online user experiences, follow-up conversations or surveys with customers are developed, in order to improve the quality of the service and to assess its impact on consumers (Soren and the Canadian Heritage Information Network, 2005). Therefore, understanding if there is demand for the services museums are delivering right now and comprehending how to better the services is extremely important. Indeed, at the moment it is very difficult to know how long this particular situation will last and museums need to find alternatives ways to pursue their mission (Pes, 2020). The digital tools that cultural organizations are implementing are a way to act but services can be improved to best respond to the "new normal".

1.4. Thesis Structure

In order to explore the issue illustrated in the first paragraph, the thesis is structured as follows. In chapter 2, the theoretical framework is outlined, illustrating important studies and concepts useful in order to create a context for the results of the research. Chapter 2 is divided

in five sub-sections, which lay the theoretical foundation in order to understand the research field comprehensively. In the subchapter 2.1, the attention is directed towards cultural organizations as market-driven organizations that use innovations to achieve competitive advantage, obtaining successful performance and gaining market recognition. The focus is in particular on cultural organizations as museums that, in developing innovations, need to pay attention towards the external environment, looking at what services are already provided in the market (competition) and paying attention to what the consumer wants (demand side). Then, in the subchapter 2.2, cultural consumption is analysed, focusing on the reasons why people visit museums and their expectations. This part is useful for the sake of the research because knowing the different motivations and interests of visitors makes possible to comprehend on which aspects museums should focus on when developing their services. The following subchapter 2.3 goes into the specifics and it aims at exploring the digital heritage consumption, analysing which museum services are being consumed online. Understanding the reasons that bring people to use museums online services is crucial because it enables to define the services provided more consciously. Subsequently, the subchapter 2.4 has at the centre of attention the analysis of the digital leisure activities. The purpose of this part is to acknowledge what services are already on the market and what is consumed, in order to individuate the market gap and therefore recognize what services have the potential for market growth. Finally, it is important to take into consideration the broader context and to investigate the concept of digital divide. This part is developed in the subchapter 2.5. Chapter 3 provides information about the methodological approach that has been used to answer the research question. This section of the thesis gives deeper insights into the structure, the organization and the implementation of the study. First of all, the research questions are stated, as well as hypotheses and expectations. Then, the general research method is outlined. Subsequently, the operationalization is presented and the sampling is described, explaining the data collection process of the research. Afterwards, in chapter 4, the results are presented. Then, in chapter 5, the discussion is presented, aiming at connecting the results obtained with the literature discussed in the theoretical framework. Finally, in chapter 6, conclusive remarks are proposed. In subchapter 6.1 a reflection on findings are considered and implications are drawn, while in subchapter 6.2, limitations and suggestions for further research are delineated.

2. THEORETICAL FRAMEWORK

2.1. Innovation

As claimed by Heilbrun and Gray (1994), art and culture are produced by individuals and institutions that work within the general economy. Therefore, cultural organizations may be looked at as economic agents and analysed using an economic approach, for instance regarding the relationship between inputs, output and revenues as well as the strategies implemented to achieve competitive advantage and success in the market (Frey and Meie, 2006). Cultural organizations can be understood as any other firm, that operates in the market as economic actors and that develops strategies to pursue objectives and to ensure survival in the long term (Johnson and Thomas, 1998). In doing this, cultural organizations undertake a decision-making process during which they assess the possible costs and the potential benefits of their decisions. Since resources are scarce, the decisions of these organizations regarding the allocation of those, need to be made cautiously (Frey, 2019).

More specifically, institutions need to make decisions about their objectives, how these objectives relate to each other, and about which mix of outputs they should produce to achieve those goals and to be competitive in the market (Johnson and Thomas, 1998). For example, in the case of a museum, decisions are related to activities such as conservation, exhibition, education, entertainment, shopping facilities, and so on. In undertaking these decisions, museums should adopt a market-approach, moving towards a more business-like model for their operations, without neglecting their roles regarding, among others, conservation and connoisseurship (Alexander, 2003). A market approach is a core competency, which results in fundamental bases of competitive advantage (Sinkula, 1994). In particular, a market-driven organization is able to anticipate and to adjust to developing needs of customers and to react and respond to them by introducing innovative products and services (Sinkula, 1994). This capability to react with quickness and effectiveness to opportunities and threats related to the industry of the organization and to its environment provides a great competitive advantage (Slater and Narver, 1995). In the case of the museum field, this means understanding the needs of the demand side, creating exhibitions ad hoc for the audience targeted by the museums. In fact, market driven organizations are constantly updated with the changes and the trends that occur in the market where they operate and this ability brings them to fully sense the needs of customers, being able to satisfy them (Day, 1994).

Market-driven organizations use innovation as a strategy to achieve and maintain competitive advantage, and eventually to thrive in the market by obtaining successful

performance and gaining market recognition (Wijnberg and Gemser, 2000; Doyle, 2001; Baker and Sinkula, 2002; Camarero and Garrido, 2008; Chen, James Lin and Chang, 2009; Ngo and O'Cass, 2013). Successful brands innovate to create new positioning concepts, new distribution channels, new market segments and take advantage of gaps created by rapid changes in the environment (Doyle, 1989), creating an effective and differentiated customer proposition. In the case of museums, the customer proposition refers to all the products and services that are created by the institution for the audience. Usually, innovativeness in business refers to the degree to which an organization develops new products and services using cumulative knowledge from consumers, competitors and technical expertise (Deshpande, Farley and Webster, 1993). In marketing literature, the concept used is breakthrough innovation (Han, Kim and Srivastava, 1998), or radical innovation, that means developing a solution to a problem that substantially changes the established products or services (Handke, 2010). Nonetheless, in museums, and in cultural organizations in general, the most common innovations are continuous or incremental (Camarero and Garrido, 2008), that means that small improvements are made on the existing know-how and they are applied to the organization's existing products and services (Handke, 2010).

Innovations in museums and cultural institutions are related to the integration of new systems, technologies or methods that change both how museums are run and how their exhibitions are presented to the visitor (Vicente, Camarero and Garrido, 2012). In the case of museums, examples are the recurrent enhancements and modifications of certain aspects of the services provided, that can regard three different types of innovation: product innovation, technological innovation and organizational innovation. Product innovation can regard for instance the variation of artists exposed in exhibitions or the development of new programs, as educational ones. An example of technological innovation can be the development of digital catalogues, the organization of virtual tours, as well as web publication (Camarero and Garrido, 2008). Finally, organizational innovation can concern the internal organizational structure of the museum, as in relation to the staff and the roles people have. The adoption of these kind of innovations enhance cultural organizations as museums to reach new audiences or create new expectations, interests and experiences for the visitors. Being open to innovations is crucial because it enables cultural organizations to respond quickly to market opportunities, achieving competitive advantage (Camarero and Garrido, 2010).

Therefore, if cultural organizations such as museums aim at differentiating themselves creating new online services and content, they before need to understand the market and comprehend what services are already provided online. According to the survey on the impact

of the corona crisis on museums in Europe developed by the Network of European Museum Organizations (NEMO, 2020), that has investigated 961 museums disseminated in 48 different countries, 4 out of 5 museums have increased their online presence to reach their audience since closing because of social distancing measures. The tools and channels implemented are various. Most museums have increased their use of social media, as well as virtual tours and online exhibitions. In addition to that, many institutions are also considering to implement podcasts, live content and games, going towards a more active engagement of the audience online. According to the survey the currently services provided online are online learning programmes, online exhibitions, virtual tours through the museum, museum podcasts, YouTube programs, special newsletter, live content (such as live museum tour), adding of objects to the museum collection online, working with hashtags on social media, featuring individual objects to the online audience and quizzes and contests.

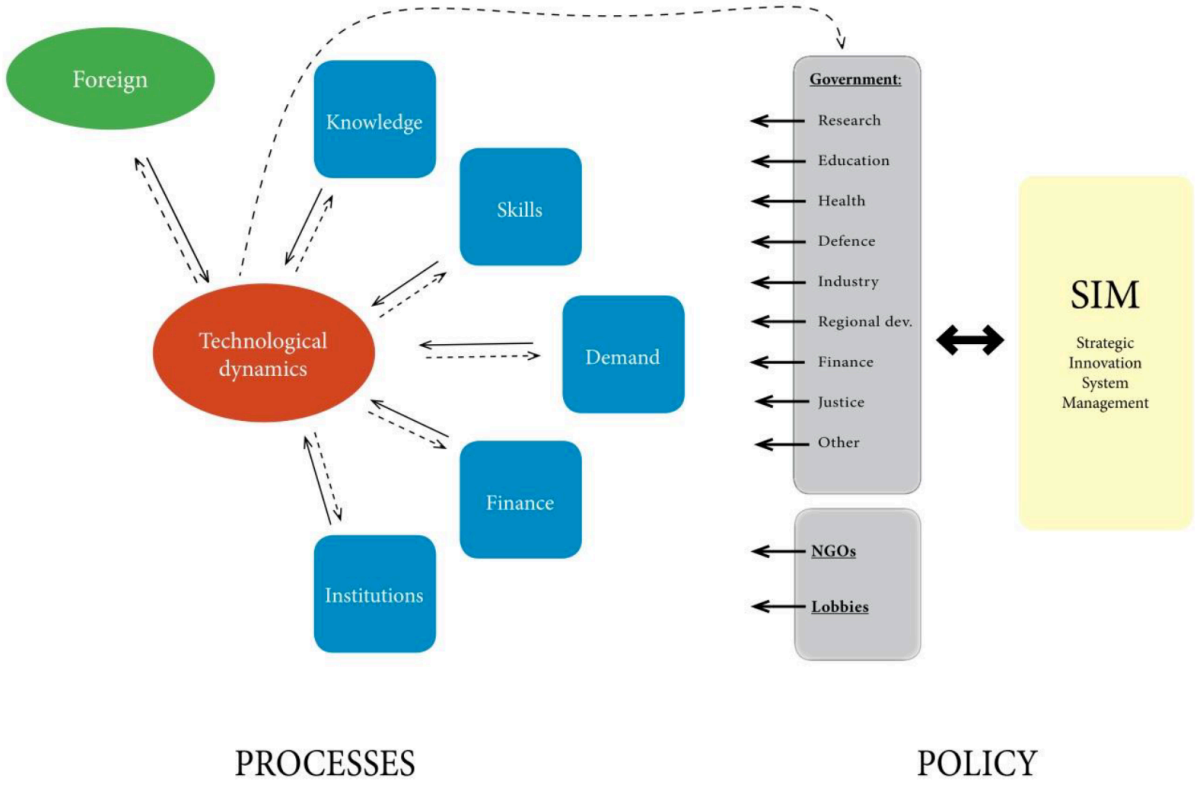
Another crucial point for cultural organizations whose aim is to achieve competitive advantage, regards the understanding of the composition of the demand side and creating exhibitions ad hoc for the audience. A cultural institution that aims at growing its membership and customer base needs to amplify its perspective considering the demand. In other words, institutions have to be aware of the visitor needs in order to improve visitor satisfaction (Kotler and Kotler, 1998). Indeed, visitors are characterized by different motivations, attitudes and social contexts and museums need to understand what are the best practices and strategies that they have to implement in order to encounter the expectations of the different segments that compose the demand (Cesário, Petrelli and Nisi, 2020). Assuming a market approach, museums understand visitors as customers or consumers, who could decide to consume any other competing leisure cultural activities, as well as to go visit any other museum (Camarero and Garrido, 2007). Following this approach, organizations focus on collecting information about target-customers' needs and competitors' capabilities and they use this knowledge to develop continuously improved customer value. In fact, previous studies have assessed that customer orientation, based on determining the needs, interests and preferences of visitors, and designing services, activities and experiences to try to fulfil these contribute to a greater economic performance (Slater and Narver, 1995; Gainer and Padanyi, 2005; Woodside, 2005). Adopting this approach ensures the safeguard of the financial viability of the cultural institution and it endures the relevance of the organization in the cultural sector (Halperin and Burns, 2019).

According to Fagerberg (2004), the success of an innovative organizations depends on its ability to mobilize the resources on which it relies on, as knowledge, skills and finance. In addition, the institutional framework that distinguishes the organization and whether there is a

market for innovations, have a huge impact on the organizations taken into consideration. In fact, if an innovation is not adequately appreciated by potential customers and thus demand is lacking, is destined to fail (Fagerberg, 2018). As Kline and Rosenberg (1986) assess, it is not possible to consider innovation as something well-defined and homogenous, that enters the market at a precise point in time. Indeed, significant innovations are subjected to changes and improvements and they are a social phenomenon (Schumpeter, 1934; Schumpeter, 1942), in which many actors have an important role and they influence the final result. Therefore, according to this vision, successful innovations are in continuous interaction with the surrounding environment made by customers, suppliers or other organizations. Fagerberg (2018) has built a model (Fig. 1) in which the dynamics, the processes and policy that shape the innovation system are described. The scholar defines the output of the innovation system as "technological dynamics" and he identifies five influencing external processes: knowledge, skills, demand, finance, and institutions. In Figure 1, solid arrows indicate the influences of the five processes on the technological dynamics, while dotted arrows show the potential feedbacks that can arise. For instance, a negative or positive feedback could decrease or increase the demand for certain types of skills. This model goes in the same direction of what Kline and Rosenberg (1986) claim: innovation is not a linear model, but there are many feedbacks and loops that take place during the various phases of the innovative process and that can conduct to a re-evaluation of earlier steps. The five processes are also influenced by other elements, indicated in Figure 1, by the policy component. In this sense, openness to new concepts and solutions is crucial for innovative projects (Fagerberg, 2004): being open to the feedbacks given by the external environments enhances organizations to not fall in the trap of being "locked out" from potential promising and successful ideas. Organizations cannot be innovative if isolated, they need to largely interact with the environment in which they operate (Fagerberg, 2004). These concepts are underlined also by Cohen and Levinthal (1990), who define "absorptive capacity" as the ability of an innovative organization to absorb outside knowledge and ideas.

During my research, I will focus on the area of demand to understand how museums can rightfully position their innovative efforts.

Fig. 1 The National Innovation System: Dynamics, processes and policy (Fagerberg, 2018).



2.2. Cultural Consumption

Understanding why people visit museums, their motivations and expectations, is crucial to enable museums to strategically undertake decisions in relation to their management and development (Thyne, 2000; Sheng and Chen, 2012). This is the reason why many visitor studies have been developed, aiming at regularly gaining information about visitors: being aware of what customers want enables cultural organizations to accomplish a satisfying customer service (Thyne, 2000; Cesário, Petrelli and Nisi, 2020).

In their research, Prentice, Davies, and Beeho (1997) conduct a survey in Edinburgh to investigate the reasons why visitors go to museums. The motivations mentioned by the respondents are various: visitors explained that it is a way to spend a day out, because they have a specific interest in museums, or to escape the routine. Other more social motivations concern the possibility to spend time with family and friends, to meet other people, or to go with someone that has a specific interest in those cultural organizations. Then, it is mentioned that visiting a museum enhances people's general knowledge, it satisfies visitors' curiosity, and it is a way to relax and to spend free time. Visitors explained that they visit museums also to tell their friends about the experience, or because it is something that people ought to do. Finally, reasons related to the self-fulfilment of the person are individuated, as well as the consideration

that, if you visit a museum, you give your contribution to preserve the institution for future generations.

According to Thyne (2000), museum visits have been traditionally related to individualistic values, as education and knowledge. However, his research on the Otago Museum in New Zealand, identifies also other motivations related to socially oriented values such as spend quality time with family and friends. In fact, through the interviews conducted with the visitors of the Otago museum, it emerged that it is considered extremely important to share the experience with someone else and to have the chance to talk and discuss about the experience afterwards. In addition to this, it appears that visitors go to museums also for reasons of "edutainment", blending entertainment and education in a cultural experience. Moreover, some visitors manifest the value "sense of accomplishment", as the self-fulfilment of their role of parents in bringing the children to an experience where they can learn something new.

Other researchers identify fewer dimensions of motivations. As in the case of Gil and Ritchie (2009) and Brida, Dalle Nogare and Scuderi (2016), whose analysis describe only two main reasons: one based on knowledge and the possibility to learn something new and the other more related to a recreational view, as to be entertained and to spend some free time. Another example is the study of Sheng and Chen (2012), that individuates 5 types of visitor experience expectations based on "easiness and fun", "cultural entertainment", "personal identification", "historical reminiscence", or "escapism" (p.58).

Another research on the topic of visitor motivations is by Brida, Disegna and Scuderi (2013), who analyse the audience of two kinds of museums in order to find similarities and differences in behaviour patterns and characteristics of visitors. The two museums studied are the South Tyrol Museum of Archaeology in Bolzano (ÖTZI), and the Museum of Modern and Contemporaneous Art of Trento and Rovereto (MART). Questionnaires were developed to ask the respondents if they agreed or not with a set of statements that explained their motivation in visiting the museum. The set of reasons proposed were the following ones: to satisfy a curiosity, to rest and relax, because of a specific interest in the institution, to keep company to a friend or a relative that has a specific interest in the institution, to learn something new, to tell friends about the experience, to do something that one ought to do, to contribute to the preservation of the attraction for future generation, to visit again the museum, to show the museum to friends or family members, for professional or academic reasons, to do something worthwhile, to spend part of the leisure time, to visit a temporary exhibition, and to see the building. According to the results, the visitors of the MART museum can be divided into three clusters: the "knowledge seekers", who visit the museum in order to satisfy a curiosity, to learn something new and to

do something worthwhile; the "interested" ones, who are strongly attracted by the temporary exhibition and they have a specific interest in the institution; and all the remaining visitors, who do not find themselves in any of the motivations listed. For what concerns the visitors of ÖTZI, the 25% of the visitors is considered "knowledge seekers", and their main motivation relies on the fact that they want to satisfy a curiosity and to learn something new. The remaining 75% falls into the "non-motivated" cluster that, as in the case of the MART museum, is made by people who do not find themselves in the visiting reasons listed in the questionnaire. Therefore, in both cases, the two main clusters of "knowledge seeker'' and of "non-motivated" are identified and, in the case of the MART museum, also a large group of "interested" is determined. This kind of visitor analysis, as anticipated, is important because of their managerial and marketing implications. For instance, it appears that the latter group of "interested" visitors, because of its specific interest in the attraction and in the temporary exhibition, will spend more time in the shop of the museum. Therefore, this group can potentially buy more books, or other souvenirs, than other visitors. Consequently, the museum could take into consideration this factor to sell more books and souvenirs that relate to the exhibitions, increasing the profits of its shop (Brida, Disegna and Scuderi, 2013).

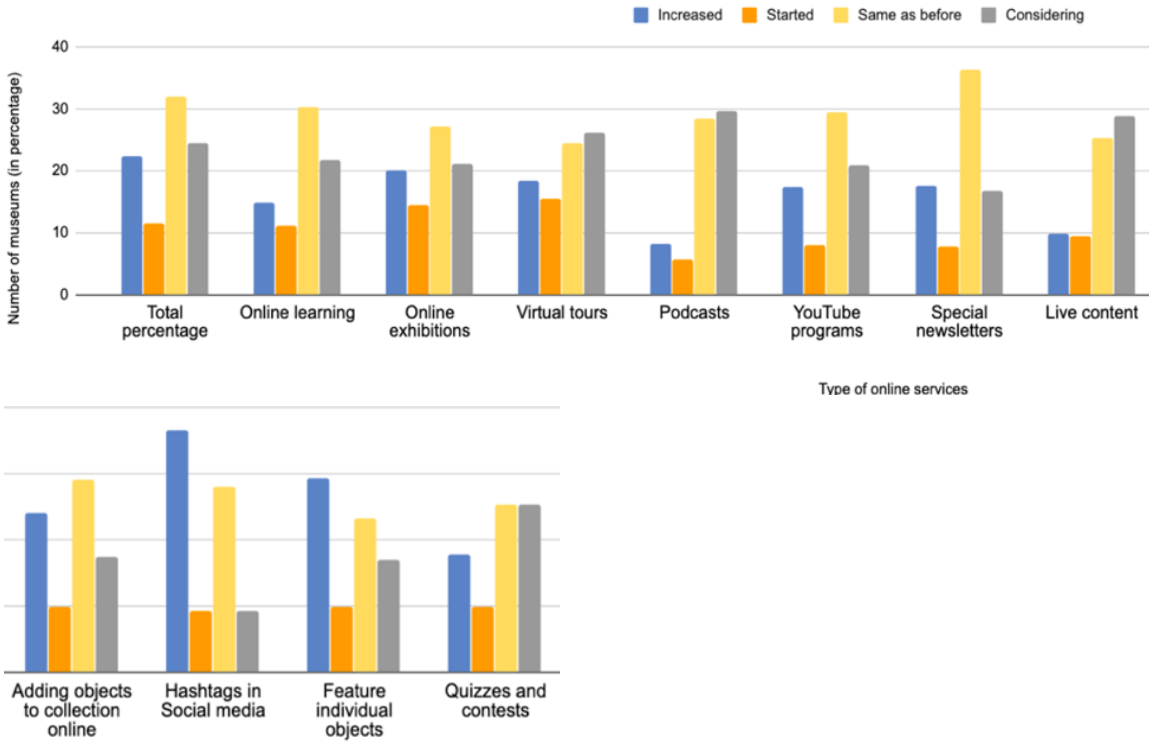
While addressing the concept of cultural consumption, it is also crucial to mention the potential relation between the decisions to visit and the frequency with which people visit museums, art galleries, historical sites, and archaeological sites and their demographic and socioeconomic characteristics (Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015). In fact, higher levels of education and income have a positive influence on the likability to visit museums and historical sites. This tendency applies also to professionals that work in the field of business, social science, writing, and creative and performing arts (Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015). In addition, cultural consumption can also be related to gender and, as it appears from various research (Christin, 2012; Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015), women visit museums more likely than men. For what concerns age, its effect is positive on average, showing that the likability to visit museums and its frequency increase with age. Nonetheless, people who are more than 65 years old, are less likely to visit museums, indicating that the relation is not completely linear and instead there is a U-shaped relationship between age and museum visits.

2.3. Digital Cultural Consumption

As it has been made visible in the subchapter 2.1 about innovation, in order to be successful and to be competitive within the market, innovative thinking is crucial (Handke, 2010). Information and Communication Technologies (ICTs) are a driver for innovation and they produce, consume and distribute information through devices such as laptops, tablets and smartphones. All these devices are connected to the Internet, which is included in the definition of ICTs (Bekar and Haswell, 2013). In order to be competitive on the market, museums rely on innovation, developing smaller and incremental changes, as for example online presence on social media or web services (Camarero and Garrido, 2012). Therefore, the Internet as well as digitalization have changed the way in which the knowledge and the content of the cultural sector are produced, managed and consumed by all the actors of the cultural sector, such as artists, distributors, users and museums (Bertacchini and Morando, 2013; Handke, Stepan and Towse, 2013).

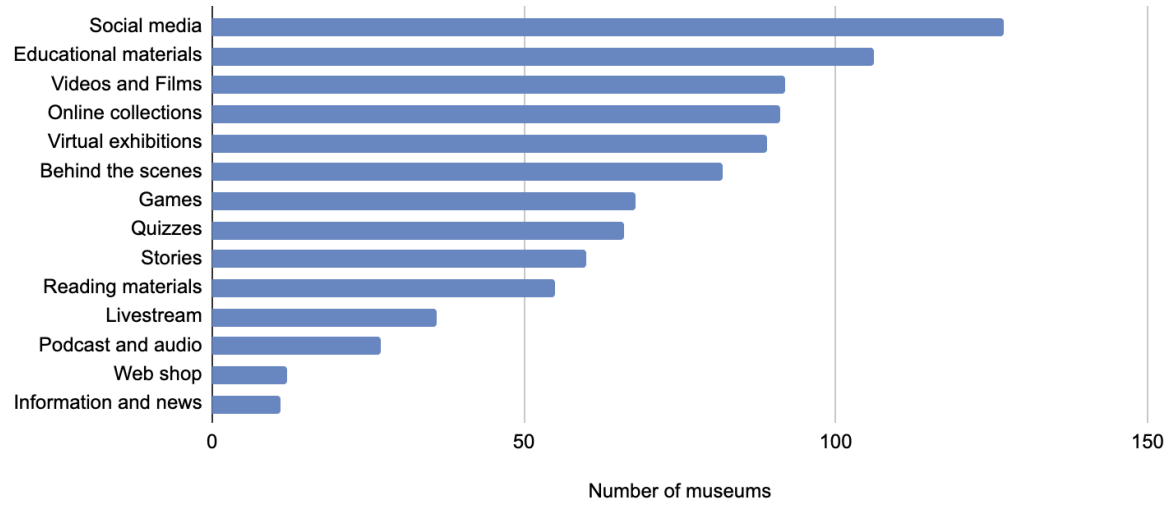
As previously mentioned in the subchapter 2.1 about innovation, the main online services provided by museums and consumed by the audience at the present moment are listed in the survey on the impact of the corona crisis on museums in Europe, developed by the Network of European Museum Organizations NEMO (NEMO, 2020). The services implemented and listed in the document are online learning programmes, online exhibitions, virtual tours through the museum, museum podcasts, YouTube programs, special newsletter, live content (such as live museum tour), adding of objects to the museum collection online, working with hashtags on social media, featuring individual objects to the online audience and quizzes and contests. However, not all museums have the economic resources and the technical skills necessary to afford to develop and manage a whole range of digital services (Evrard and Krebs, 2018). In fact, only large and medium museums have the needed resources to afford this kind of services, being able to facilitate their relationship with the audience and enlarging it (Evrard and Krebs, 2018). In addition, according to the final report of NEMO (2020), the digital activities that museums have increased and initiated the most are social media, virtual tours and online exhibitions. Overall, online services as social media or activities that concern the existing online collection have increased the most, because of the fact that they require less additional financial resources, experiences or skills. On the other hand, services as podcasts, live content or online learning, have increased the least since they require more time, resources and skills (Figure 2).

Fig. 2 Online services activity (NEMO, 2020)



As visible in Figure 3, online visitors have especially used social media, services with an educational purpose, materials related to the museums' collections, videos, films and behind the scenes materials (NEMO, 2020). In addition, museums have perceived an overall increase of their online visits since they have been closed. The NEMO report (2020) reveals that, of the museums that have reported a growth in the visits since their closure, more than 25% assessed that their online visits have increased by 0-10%, 15% reports an increase of the 25-35%, 13% describes an increase of 40-55%, 10% reports an increase between 60% up to 150%, and 5% of the museums states an increase of over 200%.

Fig. 3 Popularity of online museums services (NEMO, 2020).



Literature on the consumption of digital museums services, as websites and social media, is limited. As assessed by Goldman and Schaller (2004) and Peacock and Brownbill, (2007), there is no much research about museums websites users, the motivations that bring them to make determinate decisions and what they wish to obtain from their visits. However, understanding the reasons that bring people to use museums online services is crucial because it enables to define the services provided more consciously (Peacock and Brownbill, 2007). As a consequence, it is important to comprehend who the visitors are and what they want to do online (Peacock and Brownbill, 2007). Therefore, continuous monitoring and evaluation of museums websites usage is an extremely important part of ensuring that museums websites fulfil their purposes. Through questionnaires and surveys, it is possible to test target users at every stage of design and to correct what does not work.

An example of study of the field is the research made by Carey and Jeffrey (2006), that shows that active participation and engagement of the audience in the online services delivered by museums have become extremely important. In fact, visitors need to be evolved and they have to participate and interact. Other previous research (Goldman and Schaller, 2004; Marty, 2007) have instead investigated some of the motivations that bring people to visit museums' websites in general and not because of a specific service. Data show that consumers browse museums' website because of the intention to plan a visit to the museum, the personal interest in the subject covered by the exhibition, because of school assignments, to find information about recent expositions or about the museum, or to complement the use of museums websites with the visits to physical museums.

One example of a cultural organization that has made great investments in visitor research over the years is the Museum Victoria, a prominent institution located in Melbourne, Australia. Through surveys and regular focus group sessions directed to visitors, the museum has individuated four types of website users: the "visitors", whose interests are related to the planning of a visit at the museum or as follow up of a visit; the "searchers", who use the website to find specific information about something they are particularly interested into; the "browsers", who access the museum website as part of browsing activities on the Web; and the **"**transactors", who use the website to interact with the institution (Peacock and Brownbill, 2007).

Another example of research that identifies different types of users is the study made by Evrard and Krebs (2018) on the Louvre museum. This study is relevant for my research because it explores the motivations that bring visitors to use the web in relation to the museum. Results show that there are three types of visitors: "physical visitors" who never access the museum's

website; “virtual visitors” who never physically visit the museum; and “complete visitors”, who both physically visit the museum and digitally access its website. According to the data, the distribution of users is uneven, showing that physical visitors only represents the 5% of the audience, while virtual visitors are the 27%, and complete visitors cover 69% of the total. For obvious reasons, the digital literacy plays an important role and it is showed that people that belong to high classes of society and have high levels of education usually use Internet more intensely and easily (Evrard and Krebs, 2018): both the complete visitors and the virtual visitors fall into these categories. On the contrary, what differentiates these two types of audience regards the way these two segments use the Web: virtual visitors represent the youngest section of the population and they use Internet in a collaborative manner, to socialize and to be in contact with their friends, while complete visitors use Internet to learn about cultural and artistic subjects, or for professional or private reasons. In order to comprehend if the two modalities of access to museums mentioned, the physical and the digital ones, are complements or substitutes, the study individuates three dimensions: the authenticity of the experience, according to which the real contact with artworks cannot be replaced by any other options; the substitutability, where the digital version of a work of art can take the place of the real experience; and the complementarity, where the two experiences are interdependent because they both bring to different benefits. The analysis demonstrates that the authentic experience covers a position of hegemony, the complementarity is validated as well, while no types of consumer agree with the fact that the two different practices are equivalent.

When analysing the users of digital cultural services, it is also crucial to mention the importance of their personal capital. Indeed, on the basis of that, consumers are able to comprehend and appreciate the characteristics of cultural goods (Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015). Specifically, the taste for these products is developed or discovered through their repeated exposure and consumption. Because of that, the rate of consumption of digital products rises over time with exposure (Lévy-Garboua and Montmarquette, 2013). What has been said has, as foundation, a previous theory of Lévy-Garboua and Montmarquette (1996), according to which, tastes are given but unknown and consumers discover their true taste through repeated experiences in an incessant process of learning by consuming: every new experience of a cultural product brings the consumer to positively or negatively increase his taste for it in an unexpected way. Because of this characteristic of experience goods, it is difficult to determine the quality of cultural goods before consumption. Therefore, in the cultural field, uncertainty is more likely to happen than in other sectors (Caves, 2000). This difficulty to have information about quality prior to

consumption has effects on the market structure of consumer goods (Nelson, 1970): consumers may not consume a certain product because of the lack of information about it, for example because they do not know that a product exists or they do not know if it will be useful for the purpose they have for themselves (Towse, 2010). In general, the uncertainty related to the consumption of a cultural good is due to a situation of asymmetric information, in which consumers do not have the same information of the producers about the goods: one of the two parties of a bargain possess more information than the other (Towse, 2010).

2.4. Digital Leisure Activities

Analysing the market of the digital leisure activities enables to understand what services have the market potential for growth. As a consequence of that, this chapter examines what is already developed and consumed by the audience in order to individuate what is missing in the market and thus what is the market gap that can be exploited in the future.

The leisure experience is defined by Manuel Cuenca Cabeza, founder of the University of Deusto Leisure Studies Institute, as "a type of human experience which the subject perceives in a satisfactory, but non-obligatory and non-essential, way (…). A free, satisfying human experience with an end in itself; that is, voluntary and separate from need, understood as a primary need" (Cuenca Cabeza, 2004, p.45). The motivations to pursue daily leisure activities can be identified in four main points: physical fitness, as staying healthy and in shape; to feel good, happy and satisfied; to be social, as staying with friends and strengthening relationships; and to relax and to relieve the stress (Lepp, Barkley and Li, 2017).

Over the last decade, information and communication technologies, the Web and social media have hugely developed, influencing many different aspects of daily life. Therefore, also the way in which people experience leisure has been subjected to some changes (Bryce, 2001; Carnicelli, McGillivary and McPherson, 2016; Viñals Blanco, 2016; López-Sintas, Rojas-DeFrancisco and García-Álvarez, 2017). Indeed, various activities such as communicating and socializing with other people, shopping, playing games, doing sports, reading, listening to music, or visiting a museum have gone through a process of digitalization, taking the name of "digital leisure" (Viñals Blanco, 2016). The consequence of this process does not only result in changes of the leisure activities, but also in the way of experiencing them. Smartphones, computer and laptops, among the great variety of devices available, have become the most used technological tools to practice leisure activities (Viñals Blanco, 2016). Nonetheless, the online leisure activities aim at relax, stimulate, promulgate social interactions and develop self-identity just as the traditional leisure activities (Bryce, 2001).

The web supports various types of leisure activities that require different levels of skills, knowledge, experience and social interaction (Bryce, 2001). The main reasons why online leisure activities are used is because the web is considered as boredom relief, it can be useful to learn new things and acquire new knowledge, it is a way to relax and to escape from reality, it enhances the developing of social interactions, and it provides enjoyment and excitement (LaRose and Easting, 2004). Also Allen (2010) in his research tries to identify the reasons why people use Internet, individuating the following list of motivations: Internet allows to interact and socialize with people you know, to find and connect with people who have similar interests, to state who you are, to build an alternative dimension for yourself, to buy things that you want and/or need, to enhance your knowledge, to make good choices, to balance what is required by work, study, and personal life, to help other people, to share information and opinions with other people online, to be part of a group of similar people, and to be part of a broader world than your local area. The study demonstrates that social communication and acquiring knowledge are the main reasons that move users.

In research, digital leisure activities have been categorized in different ways. For instance, in the study of Redhead (2017), the activities included in the investigation were different technologies and practices, such as applications, online games, interaction on various social media, movies, sports events and music. A more precise analysis was conducted in the survey on Cultural Access and Participation conducted in 2013, requested by the European Commission, Directorate-General for Education and Culture and co-ordinated by the Directorate-General for Communication, which focuses in particular on the cultural activities practiced online and it identifies the following activities: “reading newspaper articles online”, “searching for information on cultural products or events”, “listening to radio or music”, “downloading music”, “watching streamed or on demand movies or TV programmes”, “buying cultural products such as books, CDs or theatre tickets”, “playing computer games, interactive or not”, “visiting museum or library websites or other specialized websites to improve your knowledge”, “downloading movies, radio programmes (podcasts) or TV programmes”, “reading or looking at cultural blogs”, “putting your own cultural content online (e.g. on an online social network or on a sharing sites”, and “other” (TNS Opinion & Social, 2013, p.57).

López-Sintas, Rojas-DeFrancisco and García-Álvarez (2017) have researched digital leisure activities with the aim of gaining information about how people spend their free time at home and how they obtain satisfaction from those activities, through the use of digital technologies as smartphones, laptops, tablets and video consoles. According to the research, there is a strong preference for digital leisure activities that involve social interaction, as for

example gaming with other people and social network. In this case, the purpose mainly is to be entertained and to maintain social relations with friends. In other cases, activities as the use of platforms as Spotify and YouTube, or watching to television series or pirated movies are undertaken in order to relax and to disconnect from the routine. Another important motivation regards the possibility to learn something and to gain knowledge.

2.5. Digital Divide

It is not possible to address the topic of digitalization and online cultural consumption without mentioning the concept of digital divide, which is the purpose of this chapter.

Digitization of art information has made cultural consumption more accessible, increasing cultural participation and democratizing culture, despite geographic location, income and cultural context (Trant and Bearman, 2011; Bertacchini and Morando, 2013; Handke, Stepan, and Towse, 2013; Ateca-Amestoy and Castiglione, 2016). However, digitization has also the potential to increase social inequalities (Hargittai and Hsieh, 2013). In this sense, in order to study online cultural consumption, it is necessary to consider the challenges preventing wider online consumption. Therefore, it is crucial to address the concept of digital divide in the population, defined as the gap between those who have access to computers, smartphones and the Internet, and those who do not (Van Dijk, 2006). Nonetheless, when considering the domain of digital inequality, the physical access to information and communication technologies and their ownership are only two of the aspects that need to be addressed: there are many other crucial elements that make possible to comprehend the margins of inequality in the digital age (Hargittai and Hsieh, 2013). In fact, the digital divide is not only related to the physical access, but also to social, psychological and cultural backgrounds (Van Dijk, 2006; Hargittai and Hsieh, 2013). More in detail, it is possible to distinguish the material access, related to income, education, age, sex and ethnicity characteristics of users; the motivational access, that regards the fact that someone could lack of skills, money, interest in or possession of the medium; the skills access, related to the level of computer, information and multimedia literacy; and the usage access, that consists on the usage time or the more or less active or creative use of the medium (Van Dijk, 2006). What has been said can be summarized in the concept of digital literacy, described as "the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process" (Martin, 2006, p.19).

According to the research of Ateca-Amestoy and Castiglione (2016), and as also assessed by Hargittai and Hsieh (2013), background characteristics, socioeconomic factors and the level of ICTs knowledge and skills have a relation with the use of technology and digital services. In fact, as the results of the mentioned research show, people aged over 25 have a lower probability of increasing access to digital technologies and the level of education has an impact too. In fact, a college or higher education increases the likelihood of more intensive access, as well as a part-time employment rather than a full time one. On the other side, there is a detrimental impact for people who unemployed and those outside the labour force. Then, people with disabilities with sensory and motor disabilities have higher probability to frequently access digital services, as well as single people. Finally, in regards to people with children, there is a positive effect only on individuals with three small children or more.

Understanding the elements that contribute to the formation of digital divide is crucial for cultural managers. In fact, it enhances managers of cultural institutions to comprehend how facilitate the access to intangible elements of their cultural assets to consumers, creating an engaging and satisfying experience (Ateca-Amestoy and Castiglione, 2016).

3. RESEARCH METHODOLOGY

3.1. Objectives

In the first part of the following section, research question and sub-questions are described. Subsequently, hypotheses and expectations of the study are delineated.

3.1.1. Research Question

The aim of my research is to answer the following research questions: *What defines consumer utility of digital museums services?* In particular, the online services which I refer to are free services delivered by museums as leisure activities, both in an entertainment and educative sense. Therefore, the digital services under analysis in the research are online collection, online exhibitions, virtual tours through the museum, live content (such as live museum tour, Instagram stories), museum podcast, YouTube programs, or interactive activities such as online learning programmes, use of hashtags on social media and quizzes and contests. In order to answer the research question and to explore this topic, I have developed the following sub-questions: *Why do people visit museums? What services are museums providing online? What museum services are being consumed online? What services have market potential for growth?* Answering at these questions means understanding the motivations that bring people to visit museums and to consume online services provided by those cultural organizations. In addition, it allows to comprehend the current market of online services provided by museums and the digital leisure activities consumed in general. The acknowledgment of these information enables to formulate recommendations about the development of future digital museums services, that can encounter the needs of the future demand.

3.1.2. Hypotheses

In this section I describe the hypotheses and the expectations that guide my research. Due to a lack of extensive research on online contents delivered by museums, these hypotheses are derived from theoretical assumptions based on previous literature about cultural consumption, digital cultural consumption and digital leisure activities. The 7 following hypotheses will help me to find answer to my sub-questions and then to the central research question.

H1: Demographic and socioeconomic characteristics are important determinants for consumer decision to visit a museum. Demographic and socioeconomic characteristics have an

effect on the decisions to visit and the frequency of visit of museums, art galleries, historical sites, and archaeological sites (Christin, 2012; Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015; Evrard and Krebs, 2018). People with higher levels of education and income are more likely to visit museums and historical sites, as well as professionals that work in the field of business, social science, writing, and creative and performing arts. For what concerns the gender, women are more likely than men to visit museums. In regards to age, it seems that the frequency of visiting increase with age but the relation is not completely linear, since people aged 65+ are less likely to visit or visit less regularly museums (Christin, 2012; Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015; Evrard and Krebs, 2018).

H2: People visit museums to learn something new and to enjoy their free time with other people. People visit museums both to increase their knowledge and in a recreational and social way, to be entertained and to spend some free time with family and friends (Prentice, Davies, and Beeho, 1997; Thyne, 2000; Gil and Ritchie, 2009; Brida, Disegna and Scuderi, 2013; Brida, Dalle Nogare and Scuderi, 2016).

H3: Educational services are being consumed more. The main reasons that bring people to visit museum websites are a personal interest in the subject covered by an exhibition displayed, to find information in order to learn something new, to plan a future visit or as follow up of a visit already experienced (Goldman and Schaller, 2004; Marty, 2007; Peacock and Brownbill, 2007). Since at the current moment museums are closed, it is expected that online visitors mostly visit the online contents of museums for learning reasons.

H4: The consumption of all online services delivered by museums has increased due to the coronavirus crisis. Due to the fact that museums are closed, the only option to visit these cultural institutions is through online contents delivered by museums. Therefore, the percentage of people visiting museums online has increased and there is not a difference anymore between "physical visitors", "virtual visitors", and "complete visitors" (Evrard and Krebs, 2018).

H5: People who are less than 25 years old and who have access to technology consume more online. Cultural consumption has become more accessible due to digitization of art information, leading to an increase of the cultural participation and the democratization of culture (Trant and Bearman, 2011; Bertacchini and Morando, 2013; Handke, Stepan, and Towse, 2013; Ateca-Amestoy and Castiglione, 2016). However, online consumption depends on demographic and socioeconomic characteristics and on what is defined as digital divide (Van Dijk, 2006; Hargittai and Hsieh, 2013; Ateca-Amestoy and Castiglione, 2016; Evrard and

Krebs, 2018). In particular, people over 25 years old have a lower probability of increasing access to digital technologies (Ateca-Amestoy and Castiglione, 2016).

H6: People who know about the existence of online museum services consume them more than those who do not know about them. When a situation of asymmetric information occurs, consumers do not know that a certain product exists or they do not have all the information they need about its utility and quality (Towse, 2010). The difficulty to have information about quality prior to consumption has effects on the market structure of consumer goods (Nelson, 1970) and this aspect is more evident in culture than in many other areas (Caves, 2000). This happens because of the characteristics of cultural goods of being experience goods, that means that the taste for them is developed or discovered through their repeated exposure and consumption (Lévy-Garboua and Montmarquette, 1996).

H7: The digital museum services that have the most market potential for growth involve consumer interactivity and learning experiences. Active participation and engagement of the audience in the online services delivered by museums have become extremely important (Carey and Jeffrey, 2006). Visitors need to be involved and they have to participate and interact (Evrard and Krebs, 2018). Users demonstrate a strong preference for activities that require social interactions, as gaming and social media (López-Sintas, Rojas-DeFrancisco and García-Álvarez, 2017; Allen, 2010). In addition, also activities that enable to learn something new are strongly preferred (Thyne, 2000; LaRose and Easting, 2004; Gil and Ritchie, 2009; Brida, Disegna and Scuderi, 2013; Brida, Dalle Nogare and Scuderi, 2016; López-Sintas, Rojas-DeFrancisco and García-Álvarez, 2017; Evrard and Krebs, 2018).

3.2. Research Method

In order to answer the research question, I implement a quantitative analysis through surveys directed to consumers, as actors in the market who could visit or may not visit museums.

3.2.1. Quantitative Analysis

Quantitative analysis is an important approach in the field of social research and it allows scholars to question or support different hypotheses about social phenomena (Gilbert, 2016). Quantitative analysis is a research method focused on quantification, both in the collection and analysis of data. This methodology considers the social reality as an external and objective reality and it requires a deductive approach to connect theory and research, since the attention is towards the testing of theories and it is based on the practices and norms of the

natural scientific model and of positivism in particular (Bryman, 2012). The choice to develop a quantitative research relies on several reasons. A quantitative analysis allows to generalize findings (Gilbert, 2016) and it enables to have numerical proof of numbers and statistics (Bryman, 2012) regarding the elements that make online contents of museums attractive to customers.

A quantitative research can be conducted in two ways. A longitudinal study analyses the behaviour and the preferences of online users on more than one occasion, thus illustrating social change in behaviour over time. Nonetheless, due to time restrictions, a longitudinal study cannot be applied to my research. Therefore, the research is a cross-sectional study, that means that observations are conducted at a single point in time, showing patterns of association between the variables analysed (Bryman, 2012).

3.2.2. Self-Completion Questionnaires

The quantitative methodology implemented is surveys. Surveys can be developed through self-completion questionnaires or structured interviews. For the purpose of my research, I implement self-completion questionnaires. I acknowledge the fact that questionnaires usually generate lower response than comparable structured interviews (Bryman, 2012). Nonetheless, due to the current situation, people are at home practicing social distance. Therefore, the chances to receive feedback are higher than usual. In addition, in order to improve the questionnaire response rate, I follow the suggestions made by Bryman (2012). According to the researcher, it is recommendable to, when possible, send with the questionnaire a covering letter explaining the reason for the research and why it is important; to follow up individuals who do not reply at first; to state clear instructions; to develop an attractive layout; to begin with questions that are more likely to interest respondents and to keep the questionnaire concise. In addition, the choice to develop self-administered questionnaires instead of structured interviews relies on the fact that they are not biased by interviewer effects and they are quicker, since they can be sent in very large quantities at the same time through emails, WhatsApp and social networks as LinkedIn, Facebook and Twitter (Bryman, 2012).

3.3. Operationalization

A questionnaire with 16 questions is created using the software Qualtrics, a tool that the university makes at disposition of students to create online surveys. The respondents have at disposition various answer possibilities, that include categorical answers, multiple choice, a Likert scale and open questions. Therefore, data are coded in order to be quantified and analysed

(Bryman, 2012). The questions asked in the questionnaires are for the most part pre-coded closed questions, submitted with a set of fixed alternatives from which the respondents can choose the appropriate answer (Bryman, 2012). The reason of this choice relies on the fact that closed questions are easier to process and to code comparing to open questions, they enable to compare the answers and they require less time to the respondents (Bryman, 2012). In order to balance the disadvantages of closed questions, also open questions are presented. They give to respondents the possibility to answer as they prefer, to obtain unusual answers that the researcher did not contemplated, arising interesting points of reflection, and they do not suggest possible answers to the respondents (Bryman, 2012). The use of open-questions is limited because they require more time and efforts from respondents (Gilbert, 2016). In addition, consumers are unaware of their preferences (Rao, 2009) and open questions could conduct to biases as respondents that tell what they think the research wants to hear (Kaler and Beres, 2016). In the case of open questions, they are post coded once the answers are received (Bryman, 2012).

At the beginning, the purpose of my thesis was to make a cross country comparison between the Netherlands and Italy. Observing these two places, would have made possible to catch the consumers' differences by looking at a larger and heterogenous pool of opinions and behaviours. Therefore, self-completion questionnaires have been delivered to consumers both in the Netherlands and in Italy, respectively in English and Italian. Nonetheless, due to the low response rate of online users in the Netherlands, it has not been possible to make such comparison. In addition, the governments of the two countries have decided to front the coronavirus crisis in very different ways. Consequently, the context of investigation would have not been the same.

Demographic information

The first set of questions are personal factual questions (Bryman, 2012) that aim at gathering information regarding the respondents' background, including age, gender, profession or area of study and the level of education. Age is divided into age groups, starting from "18-24" and ending with "65 or older". This choice relies on the fact that 18 is the legally age to be considered an adult and 65 is the official retirement age in the Netherlands and the average age of pension in Italy is between 62 and 67. Then, gender is diversified in the three variables "male", "female", and "other". For what concerns the question about the profession or the area of study of the respondents, the answer is open and the final responses are aggregated in a second moment according to the six categories used by Falk and Katz-Gerro (2015) and

the International Standard Classification of Occupations (ISCO-88). The categories are "clerks"; "elementary occupations", as workers; "legislators, senior officials and managers"; "physical, mathematical, engineering science, health professionals"; "teachers and other professionals (business, social science, creative or performance art, architecture, journalism)"; and "other", as retired people or student from high school. Finally, the level of education is comprehensive of the main degrees or equivalents at disposal: "Less than high school degree"; "High school degree or equivalent"; "Some college but no degree"; "Associate degree (HBO)"; "Bachelor degree"; "Master degree"; or "PhD degree". These six variables are clustered in a second moment according to the three categories "elementary education"; "intermediate education" and "tertiary education", developed by Falk and Katz-Gerro (2015).

Geographic information

Geographic information is needed to comprehend if the respondents live in the Netherlands or in Italy. In this research, the variable "place of residence" defines the geographic location. The option "other, specify" is half-open question and it enables respondents from other countries the possibility to respond. Even if the research focuses on Italy and the Netherlands, it can always be interesting to have information about other places.

Behavioural information

This section "divides consumers into groups on the basis of their knowledge, attitude, or use of a given set of products and services" (Kotler and Kotler, 1998, p.128). Questions about attitudes and respondents' cultural consumption enable to comprehend what consumers want in terms of digital products (Bryman, 2012).

The first question asks to the respondents how frequently they physically visited art museums before their country of residence closed museums in the last year. The available options to answer are "never", "once", "2-3 times", "4-5 times" or "more than 5 times". This question, in relation to the demographic and socioeconomic information of the population, enables to verify the first hypothesis, testing if the population that usually visit museums stick to certain specific characteristics.

Subsequently, it is asked how frequently the respondents watched the content of museums online before museums closed to the public. In this case, the break-down of the frequency takes in consideration a shorter period of times than a year as the previous question. In fact, the possible answers are "every day", "several times a week", "once a week", "1-3 times a month", or "less often". This partition is the same of the Report on Cultural Access and

Participation conducted in 2013, requested by the European Commission, Directorate-General for Education and Culture and co-ordinated by the Directorate-General for Communication. In case respondents have never or rarely consumed online art museums services, it is asked them to think about the reasons of their behaviour. Therefore, it is offered a list of statements that might explain their behaviours and the respondents are asked to rate how much they agree or disagree with them. This part enhances to investigate the sixth hypothesis, that relates to the notion of asymmetric information, quality uncertainty and cultural goods as experience goods.

Then, it is asked to respondents how often they have used online art museum services in the last month. The possible answers are again taken from the Report on Cultural Access and Participation conducted in 2013 ("every day", "several times a week", "once a week", "1-3 times a month", or "less often). In case of an affirmative answer, it is asked through which device respondents are consuming the digital services. The available choices for this answer are: "laptop", "smartphone", "tablet", or "other". In case of "other", it is asked to specify.

The questions about the online cultural consumption enhance me to make a comparison between the behaviour of the population investigated before the COVID-19 outbreak and its behaviour at present during which museums are closed, testing the fourth hypothesis. In addition, exploring the devices used by the consumers in relation to the frequency of online museums services visits, it is possible to explore the fifth hypothesis about the concepts of digital literacy and digital divide.

Next, respondents who have used online art museum services in the last month are asked to rate from 1 to 5 (1 least favourite; 5 most favourite) the online services provided by art museums in order to preference. The options available are the following ones: "online collection", "online exhibitions", "virtual tours through the museum", "live content (such as live museum tour or Instagram stories)", "museum podcast", "YouTube programs", "online learning programs", "use of hashtags on social media" and "quizzes and contests". The services listed are a selection of the free services delivered by museums as leisure activities, both in an entertainment and educative sense, of the larger list provided by NEMO (NEMO, 2020).

Afterwards, respondents who have used online art museum services in the last month are asked to rate from 1 to 5 (1 strongly agree; 5 strongly agree) the reasons why they consume online art museums services. The options offered are the following ones: "relaxing activity", "learn something new", "look at art", "be creatively inspired", "have access to high quality pictures of artworks", "visit a museum that I have never had the chance to visit before", "conclude the physical visit of a museum I have already been to with the online experience", "being updated with the news of a specific museum", "test my knowledge on art history (e.g.

test and quizzes)", and "learn directly from the experts of the field (e.g. online exhibition explained by its curator)". The listed options of answers summarize the motivations of consumers to visit online museums illustrated by previous research (Peacock and Brownbill, 2007; Evrard and Krebs, 2018; Goldman and Schaller, 2004; Mart, 2007). The last two questions described refer to the third hypothesis, that aims at exploring the motivations of the population to visit museums.

Then, it is asked to the respondents to rate from 1 to 5 (1 you miss the least; 5 you miss the most) what they miss the most from physically visit a museum in order of preference. The available options are the following ones: "enjoy the experience with other people"; "guided tours and other learning experiences"; "walk in the museum rooms"; "look at the artworks in person, sketching in front of the artworks"; "visit the archives of the museum"; "disconnect from the outside world (for example not looking at the smartphone)"; "going to conferences organized by the museum"; and "buy souvenirs from the museum shop" and "eating in the museum cafeteria". This question enables to explore the second hypothesis, whose aim is to investigate the reasons that bring consumers to visit museums.

The following question asks to respondents to explain in which way they would like to find out more about a work of art. The options given are in the form of pictures with descriptions above, in order to make more dynamic and interesting the questionnaire. The respondents can choose more than one answer between "listening to a podcast or to an artist or an art expert talk"; "reading a blog post"; "watching a video of an artist or an art expert talking"; "actively participating, taking a photograph with the phone or creating a drawing"; "playing a game"; "answer to quizzes"; or a more sociable and interactive part, "asking questions to art experts".

Then, it is asked to the respondents to rate the online leisure activities they have been practicing in the last month during their free time from 1 to 5 (1 done least often; 5 done most often). The activities listed in the questionnaires are a selection of those used in the survey on Cultural Access and Participation conducted in 2013. The activities proposed in my survey are the following ones: "reading online news/sites/newspapers/magazines"; "listening to the radio"; "listening to music"; "listening to podcasts"; "watching online movies and/or TV series"; "watching TV"; "playing games, interactive or not"; "reading or looking at cultural blogs"; and "putting cultural content in your own website or blog" (TNS Opinion & Social, 2013). Understanding which of these online leisure activities are preferred by respondents enables me to comprehend what strategies and activities museums could use from other services, being innovative and exploiting a market gap.

Finally, two open questions are asked. The first one asks: “because of the COVID-19 outbreak, museums are closed and you cannot invite a person to physically go to a museum together. However, you can give him/her a gift which is museum related: what that would be?”. Through the answer of this question, I understand what people miss from physically visit a museum and what is their favourite thing to do. Finally, the second question is: “Imagine that for a day you would administer the online services of a museums. What would you implement?”. This question takes example from a survey on Twitter developed for a PhD dissertation at the Open University of Cyprus (Bakogianni, 2020) and it enables to investigate what people would like to see implemented as online museum service without asking them directly. The aim of the last four questions described is to explore the seventh hypothesis about the digital museums services that have the market potential for growth.

3.4. Data Collection

During this phase, in order to answer my research question, primary data are analysed. Indeed, it is my responsibility to collect data through the use of self-administered questionnaires. The population suited to the investigation of the topic is composed by people residents in Italy.

4. RESULTS

To be able to analyse the data, the responses have been transcribed into SPSS and analysed. After a process of data cleaning, from a total amount of 268 answers, 225 complete surveys have been obtained. In the following tables, the characteristics and the behaviours of the population are presented.

The population is made by 225 residents of Italy. In Table 4, the population is summarized showing its demographic and socioeconomic characteristics. For what concerns gender, female have demonstrated a higher level of response (70,2%), compared to men (29,8%). In regards to age, the majority of the respondents are between 18 and 34 years old (52,8%). Concerning occupation, the majority of the population investigated falls into the three categories "legislators, senior officials and managers" (30,7%), "physical, mathematical, engineering science, health professionals" (20,4%), and "teachers and other professionals (business, social science, creative or performance art, architecture, journalism)" (29,8%). For what regards the level of education, the majority of the population (71,6%) presents a high level of education.

Table 4. Overview of the population.

		Frequency	Percent
Gender	Female	158	70,2
	Male	67	29,8
Total		225	100,0
Age	18-24	64	28,4
	25-34	55	24,4
	35-44	35	15,6
	45-54	18	8,0
	55-64	46	20,4
	65+	7	3,1
Total		225	100,0
Profession /Area of study	Clerks	22	9,8
	Elementary occupations	2	0,9
	Legislators, senior officials and managers	69	30,7
	Physical, mathematical, engineering science, health professionals	46	20,4
	Teachers, other professionals (business, social science, creative or performance art, architecture, journalism)	67	29,8
	Other	19	8,4
Total		225	100,0

Education	Basic education	5	2,2
	Intermediate education	59	26,2
	Tertiary education	161	71,6
Total		225	100,0

H1: Demographic and socioeconomic characteristics are important determinants for consumer decision to visit a museum.

In Table 5, the frequency of the population that investigated physically visited art museums during 2019 is represented in percentage. The population is reported by gender, age, profession/area of study and education and it fits the behaviour expected. In fact, the reported data show that there is a relation between the frequency with which people visit museums, art galleries, historical sites, and archaeological sites and their demographic and socioeconomic characteristics. Women, people with higher levels of education, and professionals that work in the field of business, social science, writing, and creative and performing arts are more likely to visit museums than other categories of people. For what concerns age, as also previously mentioned, the relation is less linear.

Table 5. Physical visits of museums during 2019 according to demographic and socioeconomic characteristics.

		Physical visits of museums during last year (Percent)					
		Never	Once	2-3 times	4-5 times	More than 5 times	Total
Gender	Female	2,5	16,5	29,1	22,8	29,1	100,0
	Male	6,0	14,9	31,3	17,9	29,9	100,0
Age	18-24	0,0	15,6	28,1	21,9	34,4	100,0
	25-34	5,5	21,8	29,1	21,8	21,8	100,0
	35-44	8,6	11,4	37,1	11,4	31,4	100,0
	45-54	5,6	5,6	27,8	44,4	16,7	100,0
	55-64	0,0	19,6	26,1	21,7	32,6	100,0
	65+	14,3	0,0	42,9	0,0	42,9	100,0
Profession/ Area of study	Clerks	4,5	31,8	36,4	4,5	22,7	100,0
	Elementary occupations	0,0	50,0	50,0	0,0	0,0	100,0
	Legislators, senior officials and managers	4,3	15,9	33,3	24,6	21,7	100,0

	Teachers, other professionals (business, social science, creative or performance art, architecture, journalism)	0,0	9,0	29,9	17,9	38,8	100,0
	Physical, mathematical, engineering science, health professionals	0,0	21,7	19,6	32,6	26,1	100,0
	Other	5,3	5,3	31,6	15,8	42,1	100,0
Education	Basic education	0,0	20,0	20,0	20,0	40,0	100,0
	Intermediate education	1,7	18,6	37,3	18,6	23,7	100,0
	Tertiary education	4,3	14,9	27,3	22,4	31,1	100,0
Total		3,6	16,0	29,8	21,3	29,3	100,0

H2: People visit museums to learn something new and to enjoy their free time with other people.

Table 6 shows what respondents miss from physically visit a museum, through a normalized index from 0 to 1. Understanding what people miss enables to indirectly discover what brings people to visit a museum. As visible from the data, what is missed the most is to look at the artworks in person and to walk in the museum rooms, two expected answers that reflect the main characteristics of physically visiting a museum. Then, enjoying the experience with other people and learning activities such as guided tours are considered extremely important, presenting a number close to 1. In addition, also the possibility to disconnect from the outside world is highly rated.

Table 6. What respondents miss from physically visit a museum.

	Index
Look at the artworks in person	1.00
Walk in the museum rooms	0.95
Enjoy the experience with other people	0.79
Disconnect from the outside world (e.g. not looking at the smartphone)	0.79
Guided tours and other learning experiences	0.76
Going to conferences organized by the museum	0.52
Visit the archives of the museum	0.43
Buy souvenirs from the museum shop	0.42
Sketching in front of the artworks	0.37

H3: Educational services are being consumed more.

Table 7 shows what the population investigated generally looks for when consuming the content of museums online. Data do not specifically refer to the reasons that bring people to visit digital museums services during COVID-19. Table 7, through a normalized index from 0 to 1, demonstrates that activities related to the acquisition of information and the desire to learn new notions present the highest index. In fact, the reasons "learn something new" and "learn directly from the experts of the field" respectively score 1 and 0.87. In addition, also the reasons "look at art" and "visit a museum that I have never had the chance to visit before" are considered extremely important. These motivations are aligned with what is displayed in Table 8 that, presenting the preference of respondents for the online services listed through a normalized index from 0 to 1, shows that virtual tours, online collection and online exhibitions are some of the services preferred by respondents. However, overall all the services provided show rather high scores and, in particular, social media, live contents and YouTube videos present a result close to 1. Both the tables present the data of 129 respondents out of 225 (53.3%), since the answers considered valid were only those of who did not reply "Never" to the question 8 of the survey "How often have you watched the content of museums online in the last month?" (Appendix A).

Table 7. Reasons to watch the content of museums online.

	Index
Learn something new	1.00
Look at art	0.97
Visit a museum that I have never had the chance to visit before	0.92
Learn directly from the experts of the field (e.g. online exhibition explained by its curator)	0.87
Have access to high quality pictures of artworks	0.83
Relaxing activity	0.80
Be creatively inspired	0.79
Being updated with the news of a specific museum	0.67
Test my knowledge on art history (e.g. test and quizzes)	0.62
Conclude the physical visit of a museum I have already been to with the online experience	0.59

Table 8. Evaluation of the online services provided.

	Index
Virtual tours through the museum	1.00
Live content (e.g. live museum tour, Instagram stories)	0.92
Museums' social media	0.91
Online collection	0.90
Online exhibitions	0.90
YouTube programs	0.90
Online learning programs	0.89
Museum podcast	0.80
Quizzes and contests	0.70

H4: The consumption of all online services delivered by museums has increased due to the coronavirus crisis.

Table 9 shows the frequency and the percent of respondents that visited museums online before and after museums were closed because of the COVID-19. Due to the health measures undertaken by governments to prevent further spread of COVID-19 outbreak, visiting museums online has become the only possibility to visit a museum. Therefore, respondents reported increasing online visits to museums. However, the trend of non-visitors between the two time slots is still very similar: the percentage of respondents who answered "never" slightly decreases from 47,6% to 42,7%. In order to understand if the population has changed in terms of demographic and socioeconomic characteristics, we can look at Table 16 and 17 (Appendix B). The two tables mentioned show indeed the demographic and socioeconomic characteristics of the population investigated in relation to its frequency of viewing contents of museums online before and after Italy closed museums. Focusing on the variable "never", it is possible to understand if the group that never viewed contents of museums online before Italy closed museums, is the same of who has never viewed contents of museums online after Italy closed museums. As visible from the data reported, the percentage of males who never visits contents of museums online has increased with the closing of museums, contrary to females whose percentage has decreased. For what concerns age, people from 18 to 34 years old and more than 55 years old have visited museums online more frequently after the closing of museums, while people between 35 and 54 years old have decreased their online cultural consumption after museums closed. In regards to profession or area of study, clerks, respondents who do elementary occupations and legislators, senior officials and managers have decreased their online visits of museums after museums closed, while physical, mathematical, engineering science, health professionals and teachers and other professionals have increased their visits of

museums online. Finally, looking at the population according to the education perspective, numbers show that respondents with basic and intermediate education have increased their online museums visits, contrary to people with tertiary education.

Table 9. Comparison of online visits of museums before museums were closed and after their closing.

	Frequency of viewing contents of museums online **before** Italy closed museums		Frequency of viewing contents of museums online **after** Italy closed museums	
	Frequency	Percent	Frequency	Percent
Every day	1	0,4	6	2,7
Several times a week	12	5,3	25	11,1
Once a week	9	4,0	25	11,1
1-3 times a month	27	12,0	29	12,9
Less often	69	30,7	44	19,6
Never	107	**47,6**	96	**42,7**
Total	225	100,0	225	100,0

H5: People who are less than 25 years old and who have access to technology consume more online.

Table 10 shows which devices are used to watch the content of museums online in percentage. In this case, the population investigated is made only by the respondents who did not answer "Never" to the question 8 of the survey "How often have you watched the content of museums online in the last month?" (Appendix A). More than one answer was possible. Out of 225 respondents of the survey, 129 respondents answered the question mentioned above (57,3%). Table 11 shows the frequency with which respondents of different ages visit the contents of museums online after museums closed because of the COVID-19 in percentage. As visible from Table 10, respondents between 18 and 24 years old have more access to technological tools in comparison to other age groups, showing a higher diversity of devices used (30.11%). In addition, as it is showed in Table 11, they are the category that visits the contents of museums online the most. In analysing data from Table 10, it is important to mention that the age group between 45 and 54 years old and the one of respondents aged 65+ represent a small portion of the population (respectively, the 8% and the 3,1%), thus explaining why the percentages are extremely lower than the other age groups.

Table 10. Devices used to watch the content of museums online according to age.

		Devices used to watch the content of museums online (Percent)			
		Laptop	Smartphone	Tablet	Total
Age	18-24	14,77	14,77	0,57	30,11
	25-34	13,07	10,80	0,00	23,86
	35-44	4,55	5,68	2,27	12,50
	45-54	2,84	1,70	2,27	6,82
	55-64	11,36	7,39	5,11	23,86
	65+	1,70	1,14	0,00	2,84
Total		48,30	41,48	10,23	100,00

Table 11. Frequency of viewing contents of museums online after Italy closed museums according to age.

		Frequency of viewing contents of museums online after Italy closed museums (Percent)						
		Every day	Several times a week	Once a week	1-3 times a month	Less often	Never	Total
Age	18-24	6,3	15,6	14,1	12,5	12,5	39,1	100,0
	25-34	0,0	5,5	10,9	7,3	29,1	47,3	100,0
	35-44	0,0	0,0	2,9	20,0	22,9	54,3	100,0
	45-54	0,0	11,1	5,6	5,6	22,2	55,6	100,0
	55-64	4,3	19,6	15,2	19,6	13,0	28,3	100,0
	65+	0,0	14,3	14,3	0,0	28,6	42,9	100,0
Total		2,7	11,1	11,1	12,9	19,6	42,7	100,0

H6: People who know about the existence of online museum services consume them more than those who do not know about them.

Table 12 shows how much the respondents agree with the fact they did not consume or rarely consumed museums online services because they did not know various online museums services existed. Consequently, the question was asked only to the ones who replied "Never" or "Less often" to question 7 of the survey "Before your country of residence closed museums, how frequently did you watch content of museums online?" (Appendix A). Therefore, the Table below shows the answers of 173 respondents out of the 225 (76,9%). As visible from the data, the majority of the respondents (54,34%), who agree with the fact that they did not know various online art museums services existed, reflects also the majority of respondents who never viewed the contents of museums online after Italy closed museums (30,06%). On the contrary, the percentage of respondents who disagree with the fact that they did not know

various online art museums services existed (39,88%), show a lower percentage of people who never visited the online contents of museums (20,23%).

Table 12. Relation between knowing about the fact that various online art museums services exist and the frequency of consumption of contents of museums online after Italy closed museums.

		Frequency of viewing contents of museums online after Italy closed museums (Percent)						
		Every day	Several times a week	Once a week	1-3 times a month	Less often	Never	Total
Asymmetric information	Agree	1,16	2,89	5,20	5,20	9,83	30,06	54,34
	Disagree	0,00	3,47	1,73	2,31	12,14	**20,23**	39,88
	Neither disagree nor agree	0,00	0,00	0,58	1,16	0,58	3,47	5,78
Total		1,16	6,36	7,51	8,67	22,54	53,76	100,00

H7: The digital museums services that have the most market potential for growth involve consumer interactivity and learning experiences.

As said above, a part of the population investigated (20,23%) knew about the online services delivered by museums but it has never consumed them. Table 18 (Appendix B) reports the demographic and socioeconomic characteristics of the 20,23% mentioned above. According to the data, this population is represented for the most part by females (65,71%) with a tertiary education (65,71%). For what concerns age, the distribution is quite equal for all the age groups, while in regards to the profession or area of study, teachers and other professionals represent the highest number (42,86%). Table 19 (Appendix B) represents the types of services preferred by the 20,23% mentioned, according to age. Logarithmic trend lines indicate that the youngest segment of this population (18-35 years old) prefer services that are interactive, while the oldest segment (35-65+) have a strong preference for education.

Table 13 and 14 respectively show, using a normalized index from 0 to 1, through which modalities respondents would like to find out more about art online and what are the digital leisure activities that they prefer to do during their free time. The data showed are divided by age groups. Table 13 shows that the modality to find out more about art online preferred by all respondents is watching videos where an artist or an art expert explain some topic. Then, while the youngest segment of the population, which is made by people between 18 and 34 years old,

shows interest for quizzes, the oldest segment prefers less participating activities as listening to podcast or to an artist or an art expert talk. A similar pattern is also visible in Table 14 for what concerns other digital leisure activities done by respondents during their free time. Activities less interactive, as listening to music, watching movies and tv series and reading online articles, are preferred overall.

Table 13. According to which modalities respondents of different age groups would like to find out more about art online.

		Age (Index)					
		18-24	25-34	35-44	45-54	55-64	65+
Modalities	Listening to a podcast or to an artist or art expert talk	0.66	0.63	**0.32**	**0.17**	**0.56**	**0.10**
	Reading a blog post	0.61	0.39	0.17	0.10	0.20	0.02
	Watching a video of an artist or an art expert	**0.85**	**0.73**	**0.61**	**0.37**	**1.00**	**0.12**
	Quizzes	**0.83**	**0.68**	0.15	0.00	0.07	0.00
	Playing a game	0.51	0.61	0.15	0.00	0.20	0.02
	Actively participating, taking a photograph with the phone or drawing	0.34	0.41	0.02	0.07	0.15	0.02
	Ask questions to art experts	0.37	0.10	0.12	0.10	0.29	0.00

Table 14. Digital leisure activities done during the free time of respondents, according to age groups.

		Age (Index)					
		18-24	25-34	35-44	45-54	55-64	65+
Digital leisure activities	Reading online news sites/newspapers/magazines	**0.87**	**0.76**	**0.48**	**0.24**	**0.67**	**0.10**
	Listening to the radio	0.52	0.48	0.35	0.18	0.56	0.06
	Listening to music	**0.95**	0.75	**0.45**	**0.24**	**0.59**	**0.08**
	Listening to podcasts	0.63	0.54	0.30	0.17	0.40	0.05
	Watching online movies and/or online TV series	1.00	**0.80**	**0.48**	**0.20**	0.56	0.05
	Watching TV	0.61	0.48	0.36	0.19	0.52	0.07
	Playing games	0.52	0.57	0.29	0.15	0.37	0.03
	Reading or looking at cultural blogs	0.71	0.58	0.35	0.16	0.51	0.05
	Putting cultural content in your own website or blog	0.36	0.33	0.19	0.10	0.27	0.03

Respondents of the questionnaire also answered two open questions. The first one asked to imagine to have the possibility to give your favourite person a museum related gift, considering the fact that museums are now closed. Table 20 (Appendix B) reports the museum related gift proposed by respondents, clustered into 16 main categories. The majority of respondents (22,4%) would have given their friend or partner a ticket for an exhibition to visit together once museums are open again. Some other interesting answers regarded the possibility to attend together with the recipient of the gift a personalised virtual guided tour with the exhibition curator, a very high definition file with the favourite artwork of the recipient of the gift, catalogues, postcards and photos both in a physical and digital form.

The second open question asked to imagine to administer the online services of a museum for a day. Respondents had to imagine what they would have implemented. Table 15 shows the suggestions given by respondents clustered in 4 main groups, that are "Interactivity", "Content", "Communication" and "No answer". "Interactivity" comprehends activities such as quizzes, tests, games, contests and digital tours where you can interact with the guide and the other visitors; "Content" refers to the possibility of making available to the public images of artworks and videos that show the museum collection, as well as articles, books, videos, podcasts and live lectures where experts of the sector explain history of art or a specific artwork. The element of interactivity has been pointed out also in the "content" related propositions, since respondents have suggested to give the audience the possibility to ask questions and to interact with the lecturer. Then, the cluster "Communication" consists on suggestions as the following ones: "improve communication about the online services themselves, I did not imagine existed", "develop external communication to let people know about available activities", "advertising of these services online", "better communication on the website museum page", "advertising on social media". Finally, "No answer" comprehends respondents who did not answer to the question. According to the data collected, interactivity is extremely important in the developing of the online services (41,07%), especially for the youngest segment of the population (18-34 years old). Interactivity was interpreted by respondents both as services in which there is occasion to be involved in social relations with other people, both as activities such as games, quizzes, contests where users can participate and give their contribution to the creation of online content. Then, predictably, many respondents have proposed the development of services as virtual tours, video of art experts talking and explaining content, and online exhibitions (31,25%). In this case, the older segment between 55 and 64 years old seems to have a preference for this (8,48%). What is of interest and it connects back to hypotheses 6, is the fact that some of the respondents suggest to improve

museums communication about the services they provide (4,46%), arising the awareness that many services already exist and are free.

Table 15. Improvements suggestions given by respondents in relation to online museums services.

		Age (Percent)						
		18-24	25-34	35-44	45-54	55-64	65+	Total
Suggestions	Interactivity	13,39	12,95	7,14	2,23	4,91	0,45	41,07
	Content (videos, interviews, images, podcasts)	5,36	5,36	5,80	4,91	8,48	1,34	31,25
	Communication	2,23	1,34	0,45	0,00	0,45	0,00	4,46
	No answer	7,59	4,46	2,23	0,89	6,70	1,34	23,21
Total		28,57	24,11	15,63	8,04	20,54	3,13	100,00

Finally, in order to investigate which are the services that have the most market potential for growth, it is useful to understand what are the preferences of who have never visited the content of museums online in the last months. Figure 21 (Appendix B) shows what respondents miss the most from physically visiting a museum. The trend lines indicate that learning and interactivity are considered as the most important elements. However, it needs to be considered that, since the percentage of who never visited the content of museums online represents the 42,7% of the population, data are skewed.

5. DISCUSSION

In this section of the thesis, I analyse the data collected presented in the previous chapter in relation to the theory discussed in the theoretical framework. Connecting my results with the existing literature allows me to explore the hypothesis listed in chapter 3.1.2 and to answer the sub-questions, thus being able to answer the research question, which investigates what defines consumer utility of digital museum services.

SRQ1: Why do people visit museums?

Understanding the reasons that bring people to physically visit museums and their characteristics create the context to comprehend what are the needs of potential customers and how to satisfy them (Kotler and Kotler, 1998; Thyne, 2000; Peacock and Brownbill, 2007; Sheng and Chen, 2012; Cesário, Petrelli and Nisi, 2020). The exploration of hypotheses 1 and 2 in relation to the theory discussed in chapter 2.2 about Cultural Consumption enables to answer the first research sub-question.

H1: Demographic and socioeconomic characteristics are important determinants for consumer decision to visit a museum. The data described in chapter 4 demonstrate that there is a relation between the frequency with which people visit museums and their demographic and socioeconomic characteristics. Results confirm what previous research have demonstrated in the past: being female, having an high level of education, and having an occupation or field of study that is art-related have a positive relation on museums visits (Christin, 2012; Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015; Evrard and Krebs, 2018). The relation is less linear when it comes to age. According to the theory (Ateca-Amestoy and Prieto-Rodriguez, 2013; Falk and Katz-Gerro, 2015), the frequency of visiting museums increase with age until 65 years old, when people are again less likely to visit or visit less regularly museums. However, my data do not show this trend. This result can be explained by the composition of the population investigated, which is made only by a 8% of 45-54 years old people and by 3,1% of 65+ years old people.

H2: People visit museums to learn something new and to enjoy their free time with other people. The data collected show that the social part of enjoying the experience with other people is considered quite important, as well as the possibility to learn something new. In addition, visiting a museum is considered an activity that enables to disconnect from the outside world. The population investigated respect the findings of previous research, that stress the importance of both individualistic values, such as education and knowledge, both socially oriented values, related to spend time with family and friends and to share the experience with them (Prentice,

Davies, and Beeho, 1997; Thyne, 2000; Gil and Ritchie, 2009; Brida, Disegna and Scuderi, 2013; Brida, Dalle Nogare and Scuderi, 2016). Furthermore, also escaping the routine, rest and relax are considered crucial (Prentice, Davies, and Beeho, 1997; Sheng and Chen, 2012).

SRQ2: What services are museums providing online?

Comprehending what is already present in the market allows organizations and institutions to understand how to be innovative and to achieve competitive advantage (Doyle, 1989; Wijnberg and Gemser, 2000; Doyle, 2001; Baker and Sinkula, 2002; Camarero and Garrido, 2008; Chen, James Lin and Chang, 2009; Camarero and Garrido, 2010; Ngo and O'Cass, 2013). Looking at the information reported in the NEMO document and described in chapter 2.1 about Innovation and 2.3 about Digital Cultural Consumption, it is possible to comprehend what museums are delivering the most in terms of contents, enabling to understand if there is more competition for a certain type of service or if there is more demand for such service. According to the final report of NEMO (2020), after 3 weeks in which they were closed to the public because of social distancing, museums have increased their digital services in order to reach their audience. Social media have been the digital service more developed during these months, as well as virtual tours and online exhibitions. In fact, due to the budget restrictions of the last period, museums have especially developed online services that did not require extra investments, time, costs and skills. Therefore, services as podcasts, live content and online learning have not been the priority (NEMO, 2020).

As previously mentioned, the NEMO report (2020) lists online collection, online exhibitions, virtual tours through the museum, live content (such as live museum tour, Instagram stories), museum podcast, YouTube programs, or interactive activities such as online learning programmes, use of hashtags on social media and quizzes and contests, as the online services delivered by museums. Considering this list, it is important to highlight that there is not an harmonised metric for museum services online. In fact, the division of services given mix form and content, for example defining as online museums services both "educational services", which is a content-based category, and "video and film", which is a form category. However, it is possible to have videos that are educational. Based on the literature and on what emerged from the data, an alternative way to categorise various online services could be to focus first of all on the content and then on the form.

SRQ3: What museums services are being consumed online?

When organizations develop new customers propositions or intend to improve what they already offer, it is crucial that they comprehend what is preferred and already consumed, as well as what can be the barriers that prevent potential users to consume a product or a service (Slater and Narver, 1995; Kotler and Kotler, 1998; Thyne, 2000; Gainer and Padanyi, 2005; Woodside, 2005; Camarero and Garrido, 2007; Peacock and Brownbill, 2007; Sheng and Chen, 2012; Cesário, Petrelli and Nisi, 2020). The investigation of hypotheses 3, 4, 5 and 6 in relation to the theory discussed in chapter 2.3 about Digital Cultural Consumption and 2.5 about Digital Divide allows to answer the third research sub-question.

H3: Educational services are being consumed more. The population investigated in my survey respects the trend showed in the data of NEMO document reported in Figure 3, that means a great interest in social media, videos, virtual tours, online collections and online exhibitions (NEMO, 2020). In addition, also activities related to the acquisition of information and the desire to learn new things present a high level of interest, aligning with previous research (Goldman and Schaller, 2004; Marty, 2007; Peacock and Brownbill, 2007), according to which visitors of online contents of museums are moved by a personal interest in the subject covered by an exhibition displayed and the desire to find information in order to learn something new.

H4: The consumption of all online services delivered by museums has increased due to the coronavirus crisis. Overall, due to the health measures undertaken by governments as part of the health measures to prevent further spread of COVID-19 outbreak, museums have been closed and they have perceived an increase of their online visits (NEMO, 2020). This tendency is also visible in my data. Analysing more in depth how the population has changed before and after the closing of museums, it appears that there is a relation between the behaviour of respondents and their demographic and socioeconomic characteristics. As predictable, data show that the online visits of females and respondents with an art-related job have increased. For what concerns education, surprisingly, respondents with basic and intermediate education have increased their online museums visits, contrary to the people with tertiary education. In regards to age, as usual, the relation is less linear and people from 18 to 34 years old and more than 55 years old visit museums online more frequently after COVID-19, while people between 35 and 54 have decreased their online cultural consumption after museums closed.

H5: People who are less than 25 years old and who have access to technology consume more online. Online cultural consumption is influenced by demographic and socioeconomic characteristics as offline cultural consumption. However, in the case of the online cultural

consumption, it plays an important role also the level of ICT's knowledge and the possibility to have access to technology (Van Dijk, 2006; Hargittai and Hsieh, 2013; Ateca-Amestoy and Castiglione, 2016; Evrard and Krebs, 2018). High levels of education, belonging to high classes of society and an age lower than 25 years old are characteristics of people who present higher levels of digital literacy and use Internet more intensely and easily (Ateca-Amestoy and Castiglione, 2016; Evrard and Krebs, 2018). Looking at my results, it seems that the population investigated respect what just described: people under 25 years old and who have access to more technological devices report higher levels of online cultural consumption. For what concerns digital literacy, since the population investigated presents high levels of education, it is possible to suppose that it is digitally literate. However, according to the 2018 edition of the Measuring the Information Society Report, compiled by ITU, which is the United Nations specialized agency for information and communication technologies and that presents country profiles providing information of the status of the ICT markets in 192 countries, the level of digital literacy of Italy is lower in respect to the rest of Europe (ITU, 2020). In fact, as visible in the Figure 16 below, the percentage of individuals using the Internet in Italy (61.3%) is lower than in Europe (77.2%), as well as the percentage of households with a computer (64.3% in Italy and 78.6% in Europe), and the percentage of households with Internet access (71.7% in Italy and 80.6% in Europe).

Fig. 16 Measuring the Information Society Report (ITU, 2020).

Key indicators for Italy (2017)		Europe	World
Fixed-telephone sub. per 100 inhab.	34.9	35.8	13.0
Mobile-cellular sub. per 100 inhab.	141.3	120.4	103.6
Active mobile-broadband sub. per 100 inhab.	87.9	85.9	61.9
3G coverage (% of population)	100.0	98.3	87.9
LTE/WiMAX coverage (% of population)	98.0	89.6	76.3
Individuals using the Internet (%)	61.3	77.2	48.6
Households with a computer (%)	64.3	78.6	47.1
Households with Internet access (%)	71.7	80.6	54.7
International bandwidth per Internet user (kbit/s)	*35.7*	117.5	76.6
Fixed-broadband sub. per 100 inhab.	27.9	30.4	13.6
Fixed-broadband sub. by speed tiers, % distribution			
-256 kbit/s to 2 Mbit/s	0.8	0.6	4.2
-2 to 10 Mbit/s	32.0	12.4	13.2
-equal to or above 10 Mbit/s	*67.3*	87.0	82.6

H6: People who know about the existence of online museum services consume them more than those who do not know about them. Another barrier to the online cultural consumption regards the fact that potential consumers do not know that a certain product exist or they do not have all the information they need about it to understand if it would satisfy their needs. When this happens, a situation of asymmetric information arises (Towse, 2010). Respondents of the survey confirmed that, before museums closed because of COVID-19, they did not consume the online services delivered by museums because they did not know that many online art museums services existed. However, their consumption of those services increased once museums have been closed. The explanation to this behaviour could be that the communication of museums to the public about their services has growth in the last months, increasing the awareness that this kind of online contents exist. Nonetheless, as visible in Table 15, a part of the respondents (4,46%) has pointed out the importance for museums of meliorating the communication about their digital services available to the public. Respondents have indeed explained that museums should raise the awareness that many options of online museums services exist and are free.

SRQ4: What services have market potential for growth?

As previously mentioned, investigating products and services already delivered in the market, the consumers' needs and the potential barriers to consumption enables cultural organizations to understand what is missing from the current supply that is needed by the current demand. Hypothesis 7, combining the data collected and the theory discussed in chapter 2.4 about Digital Leisure Activities, aims at answer the fourth research sub-question.

H7: The digital museum services that have the most market potential for growth involve consumer interactivity and learning experiences. In my questionnaire I asked to respondents to say what other digital leisure activities they usually do during their free time or through which modalities they would like to find out more about art online. Activities such as listening to music, watching movies and tv series and reading online articles are preferred and rate the highest scores, as well as, when it comes to art online, watching videos or listening to a podcast where an artist or an art expert explain some topic. These results do not align with what has been discovered by previous research, according to which a main characteristic that online museums services need is the interactivity, since active participation and engagement of the audience are crucial (Carey and Jeffrey 2006; Allen, 2010; López-Sintas, Rojas-DeFrancisco and García-Álvarez, 2017; Evrard and Krebs, 2018). However, when answering the open question about what respondents would implement if they were in charge of administering

online services of an art museum, the majority of them has given great importance to the concept of interactivity. Consumers prefer services where they can be evolved and actively participate through games, quizzes and contests, as well as services where they can interact with other online users, since the possibility to develop social interactions and to be in contact with family and friends is considered extremely important (LaRose and Easting, 2004; Allen, 2010; López-Sintas, Rojas-DeFrancisco and García-Álvarez, 2017; Evrard and Krebs, 2018). In addition, when investigating what services have the most market potential for growth, it is also crucial to focus on the preferences of those who have never visited the contents of museums online in the last moths. Data show what also previous research (Thyne, 2000; LaRose and Easting, 2004; Carey and Jeffrey, 2006; Gil and Ritchie, 2009; Allen, 2010; Brida, Disegna and Scuderi, 2013; Brida, Dalle Nogare and Scuderi, 2016; López-Sintas, Rojas-DeFrancisco and García-Álvarez, 2017; Evrard and Krebs, 2018) have demonstrated: both learning and interactivity are considered of great importance. The youngest portion of the population has a strong preference for interactivity (18-35 years old), while the oldest part of the segment prefer learning activities (35-65 years old), as also demonstrated by the research of Evrard and Krebs (2018).

RQ: What defines consumer utility of digital museum services?

Connecting my results with the existing literature has allowed me to answer the sub-questions, thus being able to answer the research question and to explain what online services museums provide the best utility and which ones should be implemented. The data collected show that it is crucial that an online museum service is interactive, giving the possibility to users to be directly evolved and to enjoy the experience with other people, and educative, creating the context and the content to learn something new. Of course, these two characteristics do not exclude each other and they are the main motivations that bring people to visit museums (Prentice, Davies, and Beeho, 1997; Thyne, 2000; Gil and Ritchie, 2009; Sheng and Chen, 2012; Brida, Dalle Nogare and Scuderi, 2016). Instead, for what concern the form, virtual tours, videos and social media are highly appreciated by the public, as visible both in the results obtained and in the previous research conduct by NEMO (2020).

6. CONCLUSIONS

6.1. General Conclusions

From 8 March till the end of May, governments have closed museums as part of the health measures to prevent further spread of the COVID-19 outbreak. During this period, in which it was not possible to physically visit museums, technology has been an important tool that has allowed museums to continue to deliver arts and culture to their audience. However, investing in the creation of new products and services requires the allocation of resources particularly limited at this time, as museums miss the income generated from ticket sales. In addition, because of the unprecedented nature of the current situation and the fact that till now digital remote services have remained rather marginal in many museums, they have little comparison to understand what consumers want, need, or prefer. Therefore, my research aims at understanding the perspective of the demand side, comprehending visitors' values toward the services art museums are implementing. Indeed, a guide of what people want may be useful to museums in the long term in their future allocation of resources.

In order to investigate these topics, I have decided to follow a quantitative strategy with a comparative cross-sectional design. Consequently, the investigation regards the month of March and April, during which museums were closed. The study is developed looking at consumers in Italy, delivering self-completion questionnaires to potential visitors of art museums. The data collected, combined with previous literature about cultural consumption, digital cultural consumption and digital leisure activities, has allowed me to answer the following research sub-questions *Why do people visit museums? What services are museums providing online? What museum services are being consumed online? What services have market potential for growth?* Therefore, it has been possible to answer the main research question *What defines consumer utility of digital museum services*?

The two main reasons that bring people to visit museums are related to both individualistic values, such as education and knowledge, both socially oriented values, related to spend time with family and friends and to share the experience with them. In addition, demographic and socioeconomic characteristics are important determinants for consumers decision to visit a museum: being female, having an high level of education, and having an occupation or field of study that is art-related have a positive relation on museums visits, while the relation is less linear when it comes to age. During these months, *the digital services more developed by museums* have been social media, virtual tours and online exhibitions. In fact, due to the budget restrictions of the last period, museums have especially developed online services

that did not require extra investments, time, costs and skills. Therefore, services as podcasts, live content and online learning have not been the priority. *The services more consumed by the population investigated* have been social media, videos, virtual tours, online collections and online exhibitions. Activities related to the acquisition of information and the desire to learn new things present an high level of interest, aligning with the answer given to the first sub-question. For what concerns *what services have market potential for growth,* it needs to be taken into consideration that on the one side, less interactive activities such as watching videos, listening to podcasts or reading online are explicitly preferred by consumers. However, on the other side, also the possibility to learn something and to be evolved and actively participate through games, quizzes and contests, as well as services where it is possible to interact with other online users is highly appreciated. In conclusion, the data collected show that it is crucial that *what defines consumer utility of digital museum services* is interactivity, giving the possibility to users to be directly evolved and to enjoy the experience with other people, and an educative component, creating the context and the content to learn something new. Indeed, these are the main motivations that bring people to visit museums. Instead, for what concern the form, virtual tours, videos and social media are highly appreciated by the public.

Once the perspective of customers in relation to online content delivered by museums has been analysed, cultural institutions and policymakers have the tools to take initiative in developing further the services already present in the market, in creating new customer propositions and in undertaking decisions that can facilitate a greater consumption of culture online. In fact, the digital tools that cultural organizations have been implementing in the last months are a way to act but services can be improved to best respond to the "new normal".

Due to the health measures undertaken by governments as part of the health measures to prevent further spread of COVID-19 outbreak, museums have been closed and they have perceived an increase of their online visits. However, even if online consumption was the only option available to visit museums, the percentage of non-visitors has only slightly decreased (from 47,6% to 42,7%). Overall, the demographic and socioeconomic characteristics of the audience are the same as before, indicating that it is difficult to attract new visitors: to appreciate online museums services or just to consume cultural products and services, consumers need social and cultural capital and previous experience. Therefore, museums and policymakers need to understand how to attract the non-visitors. It is difficult to assess if people loved online museums services during Covid-19. On the one hand, the desire and the curiosity to know more about them and to be evolved in the activities developed by museums seems to be there. On the other hand, consumers behaviour confirms that online museums services are not considered

substitutes of the authentic experience, thus validating what previously demonstrated by Evrard and Krebs (2018), according to which consumers agree with the fact that the two different practices are equivalent.

Museums should implement their services taking into account the specific needs of their mission and their audience (Slater and Narver, 1995; Kotler and Kotler, 1998; Thyne, 2000; Gainer and Padanyi, 2005; Woodside, 2005; Camarero and Garrido, 2007; Peacock and Brownbill, 2007; Sheng and Chen, 2012; Cesário, Petrelli and Nisi, 2020), thus looking at what defines consumer utility of digital museums. Finally, since it is ascertained that a demand for digital cultural products exists, museums need to improve their communication to the audience, in order to raise awareness about what they offer. In fact, respondents of the survey (30,06%) confirmed that, before museums closed because of COVID-19, they did not consume the online services delivered by museums because they did not know that many online art museums services existed. Improving communication can be a way to decrease the attribute of experience goods that characterizes cultural products and services, giving the opportunity to cultural managers to facilitate the access to their intangible assets to consumers.

Policymakers should be aware of the digital divide issue and they should take measures to increase the digital literacy of the country, which is lower than the rest of Europe (ITU, 2020), for instance taking example from other countries more successful in that field. Taking for instance the case of the Netherlands, looking at the Compendium Cultural Policies and Trends, an online database with in-depth information on cultural policies, statistics and trends, we know that in 2013 the Minister of Culture presented "Culture moves: the meaning of culture in a changing society" (Cultuur beweegt; de betekenis van cultuur in een veranderende samenleving*),* in which cultural education, talent development, creative industries, digitalization and social dialogue were defined as the main priorities for the period 2013-2016. According to the vision statement, everybody, irrespective of age, cultural background, income, place of residence, needs access to arts and culture (Compendium Cultural Policies and Trends, 2019). Therefore, in those years many initiatives have been undertaken and digitalization has continued to be considered extremely important also in the following years. For example, since 2017, the Digital Heritage Netherlands (DEN), has been working together with Dutch art institutions and other stakeholders to develop knowledge and methods on how digital technology can support art institutions in terms of artistic creation process, education, public outreach and heritage (Compendium Cultural Policies and Trends, 2019). In addition, in 2018, the importance of making culture accessible was again stressed by the Minister of Education, Culture and Science and extra investments (EUR 12 million for 2019 and 2020) were available

to improve the digital accessibility of heritage, archives and collections (Compendium Cultural Policies and Trends, 2019). For what concerns Italy, according to the Compendium Cultural Policies and Trends, one of the priorities of the Italian cultural policies is to safeguard the cultural heritage of the country through the use of digitalization. Consequently, Italy has developed many initiatives to promote digital cultural contents on the web. The country is on the front line in developing national, European and international projects that use new technologies to safeguard and catalogue artistic and historic property, along with promoting it through innovative networking and information and educational services for the tourists and the public (Compendium Cultural Policies and Trends, 2016). Therefore, it is visible that the digitization of the cultural heritage is already a priority and what is needed is the possibility for users to access that.

6.2. Limitations and Further Research

After having analysed the outcomes of my research, it is crucial to consider the shortcomings and the limitations of it. First of all, a quantitative analysis enables to easily make a comparison between different subjects of interest. Therefore, it would have been possible to compare Italy with other countries, delineating the differences and the similarities between the subjects investigated. The implementation of a comparison between different countries enables to catch the consumers' differences by looking at a larger and heterogenous pool of opinions and behaviours. Secondly, since this situation has never happened before, it would have been possible to conduct a quasi-experiment, a study that presents specific features of experimental designs but do not conform with all the required characteristics (Bryman, 2016). In particular, it would have been possible to conduct a study under conditions of a natural experiment, where independent variables change suddenly and substantially without being manipulated by the researcher (Bryman, 2016). However, since there is a lack of extensive research on online contents delivered by museums, it has not been possible to pursue this kind of study. Thirdly, the population investigated is largely composed of females with a high level of education, thus the sample may be skewed towards the female art conscious group. Fourthly, since this field of study is still emerging, there is not an established method to analyse and explore the online services delivered by museums. Therefore, I had to follow the NEMO report that does not have a strong methodology. In fact, as previously explained, it does not offer a harmonised metric for museum services online.

In conclusion, this thesis could be a starting point for future research in this field, allowing to investigate in more detail the opportunities and the challenges that museums front

in developing innovative digital products. Advancing other research on this topic would allow to create a more consistent field of study, to define better what consist the digital services delivered by museums. As a consequence of the limitations mentioned, future research could make a cross-country comparison and exploit the conditions of the situation developing a natural experiment. In addition, it would bring a great contribution to the research enlarging the size of the population investigated allowing to have more significant results. Another aspect on which future research could focus on regards the moment when museums will open again to the public, it would be interesting to see how the digital cultural consumption will change in the long term. In particular, studying if the percentage of people who composed the three categories "physical visitors", "virtual visitors" and "complete visitors" individuated by Evrard and Krebs (2018) has changed. Finally, future research could focus on the financing of the online museums services mentioned. In the NEMO report was already specified that services that require less money, skills and knowledge were developed more but it would be interesting to go more in depth into this topic.

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8. APPENDIX A: QUESTIONNAIRE

8.1. English version

Do you want to complete the survey in English or Italian?
□ English □ Italian

[At the beginning of the survey] The results from this survey will be used by Elisa Pellegrini as part of her master thesis within the program Cultural Economics and Entrepreneurship at the Erasmus University in Rotterdam. The aim of the thesis is to investigate the perspective of the audience in regards to the online services provided by art museums. When completing the survey, you are giving consent to use the results for the master thesis only. Participation is anonymous and you can quit the survey at any time. After completion of the thesis, results will be deleted. Only the thesis will be archived. It will take no more than 7 minutes to complete the survey. Your participation in this research is completely voluntary.
1. By checking 'Next', you are indicating that: you are at least 18 years of age; the research has been explained to you; and, you freely and voluntary choose to participate in this project research.
2. If you are not at least 18 years of age or do not agree with the terms of this survey, please exit the survey.
Thank you for your participation!
□ Next

1. How old are you?
□ 18-24 □ 25-34 □ 35-44 □ 45-54 □ 55-64 □ 65 or older

2. Which gender do you most identify with?
□ Male □ Female □ Other

3. What is your profession, or, if you are a student, what is your area of study?
—

4. What is the highest level of school you have completed or the highest degree you have received?

□ Less than high school degree

□ High school degree or equivalent

□ Some college but no degree

□ Associate degree (HBO)

□ Bachelor degree

□ Master degree

□ PhD degree

5. In which country do you currently live?

□ the Netherlands □ Italy □ Other, specify__

6. Before your country of residence closed museums, how frequently have you physically visited art museums in the last year?

□ Never

□ Once

□ 2-3 times

□ 4-5 times

□ More than 5 times

7. Before your country of residence closed museums, how frequently did you watch the content of museums online?

□ Every day

□ Several times a week

□ Once a week

□ 1-3 times a month

□ Less often

□ Never

7a. *[If the respondents answered "*Less often*" or "never" to question 7].* When thinking about the reasons you did not watch the content of museums online, please rate how much you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
I did not consider it entertaining							
I did not find useful information							
I did not considered it as the physical experience							
I did not know various online art museums services existed							
I preferred to spend my time doing other online leisure activities							

8. How often have you watched the content of museums online in the last month?

□ Every day

□ Several times a week

□ Once a week

□ 1-3 times a month

□ Less often

□ Never

9. *[If the answer is "every day", "several times a week", "once a week" or "1-3 times a month", "less often" in question 8]* Through which device are you watching content of museums online? (Multiple answers possible)

□ Laptop □ Smartphone □ Tablet □ Other, specify__

10. Please rate from 1 to 5 the online services provided by art museums (1 least favourite; 5 most favourite).

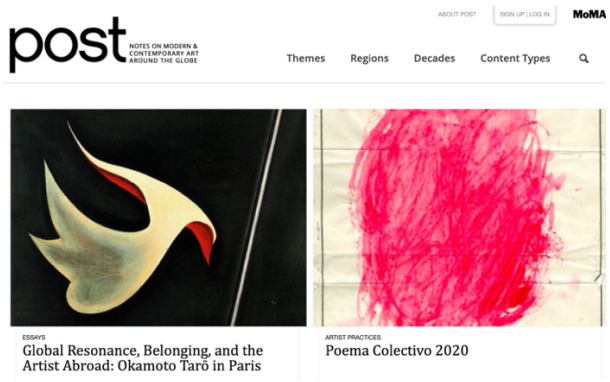
	1	2	3	4	5
Online collection					
Online exhibitions					
Virtual tours through the museum					
Live content (e.g. live museum tour, Instagram stories)					
Museum podcast					
YouTube programs					
Online learning programs					
Museums' social media					
Quizzes and contests					

11. Please rate from 1 to 5 why you watch the content of museums online (1 strongly disagree; 5 strongly agree).

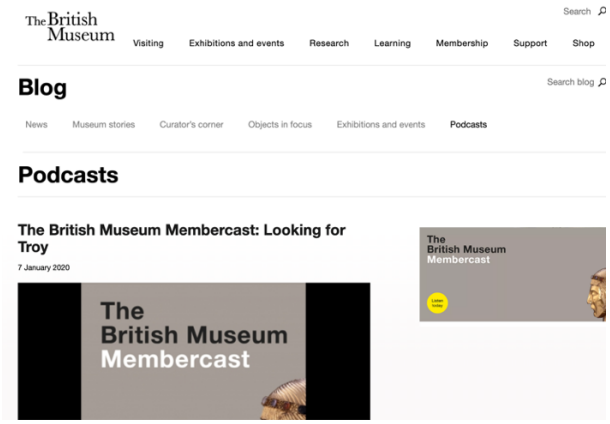
	1	2	3	4	5
Relaxing activity					
Learn something new					
Look at art					
Be creatively inspired					
Have access to high quality pictures of artworks					
Visit a museum that I have never had the chance to visit before					
Conclude the physical visit of a museum I have already been to with the online experience					
Being updated with the news of a specific museum					
Test my knowledge on art history (e.g. test and quizzes)					
Learn directly from the experts of the field (e.g. online exhibition explained by its curator)					

12. In which way would you like to find out more about art online? (multiple answers possible)

□ Reading a blog post



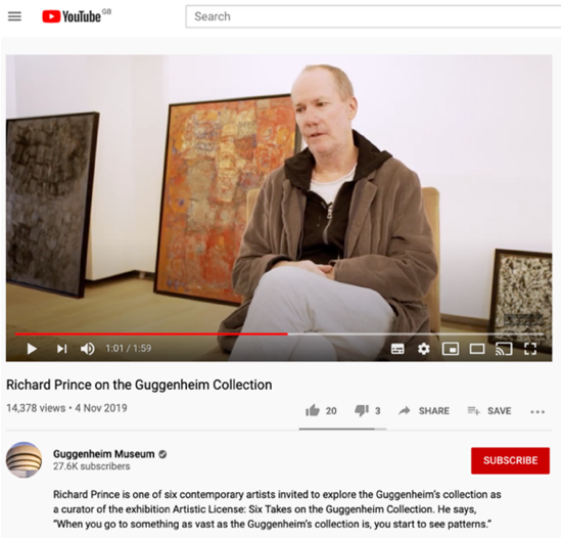
□ Listening to a podcast or to an artist or art expert talk



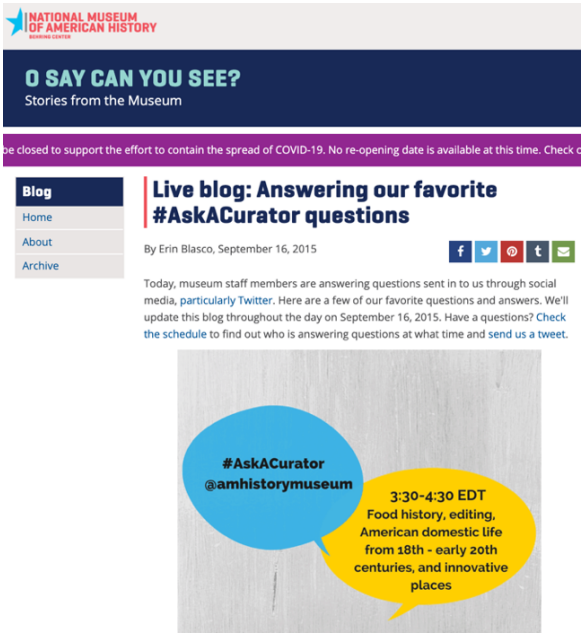
□ Playing a game

A 2009 PC/console game published by Majesco Entertainment and completely set at t Smithsonian Museum.

□ Watching a video of an artist or an art expert

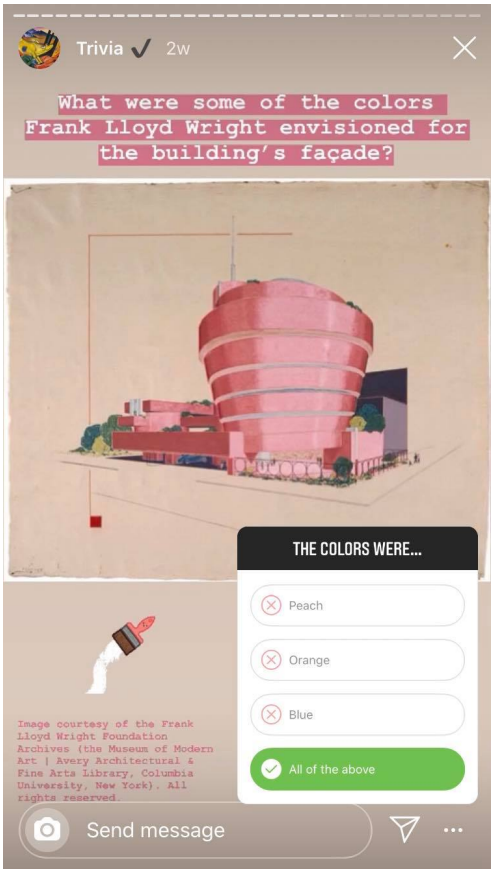


□ Ask questions to art experts



□ Actively participating, taking a photograph with the phone or drawing

□ Quizzes



13. Please rate from 1 to 5 what you miss the most from physically visiting a museum (1 you miss the less; 5 you miss the most).

	1	2	3	4	5
Enjoy the experience with other people					
Guided tours and other leaning experiences					
Walk in the museum rooms					
Look at the artworks in person					
Sketching in front of the artworks					
Visit the archives of the museum					
Disconnect from the outside world (e.g. not looking at the smartphone)					
Going to conferences organized by the museum					
Buy souvenirs from the museum shop					
Eating in the museum cafeteria					

14. Please rate from 1 to 5 which online leisure activities you have been doing during your free time since your country of residence closed museums (1 done least often; 5 done most often).

	1	2	3	4	5
Reading online news sites/newspapers/ magazines					
Listening to the radio					
Listening to music					
Listening to podcasts					
Watching online movies and/or online TV series					
Watching TV					
Playing games, interactive or not					
Reading or looking at cultural blogs					
Putting cultural content in your own website or blog					

15. Because of the COVID-19 outbreak, museums are closed and you cannot invite your favourite person to go to a museum physically together. Imagine you would give him/her a museum related gift: what that would be? ___

16. Imagine that for a day you would administer the online services of a museum. What would you implement? What service would you chose and what would you do? ___

[At the end of the survey] Thank you for participating in my survey! Your feedback is important. If you want a copy of the thesis please leave your email: __

8.2. Italian version

Do you want to complete the survey in English or Italian?
□ English □ Italian

[At the beginning of the survey] I risultati di questo questionario saranno utilizzati da Elisa Pellegrini per la sua tesi di laurea del Master Cultural Economics and Entrepreneurship dell'Università Erasmus di Rotterdam. Lo scopo della tesi è indagare il punto di vista del pubblico in merito ai servizi online forniti dai musei d'arte. Completando il questionario si dà il consenso ad utilizzare i risultati solo per la tesi di laurea. La partecipazione è anonima ed è possibile abbandonare il questionario in qualsiasi momento. Dopo il completamento della tesi, i risultati del questionario verranno eliminati e verrà archiviata solo la tesi. Ci vorranno non più

di 7 minuti per completare il questionario. La partecipazione a questa ricerca è completamente volontaria.
1. Selezionando "Avanti", stai indicando che: hai almeno 18 anni; la ricerca ti è stata spiegata; e, liberamente e volontariamente, scegli di partecipare a questa ricerca.
2. Se non hai almeno 18 anni o non sei d'accordo con i termini di questo sondaggio, ti preghiamo di uscire dal sondaggio.
Grazie per la tua partecipazione!
□ Avanti

1. Quanti anni hai?
□ 18-24 □ 25-34 □ 35-44 □ 45-54 □ 55-64 □ 65+

2. In quale genere ti definisci di più?
□ Maschio □ Femmina □ Altro

3. Qual è la tua professione o, se sei studente, qual è la tua area di studio?
__

4. Qual è il livello più alto di educazione scolastica che hai completato o il diploma più recente che hai ottenuto?
□ Scuola primaria o scuola secondaria di primo grado
□ Diploma di scuola secondaria di secondo grado (maturità)
□ Altri tipi di diploma post scuola secondaria di secondo grado
□ Laurea triennale
□ Laurea magistrale
□ Dottorato di ricerca

5. In quale paese vivi al momento?
□ Paesi Bassi □ Italia □ Altro, specifica__

6. Prima che il tuo paese di residenza chiudesse i musei, con quale frequenza hai visitato fisicamente i musei d'arte nell'ultimo anno?
□ Mai
□ Una volta

□ 2-3 volte

□ 4-5 volte

□ Più di 5 volte

7. Prima che il tuo paese di residenza chiudesse i musei, con quale frequenza guardavi il contenuto dei musei online?

□ Ogni giorno

□ Diverse volte alla settimana

□ Una volta a settimana

□ 1-3 volte al mese

□ Meno frequentemente

□ Mai

7a. *[If the respondents answered "1-3 volte al mese", "meno frequentemente",* or *"mai" to question 7].* Quando pensi ai motivi per cui non hai guardato il contenuto dei musei online, valuta quanto sei d'accordo o in disaccordo con le seguenti dichiarazioni.

	In completo disaccordo	In disaccordo	In qualche modo in disaccordo	Né d'accordo né in disaccordo	In qualche modo d'accordo	D'accordo	Completamente d'accordo
Non lo considero divertente							
Non vi trovo informazioni utili							
Non lo considero equiparabile all'esperienza fisica							
Non sapevo esistessero diversi contenuti online offerti dai musei							

Preferisco occupare il mio tempo con altre attività ricreative							

8. Con quale frequenza hai guardato il contenuto dei musei online nell'ultimo mese?

□ Ogni giorno

□ Diverse volte alla settimana

□ Una volta a settimana

□ 1-3 volte al mese

□ Meno frequentemente

□ Mai

9. *[If the answer is "ogni giorno", "diverse volte alla settimana", "una volta alla settimana", "1-3 volte al mese" or "meno frequentemente" in question 8]* Attraverso quale dispositivo guardi i contenuti dei musei online? (sono possibili più risposte)

□ Computer □ Telefono □ Tablet □ Altro, specifica__

10. Dai un punteggio da 1 a 5 ai servizi online forniti dai musei d'arte (1 meno preferito; 5 più preferito).

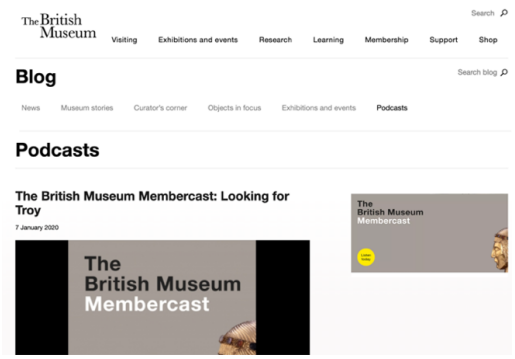
	1	2	3	4	5
Collezione online					
Mostre online					
Tour virtuali nel museo					
Contenuti live (e.g. tour del museo live; storie di Instagram)					
Podcast					
Video su YouTube					
Programmi di apprendimento online					
Social media					
Quiz e concorsi					

11. Dai un punteggio da 1 a 5 alle ragioni per cui guardi il contenuto online dei musei (1 fortemente in disaccordo; 5 fortemente d'accordo).

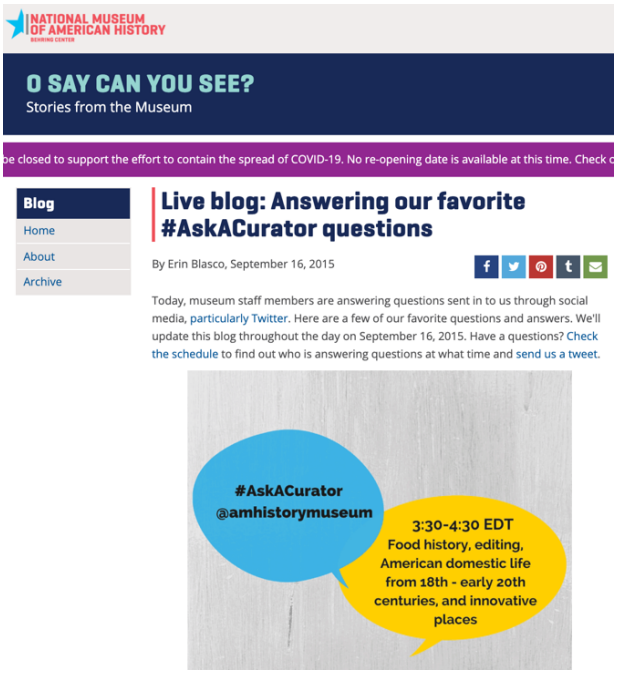
	1	2	3	4	5
Attività rilassante					
Imparare qualcosa di nuovo					
Guardare dell'arte					
Lasciarsi ispirare creativamente					
Avere accesso a immagini ad alta qualità di opere d'arte					
Visitare un museo che non ho mai avuto la possibilità di visitare prima					
Concludere la visita fisica di un museo in cui sono già stato/a con l'esperienza online					
Essere aggiornato sulle novità che riguardano uno specifico museo					
Mettere alla prova le mie conoscenze sulla storia dell'arte (e.g. test e quiz)					
Imparare direttamente dagli esperti del settore (e.g. mostra online spiegata dal suo curatore)					

12. Attraverso quale strumento digitale vorresti saperne di più sull'arte? (sono possibili più risposte)

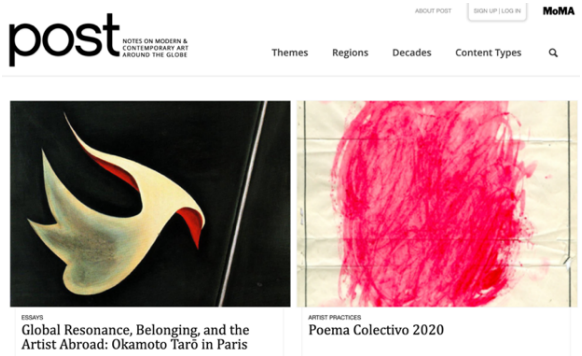
□ Ascoltare un podcast o un discorso di artisti o esperti d'arte



□ Fare domande a degli esperti d'arte



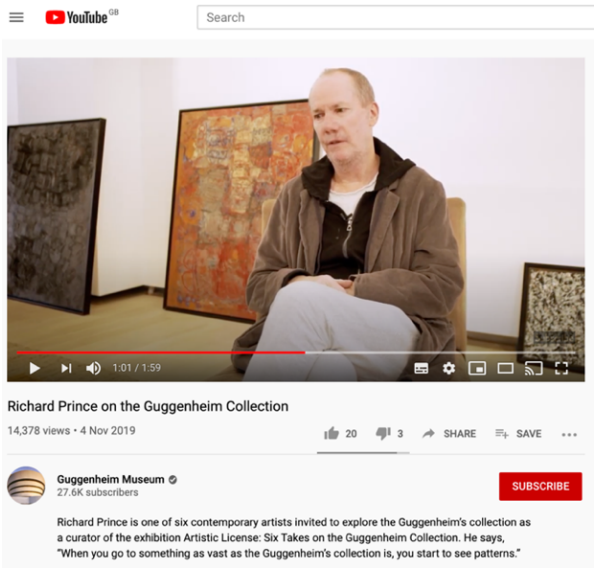
□ Leggere un articolo di un blog



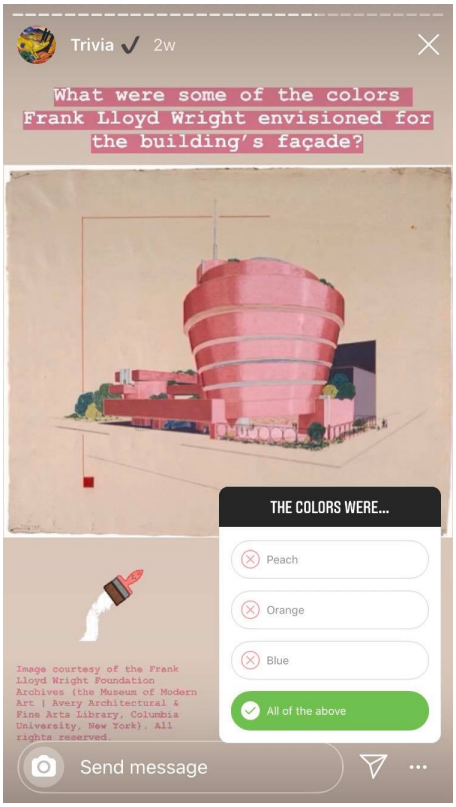
□ Giocare

A 2009 PC/console game published by Majesco Entertainment and completely set at Smithsonian Museum.

□ Guardare un video di un artista o di un esperto d'arte che parla



□ Rispondere a dei quiz



□ Partecipare attivamente, scattando una foto con il telefono o disegnando

13. Dai un punteggio da 1 a 5 sugli aspetti che ti mancano di più nel visitare fisicamente un museo (1 ti manca di meno; 5 ti manca di più).

	1	2	3	4	5
Godersi l'esperienza con altre persone					
Tour guidati e altre esperienze di apprendimento					
Camminare nelle sale di un museo					
Guardare le opere d'arte di persona					
Disegnare di fronte alle opere d'arte					
Visitare gli archivi dei musei					
Disconnettersi dal mondo esterno (e.g. non guardando il telefono durante la visita al museo)					
Andare alle conferenze organizzate dai musei					
Comprare souvenirs al negozio del museo					
Mangiare alla caffetteria del museo					

14. Dai un punteggio da 1 a 5 alle attività di svago online che hai svolto durante il tuo tempo libero da quando il tuo paese di residenza ha chiuso i musei (1 svolta meno spesso; 5 svolta più spesso).

	1	2	3	4	5
Leggere online le notizie/il giornale/riviste					
Ascoltare la radio					
Ascoltare la musica					
Ascoltare dei podcasts					
Guardare film e/o serie televisive online					
Guardare la televisione					
Giocare (più o meno interattivamente)					
Leggere o guardare blog culturali					
Inserire contenuti culturali nel proprio sito web o blog					

15. A causa della pandemia di COVID-19, i musei sono chiusi e non puoi invitare la tua persona preferita ad andare fisicamente a visitare un museo. Immagina di potergli/le dare un regalo legato al museo: quale sarebbe? ___

16. Immagina di poter gestire i servizi online di un museo per un giorno. Cosa implementeresti? Quale servizio sceglieresti e cosa faresti? ___

[At the end of the survey] Grazie per aver partecipato al mio sondaggio! Il tuo feedback è importante. Se vuoi una copia della tesi lascia la tua email: __

9. APPENDIX B: TABLES

Table 16. Demographic and socioeconomic characteristics of the population investigated in relation to its frequency of viewing contents of museums online before Italy closed museums.

		Frequency of viewing contents of museums online **before** Italy closed museums (Percent)						
		Every day	Several times a week	Once a week	1-3 times a month	Less often	Never	Total
Gender	Male	0	41,7	11,1	18,5	36,2	29	29,8
	Female	100	58,3	88,9	81,5	63,8	71	70,2
Total		100	100	100	100	100	100	100
Age	18-24	100	58,3	33,3	14,8	24,6	29,9	28,4
	25-34	0	16,7	11,1	25,9	21,7	28	24,4
	35-44	0	8,3	0	14,8	18,8	15,9	15,6
	45-54	0	0,0	0	3,7	13	7,5	8
	55-64	0	8,3	44,4	40,7	20,3	15	20,4
	65+	0	8,3	11,1	0	1,4	3,7	3,1
Total		100	100	100	100	100	100	100
Profession /Area of study	Clerks	0	0	22,2	11,1	7,2	11,2	9,8
	Elementary occupations	0	0	0	0	1,4	0,9	0,9
	Legislators, senior officials and managers	0	25	22,2	14,8	36,2	32,7	30,7
	Physical, mathematical, engineering science, health professionals	0	16,7	11,1	3,7	15,9	29	20,4
	Teachers and other professionals[1]	100	50	44,4	51,9	33,3	17,8	29,8
	Other	0	8,3	0	18,5	5,8	8,4	8,4
Total		100	100	100	100	100	100	100
Education	Basic	0	0	0	3,7	1,4	2,8	2,2
	Intermediate	0	25	33,3	37	20,3	27,1	26,2
	Tertiary	100	75	66,7	59,3	78,3	70,1	71,6
Total		100	100	100	100	100	100	100

[1] (business, social science, creative or performance art, architecture, journalism).

Table 17. Demographic and socioeconomic characteristics of the population investigated in relation to its frequency of viewing contents of museums online after Italy closed museums.

		Frequency of viewing contents of museums online **after** Italy closed museums						
		Every day	Several times a week	Once a week	1-3 times a month	Less often	Never	Total
Gender	Male	0	20	20	31	31,8	35,4	29,8
	Female	100	80	80	69	68,2	64,6	70,2
Total		100	100	100	100	100	100	100
Age	18-24	66,7	40	36	27,6	18,2	26	28,4
	25-34	0	12	24	13,8	36,4	27,1	24,4
	35-44	0	0	4	24,1	18,2	19,8	15,6
	45-54	0	8	4	3,4	9,1	10,4	8
	55-64	33,3	36	28	31	13,6	13,5	20,4
	65+	0	4	4	0	4,5	3,1	3,1
Total		100	100	100	100	100	100	100
Profession /Area of study	Clerks	0	8	8	10,3	9,1	11,5	9,8
	Elementary occupations	0	0	0	3,4	0	1	0,9
	Legislators, senior officials and managers	16,7	16	16	31	29,5	39,6	30,7
	Physical, mathematical, engineering science, health professionals	0	12	20	13,8	22,7	25	20,4
	Teachers, other professionals[2]	66,7	48	56	37,9	25	15,6	29,8
	Other	16,7	16	0	3,4	13,6	7,3	8,4
Total		100	100	100	100	100	100	100
Education	Basic	16,7	0	0	0	4,5	2,1	2,2
	Intermediate	0	28	40	31	25	22,9	26,2
	Tertiary	83,3	72	60	69	70,5	75	71,6
Total		100	100	100	100	100	100	100

[2] (business, social science, creative or performance art, architecture, journalism).

Table 18. Demographic and socioeconomic characteristics of people who never visited the online contents of museums and knew various online art museums services existed.

		People who never visited the online contents of museums and knew various online art museums services existed (Percent)
Gender	Female	65,71
	Male	34,29
Total		100,00
Age	18-24	20,00
	25-34	22,86
	35-44	17,14
	45-54	11,43
	55-64	28,57
	65+	0,00
Total		100,00
Profession /Area of study	Clerks	17,14
	Elementary occupations	0,00
	Legislators, senior officials and managers	17,14
	Teachers, other professionals (business, social science, creative or performance art, architecture, journalism)	42,86
	Physical, mathematical, engineering science, health professionals	20,00
	Other	2,86
Total		100,00
Education	Basic education	2,86
	Intermediate education	31,34
	Tertiary education	65,71
Total		100,00

Table 19. Types of services preferred by respondents who have not consumed museums online services in the last months and knew about them, according to their age.

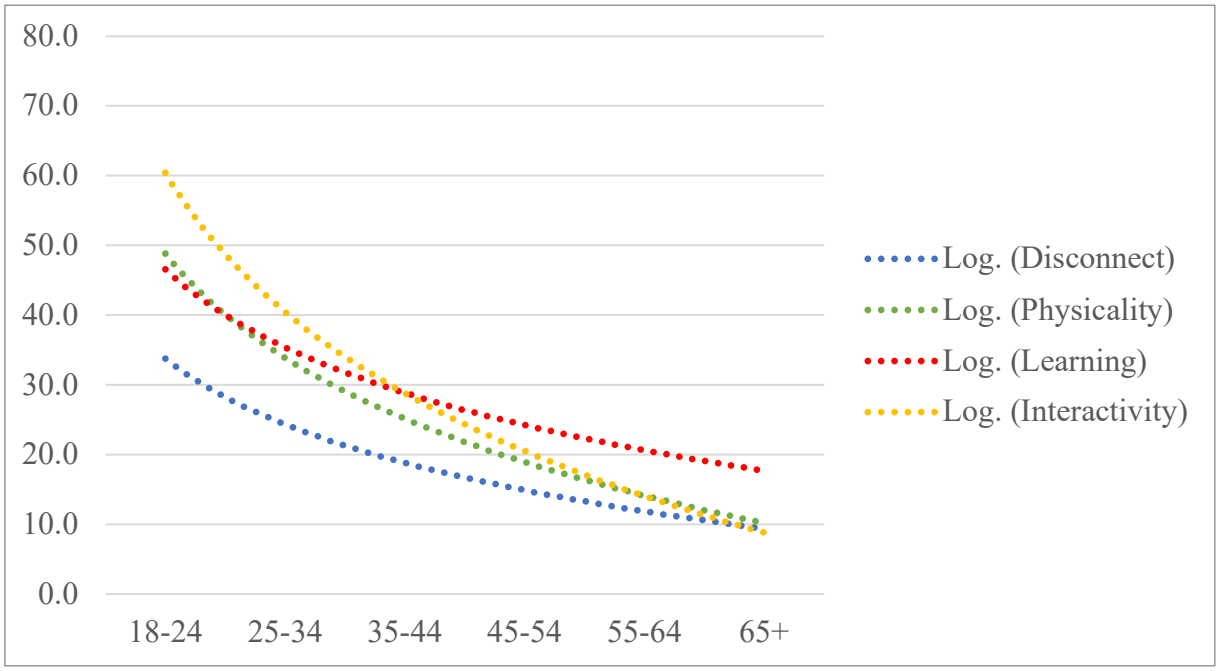


Table 20. Museum related gift proposed by respondents.

		Percent
Museum related gift	Ticket for physical exhibition	22,4
	Book	14,8
	Postcard (both physical both digital)	11,4
	I don't know	9,7
	Catalogue (both physical both digital)	9,3
	Virtual tour	6,3
	Poster	5,9
	Photo (both physical both digital)	5,9
	Souvenir (T-shirt, puzzle, shoppers, pencils, fridge magnets, mugs, bookmark, notebook)	5,1
	Guided tour (private and personalized)	3,0
	Subscription	1,3
	Lecture	1,3
	Cafeteria	1,3
	Video	1,3
	Draw	0,8
	Letter	0,4
Total		100,0

Figure 21. Type of services preferred by respondents according to their frequency of visiting content of museums online.